



جامعة الناصر  
AL-NASSER UNIVERSITY

## Pharmacy Program specification document

2012

### Pharmacy program specification document

Program Identification and General Information:		
1	Name of Program:	Pharmacy
2	Academic degree granted by the (program certificate):	Bachelor of Pharmacy
3	The total credit hours for granting the (qualification degree):	189 credit hours
4	The body responsible for granting the academic degree university:	Al-Nasser University
5	Name of the college to which the program belongs:	Faculty of Medical Sciences
6	Name of the department to which the program belongs:	Department of Pharmacy
7	Number of years of study in the program:	years 5
8	Study system in the program:	Semester system (5 years with a )total of 10 semesters and field training
9	Professions/professions to which the program is intended to join:	Pharmacist
10	Language of study in the program:	English - Arabic
11	Qualification required to join the program:	High school science
12	Scientific departments participating in the implementation of the program:	None
13	External auditor/external auditors: (if any)	Dr. Hilal Al Qobati
14	Date of Last Approval of the Program Specification Document:	2012

Head of Pharmacy Department  
Dr. Yaser Al-Madhagi

Dean of Medical Science  
Prof. AbdulkarimAlzomor

Chancellor  
Prof. Abdullah Tahish

<b>University Vision, Mission, and Aims:</b>
<b>University Vision:</b>
Local leadership, regional excellence, and keeping abreast of global scientific and research developments
<b>University Mission:</b>
Providing scientific and research services that contribute to providing the community with effective competencies capable of competition and creativity locally and regionally
<b>Aims of the University:</b>
The university aims to: <ul style="list-style-type: none"> <li>1. Providing an appropriate scientific environment to prepare graduates with skilled, scientific and practical competencies who have the ability to self- and continuous learning.</li> <li>2. Developing and improving academic programs in accordance with quality and accreditation standards and serving the community.</li> <li>3. Assisting colleges in developing and improving the performance of their academic and administrative members to serve the quality of educational, research, and administrative processes.</li> <li>4. The best operation of the available human and material resources, the creation of opportunities and financial resources to serve the educational process, and the improvement of the infrastructure to ensure the achievement of the vision and mission of the university.</li> <li>5. Expanding relations and partnerships with other universities, institutions, research centers, and the labor market to provide better service to society.</li> </ul>

<b>Faculty Vision, Mission and Aims:</b>
<b>Faculty Vision:</b>
Leadership locally and excellence regionally in pharmaceutical sciences
<b>Faculty Mission:</b>
Seeking to provide the community with qualified, scientifically and research-trained medical cadres that contribute to community service and are able to compete locally and regionally
<b>Aims of the Faculty:</b>

### The Faculty aims to:

1. Providing an appropriate scientific and research environment to prepare qualified and trained medical cadres.
2. Promoting community service and community partnership in the field of health and environmental development.
3. Updating programs and courses in accordance with the standards of academic accreditation and developing the skills of faculty members in the scientific and research field
4. Developing the physical and human infrastructure of the collage
5. Developing student skills and activities, continuous self-learning and problem-solving

### Department Mission and Aims:

#### Department Mission:

The Department of Pharmacy seeks to enhance pharmaceutical education to provide the community with qualified graduates who are able to innovate and compete at the local and regional levels and build an educational and research environment to meet the needs of the community.

#### Department Aims:

The pharmacy department aims to:

1. Updating and developing study plans in line with the labor market and community needs
2. Providing advanced and distinguished education to graduate qualified professional and research pharmacists.
3. Building an appropriate educational and research environment for pharmaceutical education and production.
4. Serving governmental and private civil society organizations that are related to the pharmaceutical field.

### Program Mission and Aims:

#### Program Mission:

Preparing qualified, scientifically and research-trained pharmacists who are committed to professional ethics and self-learning, and are able to serve the community and compete in the local and regional labor market, through a invotive educational environment and effective partnership, to meet the labor market needs.

### Program Aims:

The program aims to:

1. Preparing scientifically and practically qualified pharmacists with the ability to work efficiently in the various fields of pharmacy and meet local and regional competition.
2. Providing the invotive environment to conduct outstanding scientific research in the pharmaceutical field that serves the community.
3. Providing students with scientific, practical and research knowledge and skills in the fields of pharmaceutical sciences.
4. Providing students with communication skills with others, in addition to the skill of self-learning and lifelong learning.
5. Encouraging various pharmaceutical activities that serve the community.

Graduate attributes:

1. Manufacture, prepare, and dispense medicines legally, ethically, and in accordance with guidelines
2. Identifying and solving problems related to the patient's medicines related to the manufacture, distribution, and dispensing of medicines
3. Demonstrate leadership and perform necessary pharmaceutical administrative duties
4. Cooperating with pharmacists, workers in the pharmaceutical fields, and healthcare providers in providing high-quality pharmaceutical services
5. Apply basic research skills related to pharmaceutical sciences
6. using modern information technologies for continuous learning, improving professional skills and community services
7. communicating effectively with patients, pharmaceutical workers, health care providers, and community members with full respect for cultural diversity

### Program Standards & Benchmarks:

#### Academic Standards :

1. Standards Council for Academic Accreditation and Quality Assurance Yemen
2. Australian Accreditation Standards for Pharmacy Programme.
3. National academic standards for pharmacy in Egypt

#### Appendix (1) Academic Standards for Content

#### Benchmarks:

Six pharmacy programs from the following universities:

1. University of Nicosia, UNIC (Greece).
2. Umm Al-Qura University, King Saudi Arabia.
3. University of Sharjah, U.A.E.
4. Hacettepe University, Turkey.
5. Memorial University, Canada.

6. Pharos University, Egypt.
<ul style="list-style-type: none"> <li>• Appendix (2) Clear the names of programs similar to the current program.</li> <li>• Appendix (3) Survey of learning outcomes in programs similar to the current program.</li> <li>• Appendix (4) Survey of credit hours for programs similar to the current program.</li> <li>• Appendix (5) Survey of courses in programs similar to the current program</li> </ul>

Intended Learning Outcomes (ILOs):	
<b>A.Knowledge and Understanding:</b>	
After successful completion of the program, the graduate will be able to:	
<b>A1-</b>	Recognize the principles of basic, management, health, environmental sciences, ethics and pharmacy law.
<b>A2-</b>	Illustrate the importance of chemistry and basic sciences to pharmaceutical sciences.
<b>A3-</b>	Explain the fundamentals of physicochemical properties of various substances of natural and synthetic origin used in the preparation of medicines including inactive and active ingredients as well as biotechnology and radio-labeled products.
<b>A4-</b>	Describe principles of pharmacology, pharmaceutical, pharmacy practice, clinical pharmacy, pharmacokinetics, and biopharmaceutics with applications in therapeutic drug monitoring, dose modification, and bioequivalence studies using biotechnology techniques.
<b>A5-</b>	Identify the toxic profile of drugs and other xenobiotics including sources, identification, symptoms, management control and first aid measures.

<b>B.Intellectual Skills:</b>	
After successful completion of the program, the graduate will be able to:	
<b>B1-</b>	Apply basic pharmaceutical knowledge in the formulation of safe and effective medicines as well as in the development of new drug delivery systems and dispensing the medicament.
<b>B2-</b>	Use the knowledge of biotechnology principles in the development of new products.
<b>B3-</b>	Design and evaluate qualitative and quantitative analytical and biological methods for quality control of pharmaceutical preparations
<b>B4-</b>	Select the appropriate industrial methods of extraction, isolation, purification, identification, standardization to formulation of natural products.

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### C. Professional and Practical Skills:

After successful completion of the program, the graduate will be able to:

<b>C1</b>	Handle and dispose of chemicals, microbiological and pharmaceutical preparations including radiopharmaceuticals safely and effectively.
<b>C2</b>	Operate different equipment and instruments
<b>C3</b>	Use emerging technologies and implement GLP and GMP guidelines in pharmacy practice.
<b>C4</b>	Carry out laboratory tests for different pharmacy related sciences.

### D. General Skills:

After successful completion of the program, the graduate will be able to:

<b>D1 -</b>	communicate clearly with patients and other health care professionals by verbal and written means.
<b>D2 -</b>	keep effectively in a team or individually
<b>D3-</b>	Demonstrate creativity and time management abilities
<b>D4-</b>	element writing and presentation skills.
<b>D5-</b>	Have critical thinking and decision-making abilities and life-long learning.

**Appendix (6) Aligning program objectives with learning outcomes.**

**Appendix (7) Aligning the learning outcomes of the program with the reference standards for scientific control.**

### Intended Learning Outcomes (PILOs)

#### A - Knowledge and Understanding

After successful completion of the program, the graduate will be able to:		Teaching and learning strategies	Assessment Methods
<b>A1</b>	Recognize the principles of basic, management, health, environmental sciences, ethics, and pharmacy law.	*Lecture *seminar	*Written exams

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<b>A2</b>	Illustrate the importance of chemistry and basic sciences to pharmacy sciences.		<b>*Oral exams</b>
<b>A3</b>	Explain the fundamentals of physicochemical properties of various substances of natural and synthetic origin used in the preparation of medicines including inactive and active ingredients as well as biotechnology and radio-labeled products.		<b>*Seminar evaluation</b>
<b>A4</b>	Describe principles of pharmacology, pharmaceutical, pharmacy practice, clinical pharmacy, pharmacokinetics and biopharmaceutics with applications in therapeutic drug monitoring, dose modification, and bioequivalence studies using biotechnology techniques.		
<b>A5</b>	Identify the toxic profile of drugs and other xenobiotics including sources, identification, symptoms, management control, and first aid measures.		
<b>B - Intellectual Skills</b>			
After successful completion of the program, the graduate will be able to:		<b>Teaching and Learning strategies</b>	<b>Assessment Methods</b>
<b>B1</b>	Apply basic pharmaceutical knowledge in the formulation of safe and effective medicines as well as in the development of new drug delivery systems and dispensing the medicament.	<b>- Critical thinking and problem solving</b>	<b>Discussion Oral questions</b>
<b>B2</b>	Use the knowledge of biotechnology principles in the development of new products.	<b>Brainstorming</b>	
<b>B3</b>	Design and evaluate qualitative and quantitative analytical and biological methods for quality control of pharmaceutical preparations		
<b>B4</b>	Select the appropriate industrial methods of extraction, isolation, purification, identification, and standardization to the formulation of natural products.		
<b>C - Professional and Practical Skills</b>			
After successful completion of the program, the graduate will be able to:		<b>Teaching and learning strategies</b>	<b>Assessment Methods</b>



<b>C1</b>	Handle and dispose of chemicals, microbiological and pharmaceutical preparations including radio-pharmaceuticals safely and effectively.	<b>Labs</b>	<b>Homework</b> <b>Lab exams</b>
<b>C2</b>	Operate different equipment and instruments		
<b>C3</b>	Use emerging technologies and implement GLP and GMP guidelines in pharmacy practice.		
<b>C4</b>	Carry out laboratory tests for different pharmacy-related sciences.		

### D- General Skills

<b>After successful completion of the program, the graduate will be able to:</b>		<b>Teaching and learning strategies</b>	<b>Assessment Methods</b>
<b>D1</b>	Communicate clearly with patients and other health care professionals by verbal and written means.	Oral exams Seminar Homework	Discussions, seminars, and assignments
<b>D2</b>	Work effectively in a team or individually		
<b>D3</b>	Demonstrate creativity and time management abilities		
<b>D4</b>	Implement writing and presentation skills.		
<b>D5</b>	Have critical thinking and decision-making abilities and life-long learning.		

### Intended Learning Outcomes Mapping:

- Appendix (8) The main and sub-fields of the program and their relative weights
- Appendix (9) Aligning the learning outcomes with the scientific content areas of the program and the courses it covers.
- Appendix (10) Matrix for the placement of learning outcomes of the program in courses (curriculum map).

<b>Program Structure</b>			
<b>Requirements</b>		<b>CreditHours</b>	<b>weight %</b>
<b>University Requirements</b>	compulsory	12	6.35%
	optional		
<b>Faculty Requirements</b>	compulsory	31	16.4%

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	optional		
Program Requirements	compulsory	146	77.25%
	optional		
Total of Credit Hours		<b>189</b>	<b>100%</b>

### Distribution of courses according to the requirements of the program

#### University Requirements (12 credit hours)

Pre-Requisites Code	level/semester	Credit Hours				Code/NO.	Course Title	
		Total hour	Tut.	Pr.	Th.			
	first/first semester	2		--	2	<b>B11101</b>	Arabic Language 1	<b>1</b>
	first/the first semester	2		--	2	<b>B11103</b>	English Language I	<b>2</b>
	First / first semester	2		1	1	<b>B11106</b>	Computer	<b>3</b>
<b>B11101</b>	first / second semester	2		--	2	<b>B11102</b>	Arabic Language 2	<b>4</b>
<b>B11103</b>	First/ Second semester	2		--	2	<b>B11104</b>	English Language II	<b>5</b>
	First / second semester	2		--	2	<b>B11105</b>	Islamic Culture	<b>6</b>
		<b>12</b>	<b>--</b>	<b>1</b>	<b>11</b>	<b>Total of Credit Hours</b>		

#### 2.Faculty Requirements(31 credit hours)

Pre-	level/sem	Credit Hours	Code/ NO.	Course Title
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Requisites Code	ester	total x. M	Tut.	Pr.	Th.			
	first / the first semester	3		1	2	B11111	General Biology	1
	First / the second semester	2		--	2	B11112	Psychology	2
Co-B11103	First / the first semester	2		--	2	B11113	Medical Terminology	3
	Second / the first semester	2		--	2	B11143	First Aid	4
B11142	Second / the first semester	3		1	2	B11214	Physiology I	5
B11214	Second / the second semester	3		1	2	B11215	Physiology II	6
B11111	Third / the first semester	4		1	3	B11316	Biochemistry I	7
B11316	Third/ the second semester	4		1	3	B11317	Biochemistry II	8
	Fourth // the first semester	2		--	2	B11341	Community Health	9

	Fourth / the second semester	2			2	B11418	Research Methodology	10
	First / the second semester	2			2	B11518	Biostatistics	11
	First / the second semester	2			2	B11481	Pharmacy Management	12
		31	--	5	26	Total of Credit Hours		

### 3. Program Requirements (146 credit hours)

#### Compulsory Courses(146 credit hours)

Pre- Requisites Code	level/sem ester	Credit Hours				Code/ NO.	Course Title	
		tot al x. M	Trn.	Pr.	Th.			
	First / the first semester	3		1	2	B11122	General Chemistry I	.1
	First / the second semester	3		1	2	B11123	General Chemistry II	.2
	First / the first semester	3		1	2	B11121	Medical Physics	3

B11111	Second / the first semester	3		1	2	B11142	Human Anatomy	.4
	First / the first semester	2			2	B11151	Introduction to Pharmacy	.5
	First / the second semester	2		--	2	B11152	Mathematics (Calculus)	.6
B11123	Second / the first semester	3		1	2	B11224	Analytical Chemistry I	.7
B11224	Second / the second semester	3		1	2	B11225	Analytical Chemistry II	.8
B11123	Second / the first semester	3		1	2	B11231	Pharmaceutical Organic Chemistry I	.9
B11231	Second / the second semester	3		1	2	B11232	Pharmaceutical Organic Chemistry II	10
B11142	Second / the second semester	3		1	2	B11244	Histology	11
B11111	Third / the first semester	4		1	3	B11245	Pharmaceutical Microbiology I	.12

	Second // the first semester	3		1	2	<b>B11253</b>	Pharmaceutic I (Physical pharmacy)	.13
<b>B11252</b>	Second / the second semester	3		1	2	<b>B11254</b>	Pharmaceutics II	.14
<b>B11111</b>	Second / the second semester	3		1	2	<b>B11271</b>	Botany	.15
<b>B11271</b>	Third / the first semester	4		1	3	<b>B11272</b>	General Pharmacognosy I	.16
<b>B11225</b>	Third / the first semester	3			3	<b>B11326</b>	Instrumental Analysis	.17
<b>B11232</b>	Third / the first semester	3		1	2	<b>B11333</b>	Pharmaceutical Organic Chemistry III	.18
<b>B11333</b>	Third / the second semester	3		1	2	<b>B11334</b>	Pharmaceutical Organic Chemistry IV	.19
<b>B11245</b>	Third / the second semester	4		1	3	<b>B11346</b>	Pharmaceutical Microbiology II	.20
<b>B11111</b>	Fourth / the second semester	3		1	2	<b>B11347</b>	Parasitology	.21
<b>B11254</b>	Third / the first semester	3		1	2	<b>B11355</b>	Pharmaceutics III	.22

<b>B11355</b>	<b>Third/ the second semester</b>	3		1	2	<b>B11356</b>	Pharmaceutics IV	.23
<b>B11215</b>	<b>Third / the first semester</b>	3		--	3	<b>B11361</b>	Pharmacology I	.24
<b>B11361</b>	<b>Third/ the second semester</b>	3			3	<b>B11362</b>	Pharmacology II	.25

<b>B11272</b>	<b>Third / the second semester</b>	4		1	3	<b>B11373</b>	General Pharmacognosy II	.26
<b>B11373</b>	<b>Fourth / the first semester</b>	4		1	3	<b>B11374</b>	Phytochemistry I	.27
<b>B11334</b>	<b>Fourth / the first semester</b>	3		1	2	<b>B11435</b>	Medicinal Chemistry I	.28
<b>B11435</b>	<b>Fourth / the second semester</b>	3		1	2	<b>B11436</b>	Medicinal Chemistry II	.29
<b>B11244</b>	<b>Fourth / the first semester</b>	3		--	3	<b>B11448</b>	Pathology	.30
<b>B11317</b>	<b>Fourth / the first semester</b>	2		--	2	<b>B11457</b>	Biopharmaceutics & Pharmacokinetics I	.31
<b>B11475</b>	<b>Fifth / the second semester</b>	4		--	4	<b>B11476</b>	Applied Pharmacognosy II	.32
<b>B11456</b>	<b>Fourth / the second semester</b>	2		--	2	<b>B11459</b>	Biopharmaceutics & Pharmacokinetics II	.33
<b>PHR326</b>	<b>Fourth / the first semester</b>	3			3	<b>B11463</b>	Pharmacology III	.34

<b>B11463</b>	<b>Fourth / the second semester</b>	3		--	3	<b>B11464</b>	Pharmacology IV	.35
	<b>Fourth / the second semester</b>	3		1	2	<b>B11465</b>	Toxicology	.36
<b>B11362</b>	<b>Fourth / the second semester</b>	4		1	3	<b>B11475</b>	Phytochemistry II	.37
<b>B11475</b>	<b>Fifth / the first semester</b>	4		--	4	<b>B11476</b>	Applied Pharmacognosy I	.38

	<b>Fifth / the first semester</b>	2		--	2	<b>B11527</b>	Communication Skills and Marketing	.39
<b>B11436</b>	<b>Fifth / the first semester</b>	3		1	2	<b>B11537</b>	Medicinal Chemistry III	.40
<b>B11464</b>	<b>Fifth / the first semester</b>	3			3	<b>B11567</b>	Clinical Pharmacy I	.41
<b>B11567</b>	<b>Fifth / the second semester</b>	3			3	<b>B11568</b>	Clinical Pharmacy II	.42
<b>B11481</b>	<b>Fifth / the second semester</b>	3		--	3	<b>B11582</b>	Hospital Pharmacy	.43
<b>B11355</b>	<b>Fifth / the first semester</b>	3			3	<b>B11585</b>	Industrial Pharmacy I	.44
	<b>Fifth / the second semester</b>	3		--	3	<b>B11586</b>	Quality Control and Quality Assurance	.45
<b>B11464</b>	<b>Fifth / the first semester</b>	3		--	3	<b>B11587</b>	Community Pharmacy	.46

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<b>B11584</b>	<b>Fifth / the second semester</b>	3		--	<b>3</b>	<b>B11588</b>	Industrial Pharmacy II	.47
<b>B11418</b>	<b>Fifth / the second semester</b>	2		2	--	<b>B11589</b>	Graduation Project	.48
		<b>146</b>		<b>29</b>	<b>117</b>	<b>Total of Credit Hours</b>		

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### Study Plan

<b>First Year: First Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	Introduction to Pharmacy	B11151	2	--		2	
2	General Chemistry I	B11122	2	1		3	
3	General Biology	B11111	2	1		3	
4	Medical Physics	B11121	2	1		3	
5	English Language I	B11102	2	--		2	
6	Computer	B11103	1	1		2	
7	Arabic Language I	B11101	2	--		2	
8	Medical Terminology	B11113	2	--		2	<b>B11102</b>
<b>Total of Credit Hours</b>			<b>15</b>	<b>4</b>		<b>19</b>	

<b>First Year: Second Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	General Chemistry II	B11123	2	1'		3	<b><u>B11122</u></b>
2	Mathematics (Calculus)	B11152	2			2	
3	Arabic Language II	B11104	2	--		2	<b><u>B11101</u></b>
4	Biostatistics	B11518	2			2	
5	Islamic Culture	B11106	2	--		2	
6	English Language II	B11105	2	--		2	<b>B11102</b>
7	Psychology	B11112	2	--		2	

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8	Pharmacy Management	B11481	2	--		2	
<b>Total of Credit Hours</b>			<b>16</b>	<b>1</b>		<b>17</b>	

<b>Second Year: First Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	Analytical chemistry I	B11224	2	1		3	B1123
2	Pharmaceutics I (Physical pharmacy)	B11253	2	1		3	B11252
3	Human Anatomy	B11142	2	1		3	B11111
4	Physiology I	B11214	2	1		3	B11142
5	Pharmaceutical Organic Chemistry I	B11231	2	1		3	B11123
6	First Aid	B11143	2	--		2	
<b>Total of Credit Hours</b>			<b>12</b>	<b>5</b>		<b>17</b>	

<b>Second Year: Second Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	Pharmaceutical Organic Chemistry II	B11232	2	1		3	B11231
2	Analytical Chemistry II	B11225	2	1		3	B11224
3	Pharmaceutics II	B11254	2	1		3	B11253
4	Physiology II	B11215	2	1		3	B11214
5	Histology	B11244	2	1		3	B11142
6	Botany	B11271	2	1		3	B11111
<b>Total of Credit Hours</b>			<b>12</b>	<b>6</b>		<b>18</b>	

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<b>Third Year: First Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	Pharmaceutics III	B11355	2	1		3	<b>B11254</b>
2	Biochemistry I	B11316	3	1		4	<b>B11111</b>
3	Pharmaceutical Microbiology I	B11245	3	1		4	<b>B11111</b>
4	General Pharmacognosy I	B11272	3	1		4	<b>B11271</b>
5	Pharmacology I	B11361	3	--		3	<b>B11215</b>
6	Instrumental Analysis	B11326	3			3	<b>B11225</b>
7	Pharmaceutical Organic Chemistry III	B11333	2	1		3	<b>B11232</b>
<b>Total of Credit Hours</b>			<b>19</b>	<b>5</b>		<b>24</b>	

<b>Third Year: Second Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	Pharmaceutics IV	B11356	2	1		3	
2	Biochemistry II	B11317	3	1		4	<b>B11316</b>
3	Pharmaceutical Microbiology II	B11346	3	1		4	<b>B11245</b>
4	General Pharmacognosy II	B11373	3	1		4	<b>B11272</b>
5	Pharmaceutical Organic Chemistry IV	B11334	3			3	<b>B11333</b>

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6	Pharmacology II	B11362	3			3	<b>B11361</b>
<b>Total of Credit Hours</b>			17	4		21	

<b>Forth Year: First Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	Medicinal Chemistry I	B11435	2	1		3	<b><u>B11334</u></b>
2	Pharmacology III	B11463	3			3	<b>B11362</b>
3	Biopharmaceutics & Pharmacokinetics I	B11457	2	--		2	<b>B11317</b>
4	Phytochemistry I	B11374	3	1		4	<b>B11373</b>
5	Pathology	B11448	3	--		3	<b>B11244</b>
6	Community Health	B11341	2	--		2	
<b>Total of Credit Hours</b>			15	2		17	

<b>Forth Year: Second Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Pre- Requested	
		Theoretical	Practical	Training	Total C.H.		
1	Medicinal Chemistry II	B11436	2	1		3	<b><u>B11435</u></b>
2	Pharmacology IV	B11464	3	--		3	<b>B11463</b>
3	Biopharmaceutics & Pharmacokinetics II	B11459	2	--		2	<b>B11456</b>
4	Phytochemistry II	B11475	3	1		4	<b>B11374</b>
5	Toxicology	B11465	2	1		3	<b>B11464</b>

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6	Parasitology	B11347	2	1		3	B1111
7	Research Methodology & Biostatistics	B11518	2	--		2	
<b>Total of Credit Hours</b>			16	4		20	

<b>Fifth Year: First Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Total C.H.	Pre- Requested
		Theoretical	Practical	Training			
1	Medicinal Chemistry III	B11537	2	1		3	B11436
2	Community Pharmacy	B11587	3			3	B11464
3	Clinical Pharmacy I	B11567	3			3	B11464
4	Industrial Pharmacy I	B11585	3			3	B11355
5	Communication Skills and Marketing	B11527	2	--		2	
6	Applied Pharmacognosy I	B11476	4	--		4	B11475
<b>Total of Credit Hours</b>			17	1		18	

<b>Fifth Year: Second Semester</b>							
Courses Titles	Code / No	CREDIT HOURS				Total C.H.	Pre- Requested
		Theoretical	Practical	Training			
1	Quality Control and Quality Assurance	B11586	3	--		3	
2	Hospital Pharmacy	B11582	3	--		3	B11481
3	Clinical Pharmacy II	B11568	3			3	B11567

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4	Applied PharmacognosyII	B11476	4	--		4	B11475
5	Industrial Pharmacy II	B11588	3	--		3	B11584
6	Graduation Project	B11589	--	2		2	B11518
<b>Total of Credit Hours</b>			16	2		18	

Total credit hours and their percentage							
Level	Semester	U R	FR	PR	training	Total C.H	
First	First	6	5	8		19	36
	Second	6	6	5		17	
Second	First	--	5	12		17	35
	Second	--	3	15		18	
Third	First	--	4	20		24	45
	Second	--	4	17		21	
Fourth	First	--	2	15		17	37
	Second	--	2	18		20	
Fifth	First	--		18		18	36
	Second	--	--	18		18	
<b>Total credit hours</b>		12	31	146		189	
<b>%</b>		6.35	16.4	77.25		100%	

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### Program admission requirements

**In order for a student to be accepted into the program, the following is required:**

1. Obtaining a general secondary certificate in the percentage of the scientific section determined by the Ministry.
2. personal interview.
3. ID card and passport photos.
4. Pay the registration fee.

### Requirements for moving between levels and graduating from the program:

#### See Student Affairs Regulations

1. Course policies explain what the student must know in order to complete the course and therefore the program
2. In the courses and succeed in all subjects %75The student must attend at least.
3. The student ascends to a higher level if he succeeds in all the courses or fails in less than Courses in The academic year.The student completes all courses successfully
4. That the student is committed to attending the field training, which is considered one of the graduation requirements that the student cannot graduate without.
5. Any ministerial or university decision issued with this item.

### Teaching and learning resources related to the program

Books and references are required for the program. A list of these books and references is available at the end of each course description.

In addition to the presence of the Internet in the college, it is possible to obtain some research and books.

### Tools and equipment needed to implement the program

For equipment from practical laboratories and chemicals for conducting experiments, see Appendix No. for laboratory equipment, which includes:

- Study reference
- Internet service
- different display devices
- Equipped laboratories and laboratories
- Electronic library



<b>Program evaluation and improvement</b>		
<b>Targeted</b>	<b>Assessment method</b>	<b>Sample</b>
Final year students	evaluation form	All students are in the final level
Alumni	questionnaires	Graduates for more than six months
Employers	questionnaires	Hospitals and medical laboratories
Program evaluator	evaluation document	resident or two
Faculty members	poll	All faculty members

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# First year

## First semester

## Course Specification of Introduction to Pharmacy

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Introduction to Pharmacy				
2	Course Number and Code:	<b>B11151</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	-	-	-	2
4	Study level/year at which this course is offered:	First Semester/First Year				
5	Pre –requisite :	None				
6	Co –requisite :	None				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Nawal Ali AL-Zandani and Alzomor				
10	Approved By:					

II. Course Description:
This course will introduce the basic concepts in pharmaceutical science. This includes; history of pharmacy, development of pharmacy, pharmaceutical dosage forms, pharmacy profession and pharmaceuticals.

III. ILOs:
<p>At the end of this course, student must be able to:</p> <ol style="list-style-type: none"> <li>1. Recognize the principles of basic pharmaceutical science and symbols.</li> <li>2. Distinguish the importance of pharmaceutical science.</li> <li>3. Explain physico-chemical properties of various substances used in preparation of medicines including inactive and active ingredients.</li> <li>4. Compare between the old pharmacy and modern pharmacy.</li> <li>5. Create basic pharmaceutical knowledge to the development of new pharmaceutical preparations.</li> <li>6. Investigate the prescription and determine the medication errors</li> </ol>

7. Choose the pharmaceutical terms and use them correctly.
8. Prescribe the different types of pharmaceutical dosage form.
9. Perform accurate calculations in the pharmacy.
10. Communicate clearly on the main topics in this course.
11. Implement writing and presentation skills
12. Demonstrate critical thinking and decision making abilities and life-long learning.

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course, student must be able to:	Lectures and seminars	Quizzes, Written exam, short answers and homework. Participation
a1 - Recognize the principles of basic pharmaceutical science		
a2- Distinguish the importance of Pharmaceutical science.		
a3- Explain physico-chemical properties of various substances used in preparation of medicines including inactive and active ingredients.		
(B)Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
At the end of this course, student must be able to:	Lectures, Discussions, solving problem	Oral presentation, criteria-based performance evaluation Interpretative Exercises
b1- Compare between the old pharmacy and modern pharmacy.		
b2-Create basic pharmaceutical knowledge to the development of new pharmaceutical preparations.		
b3- Investigate the prescription and determine the medication errors,		
(C)Professional and Practical Skills.		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
At the end of this course, student must be able to:		



c1-Choose the pharmaceutical terms and use them correctly.	Lectures and Group assignments	reports and presentations based on their managerial skills
c2-Prescribe the different types of pharmaceutical dosage form.		
c3- Perform accurate calculations in the pharmacy.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<b>Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills</b> At the end of this course, student must be able to:	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
d1-Communicate clearly on the main topics in this course.	-Small group discussions -Microassignments	Reports, presentations andcommunication with the lecturer and his colleagues.
d2-Implement writing and presentation skills		
d3- Demonstrate critical thinking and decision making abilities and life-long learning.		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	HistoryOf Pharmacy and development of pharmacy	-Introduction to history of pharmacy -Symbols: the mortar and pestleandrecipere.Others. -Drug development and discovery of active constituents, -Development of industrial pharmacy. -Role of old civilization; -Egyptian civilization -Greek civilization	5	10	a1, a2, a3, b1, b2, c1, c2, , d2., d3

		-Roman civilization -Arabian civilization -Europe civilization			
2	Pharmaceutical Sciences	-Medicinal chemistry and Pharmacognosy, Pharmacy practice, clinical pharmacy	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2,
3	Midterm Exam		1	2	a1, b1, b3, c1, c3
4	pharmaceutical dosage forms	-Definitions, examples of pharmaceutical dosage forms. -Dosage form design, selection of the proper dosage forms, -Routes of drug administration. -Types of pharmaceutical dosage forms, advantages and disadvantage.	3	6	a1, a2, b1, b2, c1, c2, d1.
5	Pharmacopoeia and Pharmacy profession	- Definition and types - objective and types - Pharmaceutical abbreviations - Pharmaceutical terminology -Definitions and history. -The field of Pharmacy: -Profession ethics	1	2	a2, a3, b3, c2, d1, d3.
6	Final exam	exam	1	2	a1, a2, a3, b1, b2, b3c1, c2, c3, d1, d2,
Number of Weeks)/per semester			12	24	
VI. Teaching Strategies:					
-Lectures and seminars -Solving Problem method and discussion					

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	Assignment	a1-a3, b1-b3, d1-d2	9	5

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	9	5	5%	a1-a3, b1-b3, d1-d2
2	Quizzes and class activity	all	5	5%	a1, a2, b3, c3
3	Mid Exam (theoretical)	7	30	30%	a1, a2, b1, b3, c1, c3,
4	Final Exam (theoretical)	13	60	60%	a1, a2, a3, b1, b3, c1, c3, d1, d2
Total				100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Bond, Christine, (2000). <i>Evidence-based pharmacy</i> .Pharmaceutical Press, Fifth ed. London. 2- Ruth E. Nermire, Karen L. Kier, McGraw Hill, 2009. Pharmacy student Survival Guide, Secondedition.
2-Recommended Books and Reference Materials.	
	1- Arthur J. Winfield, R. Michael E., Richards; 2009. Pharmaceutical practice, Fourthedition, Churchill Livingstone. 2- Williams and Wilkins, 2005. Pharmaceutical calculations, 12thedition, Lippincott. 3- Loyd v. Allen, Nicholas G. Popovich and Haward C. Ansel's, 2004. Pharmaceutical dosage forms and drug delivery Systems, Lippincott Williams and Wilkins.
3-Electronic Materials and Web Sites etc.	
	1- <a href="http://www.ashp.org/doclibrary/bestpractices/managementpositions.aspx">http://www.ashp.org/doclibrary/bestpractices/managementpositions.aspx</a> 2- <a href="http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html">http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html</a> 3- <a href="http://betterpharmacytech.com/about-us/pms/">http://betterpharmacytech.com/about-us/pms/</a>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>





5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of General Chemistry I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	General Chemistry I				
2	Course Number and Code:	B11122				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	First semester/First year				
5	Pre –requisite :	None				
6	Co –requisite :	None				
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	English/Arabic				
9	Prepared by:	Dr. Abdulmajed Alsaifi				
10	Approved by:					

### II. Course Description:

This course will enhance the student's knowledge of chemistry it will cover some basic definitions and units of measurement, atomic structure, electronic structure of atoms, periodic properties of the elements, chemical formulas and chemical equations, chemical bonding, Lewis structure and molecular geometry.

### III. ILOs:

At the end of the course, the students will be able to:

1. Recognize the basic principles of general chemistry, and use scientific units of measurement.
2. Identify the arrangement of elements in the periodic table, and classification of elements.
3. Illustrate the types of chemical reactions and the physical laws governing these reactions
4. Describe several types of chemical bonds and geometrical shapes of the molecule.

5. Distinguish between the different chemical reactions and chemical bonds.
6. Interpret the periodic properties of the elements.
7. Analyze data, and clearly express results in a laboratory report.
8. Use the periodic table to get important chemical information and trends.
9. Write the formulas of compounds and chemical equations.
10. Apply stoichiometry in chemical reactions: Mole-mass-number relationships
11. Perform a selection of basic laboratory procedures in general chemistry.
12. Work effectively both in a team, and independently on solving problems.
13. Use internet and search for information.
14. Communicate effectively with his teacher and colleagues.

#### IV. Intended learning outcomes (ILOs) of the course:

##### (A) Knowledge and Understanding:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
By the end of the course, students will be able to:	Lectures using data show, video, homework, and class discussion	Quizzes, Written exam, short answers and homework. Participation.
a1 Recognize the basic principles of general chemistry, and use scientific units of measurement.		
a2 Identify the arrangement of elements in the periodic table, and classification of elements.		
a3 Illustrate the types of chemical reactions and the physical laws governing these reactions		
a4- Describe several types of chemical bonds and geometrical shapes of the molecule.		

##### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods.</i>
On completing this course, students will be able to:	Lectures, practice session, discussions, solving problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises
b1- Distinguish between the different chemical reactions and chemical bonds.		
b2- Interpret the periodic properties of the elements.		
b3- Analyze data, and clearly express results in a laboratory report.		



b4-Use the periodic table to get important chemical information and trends.				
<b>(C)Professional and Practical Skills:</b>				
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:				
<b>Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills</b>		<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>	
By the end of the course, students will be able to:		Lectures, laboratory work, directed reading, independent study and group assignments.	Practical works, practical reports and presentations based on their experimental work.	
c1- Write the formulas of compounds and chemical equations.				
c2- Apply stoichiometry in chemical reactions: Mole-mass-number relationships				
c3-Perform a selection of basic laboratory procedures in general chemistry.				
<b>(D)General/ Transferable Skills:</b>				
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.				
<b>Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills</b>		<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>	
By the end of the course, students will be able to:		Small group discussions, tutorials practical classes and micro assignments	Reports, presentations and communication with the lecturer and his colleagues.	
d1 Work effectively both in a team, and independently on solving problems.				
d2 Use internet and search for information.				
d3 Communicate effectively with his teacher and colleagues.				

<b>V. Course Content:</b>					
Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	CILOs



1	<p>Introduction and Some definitions and Units of Measurements:</p> <ul style="list-style-type: none"> <li>• Matter</li> <li>• Physical and chemical properties physical and chemical changes,</li> <li>• Intensive and extensive properties,</li> <li>• Energy changes.</li> <li>• Units, SI system and Measurements and significant figures:</li> </ul>	<ul style="list-style-type: none"> <li>• atom, element, compound, mixture.</li> <li>• The basic units in SI system. conversion, significant figures, rules of significant figures.</li> </ul>	2	4	a1, a2, b3, c2
2	<p>Atomic Structure: Atoms and their component Atomic and Mass Number, Isotopes, Mole, Avogadro's number and the Mole and molecular weight</p> <ul style="list-style-type: none"> <li>• Periodic table:</li> <li>• Cations and anions</li> <li>• Writing formula from ions</li> <li>• Naming Chemical Compounds</li> </ul>	<ul style="list-style-type: none"> <li>• Historical, modern periodic table, Groups and Periods</li> <li>• Ionic, Covalent (molecules), and oxoacid compound (Compound containing mono and polyatomic ions).</li> </ul>	2	4	a2, a3, a4, c2
4	<p>Electronic Structure of Atoms and Periodic Table</p> <ul style="list-style-type: none"> <li>• Electronic structure</li> <li>• Orbitals and Quantum Numbers:</li> <li>• The Energies of Orbitals</li> <li>• Electron Configuration</li> <li>• Writing Electron Configuration</li> </ul> <p>Electron Configuration and the Periodic Table</p>	<ul style="list-style-type: none"> <li>• Principal quantum number, the azimuthal quantum number, the magnetic quantum number, and the spin quantum number</li> </ul>	2	4	a1, a2, b2, b3, c2
5	Mid Exam		1	2	a1, a2, a3, a4, b2, b3



6	<p>Periodic Properties of the Elements</p> <ul style="list-style-type: none"> <li>• Explaining The Behavior of Elements Through Atomic Properties</li> <li>• The Halogens</li> </ul>	<ul style="list-style-type: none"> <li>• Atomic Size, Ionization Energy, Electron Affinity, Electronegativity, Metallic Characters</li> <li>• Oxidizing Agents, Acidic, Basic and Amphoteric Properties</li> </ul>	2	4	a1, a2, a3, a4, b2, b3, c2
7	<p>Chemical Formulas and Chemical Equations</p> <ul style="list-style-type: none"> <li>• Chemical formulas:</li> <li>• Percent composition</li> </ul> <p>Determine the Empirical formula from a percent composition</p> <ul style="list-style-type: none"> <li>• Empirical formula and molecular formula</li> <li>• Balance the chemical equation</li> <li>• Chemical Equations Calculations based on Chemical Equations</li> <li>Classifying Chemical Reactions</li> </ul>	<p>Empirical, molecular, and structure formulas. Reduction, combination, decomposition, displacement and metathesis reactions</p>	2	4	a1, a2, a3, b2, b3, c2



	<p>Chemical Bonding, Lewis structure and Molecular Geometry</p> <ul style="list-style-type: none"> <li>• Lewis Dot Formulas of Atoms</li> <li>• Formation of Ionic bonding and Covalent Bonding</li> <li>• Lewis Formulas for Molecules and Polyatomic Ions</li> <li>• The Octet Rule</li> <li>• Resonance</li> <li>• Limitations of the Octet Rule for Lewis Formulas</li> <li>• Polar and Nonpolar Covalent Bonds</li> <li>• Dipole Moments</li> <li>• Formula charge</li> <li>• Molecular Structure and Covalent Bonding Theories</li> <li>• Valence Bond (VB) Theory</li> </ul>	<ul style="list-style-type: none"> <li>• Valence Shell Electron Pair Repulsion (VSEPR) Theory</li> <li>• Polar Molecules: The Influence of Molecular Geometry</li> <li>• Valence Bond (VB) Theory</li> </ul>	3	6	a1, a2, a3, b2, b3, c2
8	Final Exam		1	2	a1, a2, a3, a4, b2, b3
			15	30	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	CILOs
1	Identification of Anions: Carbonate and bicarbonate-sulfur salts-Halides-cyanogen salts-arsenic and phosphorous salts-and other miscellaneous salts	2	6	b1-b3, c1-c3, d1, d3
2	Identification of Cations: Silver group - copper/arsenic group - Iron group - Zinc group - alkaline earth group - alkali group.	3	9	b1-b3, c1-c3, d1, d3
3	Systematic analysis : of cations and anions in simple inorganic mixtures.	2	6	b1-b3, c1-c3, d1, d3

4	Systematic analysis: of cations and anions in mixture containing difficulties, e.g. phosphate organic matter, oxidizing agent, insoluble substances and mixture of related acid radicals.	3	9	b1-b3, c1-c3, d1, d3
	Final Exam	1	3	b1-b3, c1-c3, d1, d3
Number of Weeks/and Units Per Semester		11	33	

#### VI. Teaching Strategies:

- Lectures using data show, video animation and seminars
- Solving Problem method, Laboratory work, directed reading, independent study and discussion

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	Micro assignment	a1-a4, b1-b3, d1- d3	9	5

#### VIII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	ALL	5	5 %	a1-a4, b1-b3, d1- d3
2	Practical reports	1-10	10	10 %	b1, c1-c3, d1
3	Exercises and Home works and Quizzes	3, 6, 8, 10	5	5 %	a1, a2, a3, a4, b2, b3
4	Written Test (1)	7	10	10 %	a1, a2, a3, a4, b2, b3
5	Final Exam (theoretical)	15	50	50 %	a1, a2, a3, a4, b2, b3
6	Final Exam (practical)	10	20	20 %	b1, c1-c3, d1
	Total		100	100 %	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. Whitten, Davis, Peck, and Stanley, *General Chemistry*, Thomson: Brooks Cole; 7th edition (2004)
2. Darrell D. Ebbing and Steven D. Gammon. *General Chemistry*. 9<sup>th</sup>2009Houghton Mifflin Company, BOSTON NEW YORK



2-Recommended Books and Reference Materials.	
	<p>1. Course Notes Handout Texts: Prepared by Satyajit D. Sarker and Lutfun Nahar. Chemistry for Pharmacy Students: General, Organic and Natural Product Chemistry. John Wiley and Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, 2007</p> <p>2. C.V.S. Subrahmanyam, Essentials of Physical Pharmacy, Published by Vallabh Prakashan (2005).</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1. <a href="http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm">http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm</a></p> <p>2. <a href="http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm">http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm</a></p> <p>3. <a href="http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm">http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm</a></p>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> </ul>



	<ul style="list-style-type: none"><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of English I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	English I			
2	Course Number and Code:	B11103			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	-	-	
4	Study level/year at which this course is offered:	First semester/ First year			
5	Pre –requisite :	None			
6	Co –requisite :	None			
7	Program (s) in which the course is offered:	Medical Laboratory			
8	Language of teaching the course:	English			
9	Prepared By:	Dr. Iman Al- Mahdi			
10	Approved By:				

II. Course Description:	
<p>The course is concerned with introducing medical Students to English language which is the medium of teaching in medical sciences. It provides students with additional and advanced grammatical structures and language functions needed for their study. It covers a wide range of scientific subjects, advanced grammatical structures specialist vocabulary and language functions.</p>	

III. ILOs:	
<p>After participating in this course students must be able to:</p> <ol style="list-style-type: none"> <li>1. Define English language in general.</li> <li>2. Recognize four skills of language.</li> <li>3. Describe grammars in English language</li> <li>4. Analyze English Grammar, writing, reading, with each lesson.</li> <li>5. Examine medical terms and prescriptions.</li> <li>6. Practice correct accent and pronunciation.</li> </ol>	

7. Search English books, references, medical dictionaries etc.
8. Explore and express English language with confidence.
9. Justify and comprehend English with ease.

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. After participating in this course students must be able to:	Teaching strategies to be used.	Assessment Methods.
a1- Define English language in general	Lectures with different topics in English language Grammar courses with relevant grammar usage. Oral communication with students	Quiz and questions in each class Grammar exercise using in the class Presentation in every week Homework Written exams
a2- Recognize four skills of language.		
a3- Describe grammars in English language.		
<b>(B) Intellectual Skills:</b>		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Intellectual Skills. After participating in this course students must be able to:	Teaching strategies to be used	Assessment Methods
b1- Analyze English Grammar, writing, reading, with each lesson.	Stories reading Creative writing Conversation. Reading, Using skimming Discussion and problem solving	Oral exam Quiz for skimming .
b2- Examine medical terms and prescriptions.		
<b>(C) Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills After participating in this course students must be able to:	Teaching strategies to be used	Methods of assessment
c2- Practice correct accent and pronunciation.	Lectures and Oral conversation in the class and group discussion.	Oral exam

	Communication between the teacher, students in the class	
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills After participating in this course students must be able to:	Teaching strategies to be used	Methods of assessment
d1- Search English books, references, medical dictionaries etc.	Reading, group discussion	Exams, Homework, Oral questions and quiz.
d2- Explore and express English language with confidence.		
d3- Justify and comprehend English with ease.		

<b>V. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Unit: 1 reading	Preventive medicine	2	4	a1, a2, b1, c1, d1
2	Unit: 2 Infectious Diseases.	Infection and how they spread.	2	4	a2, a3, b2, c1, d1, d2
3	Unit : 3 Fight infection and midterm exam	How the body fight infection	3	6	a1-a3, b1-b2, c1, d1-d3
4	Unit 4: Nutrition	Nutrition and balanced diet	2	4	a1-a3, b1-b2, c1, d1-d3
5	Unit 5: Malnutrition	Deficiency	2	4	a1-a3, b1-b2, c1, d1-d3
6	Unit: 6 Immunity	Immunization	2	4	a1-a3, b1-b2, c1, d1-d3
7	Final Exam		1	2	a1-a3, b1-b2, c1, d1-d3
Number of Weeks/and Units Per First semester4				28	

VI. Teaching Strategies:
Lectures, using diagrams, pictures and captions. Stories reading Creative writing Conversation. Group discussion. Reading, Using skimming Problem solving

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	Creative writing	b1-b2, c1, d1-d3	6	5

VIII. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Creative writing	6	5	5%	b1-b2, c1, d1-d3
2	Oral Tests	1-12	5	5%	a1-a3, b1-b2, c1, d1-d3
3	Written Test (1)	6	30	30%	a1-a3, b1-b2, c1, d1-d3
4	Final Exam (theoretical)	12	60	60%	a1-a3, b1-b2, c1, d1-d3
5	Totak		100	100%	

IX. Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>Amr Al Himairi, (2005), English for medical students, Sana'a University, Sana'a, Republic of Yemen</li> <li>Laquire Blass, (2005), Well read 1, Oxford University press.</li> </ol>
2- Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>Jack C. Richard, (2005), Person to Person Starter, Oxford University press.</li> <li>Mosby's (1989), Medical and Nursing Dictionary, second edition. Glotia Publication Pvt. Ltd.</li> </ol>
3- Electronic Materials and Web Sites <i>etc.</i>	

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X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## قالب توصيف مقرر اللغة العربية I

الجامعة: الناصر

الكلية: العلوم الطبية

القسم: صيدلة

البرنامج: صيدلة

I. General Information: معلومات عامة					
1	Course Title: اسم المقرر	اللغة العربية I			
2	Course Number and Code: رمز ورقم المقرر	B11101			
3	Credit hours: الساعات المعتمدة	س. م C.H			الإجمالي
		نظري	عملي	تطبيق	
		2			2
4	Study level/year at which this course is offered: الفصل /المستوى الدراسي الذي يدرس فيه المقرر	الفصل الاول، المستوى الأول.			
5	Pre-requisite : المقررات السابقة				
6	Co-requisite : المقررات المصاحبة				
7	Program (s) in which the course is offered: البرامج التي يدرس فيها المقرر	المختبرات			
8	Language of teaching the course: لغة تدريس المقرر	اللغة العربية			
9	Prepared By: اعداد	د. صادق الصلاحي			
10	Approved By: تم اقراره من				

II. Course Description: وصف المقرر	
يسعى هذا المقرر الي تزويد الطالب بالمهارات اللغوية كالاستماع والتحدث. حيث يشمل دراسة الجملة الاسمية، (أساسيات في النحو). بالإضافة الي لمحة مختصرة عن الأدب العربي عبر العصور، ابتداء من العصر الجاهلي إلى الأندلسي. كما سيتم التطرق الي بعض القواعد الإملائية وعلامات الترقيم.	

III. ILOs: مخرجات تعلم المقرر	
بعد الانتهاء من المقرر سيكون الطالب قادرا على ان:	
١ -	يصف مهارة التحدث وأهميتها.
٢ -	يشرح الجملة الاسمية وأركانها، وكيفية إعرابها.
٣ -	يميز مهارة الاستماع، ويتدرب عليها.
٤ -	يعدد الأدب العربي وانواعه، وعصوره.
٥ -	يحلل بعض المفردات العربية التي تصادفه أثناء المقرر.
٦ -	يطبق استخدام علامات الترقيم.
٧ -	يتعامل بمهارة اخلاقية مع مختلف المكونات.

IV. Alignment Learning Outcomes with Teaching and Assessment Methods: تسكين المخرجات مع طرق التدريس والتقييم		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods: تسكين مخرجات المعرفة والفهم مع طرق التدريس والتقييم		
Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. مخرجات المعرفة والفهم	Teaching strategies to be used. طرق التدريس	Assessment Methods. طرق التقييم
a1 يصف مهارة التحدث وأهميتها.	١ - المناقشة، والحوار أثناء الشرح والإلقاء	حل التدريبات المتعلقة بالدرس الامتحانات
a2 يشرح الجملة الاسمية وأركانها، وكيفية إعرابها.		
a3 يميز مهارة الاستماع، ويتدرب عليها.		
a4 يعدد الأدب العربي وانواعه، وعصوره.		
(B) Intellectual Skills: المهارات الذهنية		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods: تسكين مخرجات المهارات الذهنية مع طرق التدريس والتقييم		
Course Intended Learning Outcomes (CILOs) in Intellectual Skills. مخرجات المقرر في المهارات الذهنية	Teaching strategies to be used استراتيجيات التدريس	Assessment Methods طرق التقييم
b1 يحلل بعض المفردات العربية التي تصادفه أثناء المقرر.	- استراتيجية التواصل اللغوي. - استراتيجية التفكير البنائي. - استراتيجية التفكير الناقد.	بعض التدريبات والتكاليف الامتحانات
(C) Professional and Practical Skills: المهارات المهنية والعملية		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills مخرجات المقرر في المهارات المهنية والعملية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
c1 يطبق استخدام علامات الترقيم.	- استراتيجية حل المشكلات. - استراتيجية التفكير الناقد.	الامتحانات تدريبات وتكاليف
(D) General/ Transferable Skills: المهارات العامة والانتقالية		

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods. تسكين مخرجات العامة والانتقالية مع طرق التدريس والتقييم.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills مهارات المقرر العامة والانتقالية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
d1 يتعامل بمهارة اخلاقية مع مختلف المكونات.	- استراتيجيات التواصل اللغوي.	التدريبات والتكاليف

V. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order م سلسل	Topic/ unit الوحدة / الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسبوع	Contact hours الساعات الفعلية	C- ILOs مخرجات تعلم المقرر
1	أهمية تعلم اللغة العربية.	- ماهي اللغة - أهمية اللغة	1	2	a1, b1, d1
2	مهارات الاستماع وأهميتها وعوائقها.		1	2	a3, c1
3	مهارات الاستماع تطبيق وتقويم.		1	2	a3, c1
4	حل بعض التدريبات المتعلقة بهذه المهارة.		1	2	a3, c1
5	مهارات التحدث وأهميتها وقصص.		1	2	a1, a2, b1, c1, d1
6	أسس الخطاب الناجح.		1	2	a1, a2, b1, c1, d1
7	امتحان نصفي		1	2	a1, a2, b1, c1, d1
8	نماذج لبعض الطلاب الراغبين في الإلقاء.		1	2	a1, a2, b1, c1, d1
9	الجملة الاسمية وأركانها.	- صور المبتدأ. - صور الخبر.	1	2	a1, a2, b1, c1, d1
10	مراجعة، وتطبيقات على الجملة الاسمية.	أمثلة + تدريب على الإعراب.	1	2	a1, a2, b1, c1, d1
11	النواسخ كان + إن وأخواتها	حل الأمثلة وتحليلها.	1	2	a1, a3, b1, c1, d1
12	الأدب في العصر الجاهلي لمحة.		1	2	a1-a4, b1, c1, d1
13	الأدب في العصر الإسلامي والأموي.		1	2	a1-a4, b1, c1, d1
14	الأدب في العصر العباسي.		1	2	a1-a4, b1, c1, d1

15	الأدب في العصر الأندلسي		1	2	a1-a4, b1, c1, d1
16	امتحان نهائي		1	2	a1-a4, b1, c1, d1
Number of Weeks/and Units Per Semester عدد الاسابيع او الوحدات في الفصل الدراسي				32	

I. Teaching Strategies: استراتيجيات التدريس					
<ul style="list-style-type: none"> <li>- المناقشة، والحوار أثناء الشرح والإلقاء</li> <li>- استراتيجيات التواصل اللغوي.</li> <li>- استراتيجيات التفكير البنائي.</li> <li>- استراتيجيات التفكير الناقد.</li> <li>- حل المشكلات</li> </ul>					

I. Assignments and projects: الابداع والواجبات					
no	Assignment البحث	CILOs مخرج تعلم المقرر	Week Due الاسبوع	الدرجة Mark	
1	المهارات التفصيلية للاستماع.	a1-a4, b1, c1, d1	5	٥	
2	الشروء الذهني الاسباب والعلاج.		10		

VIII. Assessment Tasks: طرق التقييم					
no	Assessment Method طريقة التقييم	Week Due الاسبوع	الدرجة Mark	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	Aligned Course Learning Outcomes مخ رج التعلم الذي يحققه
1	بحث عن المهارات التفصيلية للاستماع الشروء الذهني الاسباب والعلاج.	5, 10	٥	٥%	a1-a4, b1, c1, d1
2	Quizzes اسئلة قصيرة	3, 6, 9, 14	٥	٥%	a1-a4, b1, c1, d1
3	Written Test (1) امتحان تحريري	7	٣٠	٣0%	a1-a4, b1, c1, d1
4	Final Exam (theoretical) امتحان نهائي (نظري)	16	٦٠	٦0%	a1-a4, b1, c1, d1
5	Total		100	100%	

IX. Learning Resources: مصادر التعلم					
1-Required Textbook(s) ( maximum two ). المراجع المطلوبة (بحد اقصى ٢).					
١- مجد الدين الفيروز آبادي، ١٩٩٨، القاموس المحيط، الطبعة الاولى، دار الفكر للطباعة والنشر، بيروت، لبنان.					

٢- د.محمد صالح الشنطي، ٢٠١٣م، المهارات اللغوية، الطبعة الأولى، دار الاندلس للنشر والتوزيع حائل، السعودية.
<b>2-Recommended Books and Reference Materials. المراجع الموصي بها.</b>
١- د.محمد عبدالله المحجري، ٢٠١٣م، المهارات اللغوية ، الطبعة الأولى، دار الكتب اليمنية للنشر ، صنعاء ، اليمن. ٢- د.صاقد الصلاحي، الوجيز في اللغة العربية. (مخطوط)
<b>3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت</b>
١- موقع اللغة العربية تعلماً وتعلماً. ٢- فنون اللغة العربية ٣- الموسوعة العربية العالمية دليل المهارات.

X. Course Policies: (including plagiarism, academic honesty, attendance etc) سياسات المقرر (يشمل السرقة الادبية وموثيق الشرف والحضور الخ)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to ----- بحسب لائحة جامعة الناصر لثئون الطلاب----	
1	<p><b>Class Attendance: حضور المحاضرات</b></p> <ul style="list-style-type: none"> <li>الالتزام بالمواعيد المحددة للمحاضرات والانتظام في الحضور، وضرورة حضور (٧٥٪) من ساعات المقرر.</li> <li>إذا تجاوز نسبة غياب الطالب (٢٥٪) من ساعات المقرر يعتبر محروماً في المقرر. إلا إذا كان غيابه بسبب مرض او بعذر قاهر تقبله عمادة الكلية، وبموجب وثائق رسمية ومعتمدة.</li> </ul>
2	<p><b>Tardy: التأخير</b></p> <ul style="list-style-type: none"> <li>يسمح للطالب المتأخر بدخول المحاضرة إذا تأخر في حدود ربع ساعة فقط وبعذر. وإذا تكرر تاخر الطالب اكثر من ثلاث مرات بدون عذر يتم تنبيهه واخذ تعهد كتابي بعدم تكرار ذلك مالم يستدعي ولى امره ويشعر بذلك ويمنع من حضور المحاضرات ويعتبر راسباً في المقرر.</li> </ul>
3	<p><b>Exam Attendance/Punctuality: حضور الامتحان والانضباط</b></p> <ul style="list-style-type: none"> <li>عدم السماح بدخول الامتحان بعد مرور أكثر من نصف ساعة من بدء الامتحان.</li> <li>لا يسمح للطالب الخروج من القاعة الامتحانية بعد توزيع الأسئلة إلا بعد مرور نصف وقت الامتحان.</li> <li>في حالة تغيب الطالب عن الامتحان بعذر مقبول يعاد له الاختبار بالدور الثاني بدرجة كاملة.</li> <li>يعتبر الطالب الغائب في اختبار نهاية الفصل راسباً في المقرر الذي تغيب فيه وعند اعادة الامتحان تحسب له الدرجة الصغرى (٥٠٪).</li> <li>يحرم الطالب من المقرر الذي اخل فيه بالنظام.</li> <li>في المقررات العملية اذا رسب الطالب في الجزء العملي او النظري يعتبر راسباً في المقرر وعليه اعادة الامتحان في الجزء الذي رسب به وتحسب له الدرجة الصغرى.</li> <li>يمنع استخدام الهواتف المحمولة اثناء الامتحان ويعتبر الطالب محروماً من المقرر اذا قام باستخدامه.</li> </ul>
4	<p><b>Assignments and Projects: الابحاث والمشاريع</b></p> <ul style="list-style-type: none"> <li>تقديم الابحاث والمشاريع في الوقت المحدد تماماً.</li> <li>إذا تأخر الطالب عن تقديم واجباته في الموعد الذي حدد له لن يقبل إلا إذا ما وافق الأستاذ على قبول التأخير، بناءً على ظروف قاهرة يتم شرحها والإعلان عنها خطياً قبل رفع درجات المقرر مالم يحرم الطالب من الدرجة المخصصة لهذا النشاط.</li> </ul>

5	<p><b>Cheating: الغش</b></p> <p>لن يتم التسامح مع الغش وهو: محاولة الطالب الغش بالحديث أو النظر في ورقة الغير أو الإشارة أو محاولة استخدام أية وسيلة من وسائل الغش.</p> <ul style="list-style-type: none"><li>■ الغش في الامتحان النصفى أو الشروع فيه يعتبر الطالب محروما من درجة الامتحان النصفى للمقرر.</li><li>■ الطالب الذي يغش في الامتحان النهائي يحرم من المقرر اذا لم يستفد من الغش او المقرر الذي غش فيه والذي يليه اذا استفاد من الغش. ويحرم من المقرر الذي غش فيه والمقرر الذي قبله اذا غش في اخر مقرر.</li><li>■ إذا تكرر غش الطالب أكثر من مرة في الدورة الامتحانية الواحدة يطبق عليه حكم الفصل من الدراسة لمدة عام جامعي او فصل نهائي اذا تكرر الغش لاكثر من مرتين.</li></ul>
6	<p><b>Plagiarism: الانتحال والسرقه الادبية</b></p> <ul style="list-style-type: none"><li>■ الطالب الناقل لأفكار الآخرين دون التوثيق يحرم من الدرجة ويعنف على فعلته تلك دون التشهير به أمام زملائه.</li><li>■ الطالب المنتحل صفة طالب آخر أثناء أداء الامتحان تطبق عليه المادة (٦٥) الفقرة (٢) من اللائحة الموحدة لشئون الطلاب بجامعة الناصر، وهو "الفصل" ويكون بقرار من الجهات المعنية. وتسري العقوبة نفسها على الطالب الذي انتحل شخصيته لنفس الغرض.</li></ul>
7	<p><b>Other policies: سياسات اخرى</b></p> <ul style="list-style-type: none"><li>■ لا يسمح استخدام الهواتف المحمولة داخل قاعة المحاضرة، أو أثناء سير الامتحان.</li><li>■ إذا سلك الطالب سلوكاً غير مقبول فإنه يُحال إلى الجهات المعنية لاتخاذ اللازم، مشفوعاً بتقرير عن ذلك.</li><li>■ يمنع الاكل او الشرب اثناء المحاضرة.</li></ul>

## Course Specification of Medical Physics

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Medical physics				
2	Course Number and Code:	B1121				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1		3	
4	Study level/year at which this course is offered:	Second Semester/First Year				
5	Pre –requisite :	None				
6	Co –requisite :	None				
7	Program (s) in which the course is offered:	Medical Lab				
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Ibrahim Suraihy				
10	Approved By:					

### II. Course Description:

This course will familiarize the students with the basic concepts and principles of mechanics, elasticity, fluids dynamics, electricity, and magnetism. It will strengthen the understanding of the concepts and principles through a broad range of interesting applications to the real world of medicine, dentist, agriculture, and other fields of science.

### III. ILOs:

At the end of this course students must be able to:

1. Recognize the nature of general physics phenomena, facts, laws, definitions, concepts, theories.
2. Explain the physical characteristics of concepts, theories and materials.
3. Demonstrate scientific knowledge vocabulary, terminology, conventions (including symbols, quantities and units).
4. Promote science transcends national boundaries and that the language of science, correctly and rigorously applied, is universal.
5. Present reasoned explanations of phenomena, patterns and relationships.

6.	Analyze the answer with respect to how likely or realistic it really is, and solve familiar and unfamiliar problems related to medical Physics.
7.	Interpret and evaluate experimental observations and data
8.	Handle experimental observations and data and work safely in a laboratory.
9.	Apply concepts and skills to solve a problem related to medical physics.
10.	Record results in an appropriate manner given a detailed format.
11.	Make relevant observations, measurements or estimates to a degree of accuracy appropriate to the instruments or techniques used.
12.	Use the language skills and terms to explain and discuss aspects of medical physics.
13.	Write structural reports or essays in accordance with the standard scientific guidelines.

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of this course students must be able to	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Recognize the nature of general physics phenomena, facts, laws, definitions, concepts, theories.	Lectures using data show, video animation and seminars, Worked examples	Quizzes, Written exam, short answers and homework.
a2- Explain the physical characteristics of concepts, theories and materials.		
a3- Demonstrate scientific knowledge vocabulary, terminology, conventions (including symbols, quantities and units.		
(B)Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At the end of this course students must be able to	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1-Promote science transcends national boundaries and that the language of science, correctly and rigorously applied, is universal.	Lectures, Practice session, Discussions, Solving Problem methods, worked examples in the text	Oral presentation, criteria-based performance evaluation Interpretative exercises. Written examination paper.
b2- Present reasoned explanations of phenomena, patterns and relationships.		
b3- Analyze the answer with respect to how likely or realistic it really is and solve familiar and unfamiliar problems related to medical Physics.		
(C)Professional and Practical Skills.		



Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills At the end of this course students must be able to	Teaching strategies to be used	Methods of assessment
c1-1-Interpret and evaluate experimental observations and data.	Lectures, Laboratory work, Worked examples, directed reading, independent study and Group assignments, Problem-Solving Strategies	Practical works, practical reports and presentations based on their experimental work.
c2- Handle experimental observations and data.		
c3-Apply concepts and skills to solve a problem related to medical physics.		
c4- Record results in an appropriate manner given a detailed format.		
(D)General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills At the end of this course students must be able to	Teaching strategies to be used	Methods of assessment
d1-Make relevant observations, measurements or estimates to a degree of accuracy appropriate to the instruments or techniques used.	Worked examples, Small group discussions, Problem-Solving Strategies, Tutorials Practical classes Micro assignments	Reports, presentations and communication with the lecturer and his colleagues.
d2-Use the language skills and terms to explain and discuss aspects of medical physics.		
d3-Write structural reports or essays in accordance with the standard scientific guidelines.		

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction: Physics and Measurements	<ul style="list-style-type: none"> <li>• Concepts of unit and measurements.</li> <li>• Fundamental and derived units.</li> <li>• Units of length, weight, mass, time.</li> <li>• Matter: properties of solids, liquids and gases</li> <li>• Dimensional Analysis</li> <li>• Conversion of Units</li> <li>• What is Medical Physics</li> </ul>	1	2	a1, a3, b1, c4, d3
2	Vectors	<ul style="list-style-type: none"> <li>• Coordinate Systems</li> <li>• Vector and Scalar Quantities</li> <li>• Components of a Vector and Unit Vectors</li> <li>• Scalar Product of Vectors</li> <li>• Displacement, Velocity, and Acceleration</li> </ul>	1	2	a2, b2, b3, d2, d3
3	The Force and Laws of Motion	<ul style="list-style-type: none"> <li>• The Concept of Force</li> <li>• Newton's First Law</li> <li>• Newton's Second Law</li> <li>• Mass and Weight</li> <li>• Newton's Third Law</li> <li>• Free body diagram</li> <li>• Forces of Friction</li> <li>• Forces in and on the body</li> </ul>	1	2	a2, b2, b3, c1, c3, c4, d1, d2
4	Static Equilibrium and Elasticity	<ul style="list-style-type: none"> <li>• The torque</li> <li>• The Rigid Object in Equilibrium</li> <li>• The Center of Gravity</li> <li>• Examples of Rigid Objects in Static Equilibrium.</li> <li>• Skeletal Muscles and Levers</li> <li>• Static forces in the body</li> <li>• Elastic Properties of Solids</li> </ul>	1	2	a1, a3, b1, b3, c2, c3, c4, d1, d3

		<ul style="list-style-type: none"> <li>• Stress, Strain, and Elasticity Modulus</li> <li>• Example: Bone Shortening</li> </ul>			
5	Work, Energy, and Power	<ul style="list-style-type: none"> <li>• Work Done by a Constant Force</li> <li>• Kinetic Energy and Potential Energy</li> <li>• Conservation of energy</li> <li>• Power</li> <li>• Energy Changes in the body</li> <li>• Energy from Food</li> <li>• Metabolic rate</li> <li>• Efficiency of the Human body as a machine</li> </ul>	1	2	a1, a3, b1, b2, b5, c2, c4, d1, d2
6	Fluid Mechanics	<ul style="list-style-type: none"> <li>• Properties of fluids: Density, fluid pressure, Atmospheric pressure, surface tension, capillary, Viscosity.</li> <li>• Measurement of pressures, Measurement of blood pressure.</li> <li>• Buoyant Forces and Archimedes' Principle.</li> <li>• Fluid Dynamics, Blood flow, Continuity equation.</li> <li>• Bernoulli's Equation and its Applications</li> <li>• Effect of gravitational forces on human body.</li> </ul>	2	4	a1, b1, b2, b3, c1-1, c2, d1, d2
7	Mid-term Exam		1	2	a2, b2, b3, c1-1, c2, c3, d2, d3,
8	Temperature and Heat	<ul style="list-style-type: none"> <li>• Temperature</li> <li>• Thermometers and Temperature Scale</li> <li>• Thermal Expansion of Solids and Liquids</li> <li>• An Ideal Gas</li> <li>• Heat and Internal Energy</li> </ul>	1	2	a1, a3, b1, b2, c1-1, c2

		<ul style="list-style-type: none"> <li>• The First Law of Thermodynamics</li> <li>• Heat Transfer Mechanisms</li> <li>• Heat losses from the body</li> </ul>			
9	Sound	<ul style="list-style-type: none"> <li>• Sound Waves and its Properties</li> <li>• Intensity of Sound Waves</li> <li>• Sound Level</li> <li>• The Doppler Effect</li> <li>• Ultrasound and Medical Applications: A Scan, B Scan, M Scan</li> </ul>	1	2	a1, a3, b1, b3, c1-2, c2, c4, d2, d3,
10	Light	<ul style="list-style-type: none"> <li>• The Nature of Light and the Ray Aspect of Light</li> <li>• The Light Reflection and Refraction</li> <li>• Medical uses, Endoscope</li> <li>• Images formed by thin Lenses. The Magnifier, The Microscope.</li> <li>• The Eye, Myopia and correction, Hyperemia</li> </ul>	1	2	a2, a3, b2, b3, c1-1, c2, d1
11	Electricity	<ul style="list-style-type: none"> <li>• Electric Charges, Electric Field, Electric Potential</li> <li>• Capacitance, Capacitors, Dielectrics</li> <li>• Electric Current, Resistance, Resistors, Electrical Power</li> <li>• Electrical Safety</li> <li>• Electricity Within the Body, Electromyography (EMG), Electrocardiograph (ECG), Electroencephalograph (EEG)</li> <li>• Flow of electricity in Solids, Electrolytes, Gases and Vacuum</li> </ul>	2	4	a1, a2, b3, c2, c3, c4, d1,d3
12	Radiation	<ul style="list-style-type: none"> <li>• Some Properties of Nuclei</li> <li>• Radioactivity</li> <li>• The Decay Processes</li> <li>• Natural Radioactivity</li> <li>• Nuclear Magnetic Resonance and Magnetic Resonance Imaging (MRI)</li> </ul>	1	2	a2, b1, b3, c1-2, c3, c4, d1, d3,



		<ul style="list-style-type: none"> <li>• Radiation Damage</li> <li>• Uses of Radiation in diagnostic and therapy</li> <li>• X-ray</li> <li>• Laser</li> </ul>			
13	FINAL EXAM		1	2	a1, a2, a3, b1, b2, b3, c1, c2, c3, c4, d1, d2, d3
Number of Weeks /and Units Per Semester			15	30	

b - PracticalAspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Measurement Tools And Systems	1	3	a1, a2, a3, b1, c1-1
2	Determination of Young's modulus by Searle's method	1	3	a1, a3, b1, b3, c2, c3, d2, d3
3	Experimental verification of Hooke's law	1	3	a3, b1, c2, c4, d1, d3
4	Experimental determination of viscosity of highly viscous liquids	1	3	a3, b1, b2, b3, b4, c1-1, c3, d1, d2
5	Experimental verification Stoke's law	1	3	a3, b2, b3, c1-1, c2, c4, d3
6	Midterm examination	1	3	c2, d1, d3,
7	measure the specific heat capacity of a substance	1	3	a1, a2, a3, b1, b3, c1-1, c3, d1, d2,
8	Determine resistance using a voltmeter and an ammeter	1	3	a2, a3, b2, b3, c1-1, c4, d2, d3
9	Experimental verification Ohm's Law	1	3	a1, a2, b3, c2, c3, d1
10	Experimental verification Pattern of field lines round a bar magnet	1	3	a1, b4, c2, c3, d2
11	Experimental verification mirror lines lows	1	3	a2, b1, b3, c2, c4, d1, d3,
12	Final examination	1	3	a1, a3, b1, b3, c2, c3, d2, d3
Number of Weeks/and Units Per First Second semester			36	

V. Teaching Strategies:

- Interactive lecturing in class. Working examples,
- Solving Problem method, Laboratory work, directed reading, independent study and discussion

VI. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Project	a1-3, b1-3, d1-d3	8	5

VII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises and Home works and Quizzes	3, 5, 6, 9, 11	5	5%	a1, a2, a3, c1-1, c2, d3
2	Practical reports and activities	ALL	10	10%	a2, a4, c1-1, d1 d3
3	Assignment	8	5	5%	a1-3, b1-3, d1-d3
4	Written Test (1)	7	10	10%	a2, a3, b1, b2, b3
5	Final Exam (theoretical)	16	50	50%	a1, a2, a3, b1, b2
6	Final Exam (practical)	14	20	20%	a1, a2, a3, b2, c3
	Total		100	100%	

VIII. Learning Resources:

1-Required Textbook(s) ( maximum two ).

1. Serway and Faughn, 2012, College Physics, Second Edition, Open Stax College,
2. Paul Davidovits, 2013, Physics in Biology and Medicine (Complementary Science), 4<sup>th</sup>Revised Academic Press – Elsevier.

2-Recommended Books and Reference Materials.

1. Russell K. Hobbie, Bradley J. Roth, 2009, Intermediate Physics for Medicine and Biology (Biological and Medical Physics, Biomedical Engineering), 4<sup>th</sup>Revised Edition Springer.

3-Electronic Materials and Web Sites *etc.*

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)

<p>The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook</p>	
1	<p><b>Class Attendance:</b></p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p><b>(Tardy):</b> Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p><b>(Exam Attendance/Punctuality):</b></p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p><b>(Assignments and Projects):</b></p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p><b>(Cheating):</b></p> <ul style="list-style-type: none"> <li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>Midterm Exam cheating results in giving the student a mark of zero</li> <li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li> <li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li> </ul>



6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>





## Course Specification of of Computer Fundamentals

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:					
1	Course Title:	Computer Fundamentals			
2	Course Number and Code:	<b>B11106</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		<i>1</i>	<i>1</i>		
4	Study level/year at which this course is offered:	<i>Second Semester/First Year</i>			
5	Pre –requisite :	None			
6	Co –requisite :	None			
7	Program (s) in which the course is offered:	Medical Laboratory program			
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Dr. Monir Abdullah			
10	Approved By:				

## II. Course Description:

This course, using both lecture and laboratory practice, introduces students to basic computer concepts in hardware, software, networking, computer security and internet. Widely used applications including word processing, spreadsheets, databases and presentation are studied. Students will also investigate Internet-based applications, working with email and learning how to browse the web. Students learn techniques to search, evaluate, validate, and cite information found online.

### III. ILOs: after completion of this course students should be able to:

1. Outline fundamental topics in computer systems, including hardware architectures and operating systems.
2. Define the principles of network, communication and internet technologies.
3. Recognize the basic information about computer security and viruses.
4. Compare between different types of computer models.
5. Research precisely online for any related topics
6. Investigate traditional and nontraditional problems, set goals towards solving them, and observe results.
7. Operate computer system effectively.
8. Solve the computer operating system problems.
9. Use different application programs like word processing, spreadsheet, presentation, and Internet properly.
10. Communicate effectively by oral, written and visual means.
11. Show the appropriate responsibility, self-confidence, time management and team work capabilities.
12. Manage tasks and resources and demonstrate efficient IT capabilities.
13. Have ethical values in their works

### IV. Intended learning outcomes (ILOs) of the course:

#### (A) Knowledge and Understanding Skills:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. after completion of this course students should be able to:</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Outline fundamental topics in computer systems, including hardware architectures and operating systems.	1. Lectures, 2. Labs, 3. Discussions	1. Quizzes, 2. Written exam, 3. Homework. 4. Participation.
a2- Define the principles of network, communication and internet technologies.		
a3- Recognize the basic information about computer security and viruses.		

#### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Intellectual Skills. after completion of this course students should be able to:	Teaching strategies to be used	Assessment Methods
b1- Compare between different types of computer models.	1. Lectures, 2. Discussions 3. Brainstorming	1. Oral Presentation, 2. Written exam
b2- Research precisely online for any related topics		
b3- investigate traditional and nontraditional problems, set goals towards solving them, and observe results		
<b>(C) Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills after completion of this course students should be able to:	Teaching strategies to be used	Methods of assessment
c1- Operate computer system effectively.	1. Labs, 2. Group assignments.	1. Lab Test, 2. Projects
c2- Solve the computer operating system problem.		
c3- Use different application programs like word processing, spreadsheet, presentation, and Internet properly.		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills after completion of this course students should be able to:	Teaching strategies to be used	Methods of assessment
d1- Communicate effectively by oral, written and visual means.	1. Small group discussions 2. Practical classes 3. Presentation, Group Projects	1. Oral presentations 2. Participations and communications 3. Project Report,
d2- Show the appropriate responsibility, self-confidence, time management and team work capabilities.		
d3- Manage tasks and resources and demonstrate efficient IT capabilities.		
d4- Have ethical values in their works		

#### V. Course Content:



1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	An Overview of Computer Concepts	Definitions, History, Generation, Types,	1	1	a1, a2, a3, b1,
2	Computer Components	Hardware, Software,	1	1	a1, b1
3	System Units	Memory, CPU, Input/output devices, Storage	1	1	a1, b1, b2
4	Central Processing Unit (CPU)	Control unit, Registers, Arithmetic Logic Unit	1	1	a1, b1
5	Memory Unit	Rom Types, Ram, Memory Management	1	1	a1, c1, c2
6	Storage Devices	Hard disk, Mass storage Devices, Files	1	1	a1, c1, c3, c3
7	<u>Mid Term Exam</u>		1	1	
8	Input and Output Devices	Input Devices (Keyboards, Mouse, etc., Output Devices (Monitors types, Printers Types, etc.	1	1	a1, d3
9	Data Representation and Numerical systems	Machine language, Binary numbers, Numbers conversions	1	1	a1
10	Computer Operating Systems	Graphic User Interface, Different types of OS, Folders and Files	1	1	a1, b3, c1, c2, c3, d3
11	Basic Computer Networks	Network Types, Network Topology	2	2	a1, a2, c1, c3, d3
12	Internet, Web and email	Internet Requirement, Web and Google, Email creation and Settings	1	1	a1, a2, b2, b3, c1, c2, c3, d1, d3
13	Computer Security and Viruses	Users and passwords, Security, Virus definition, Virus types, Anti-virus	1	1	a3, b3, c1, c2
14	<u>Final Exam</u>		1	2	
Number of Weeks/and Units Per Semester			15	16	

b - Practical Aspect:
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Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Computer Components (Motherboards, Memory, Hard disk, Monitors)	1	2	a1, a2
2	Window 7 (Installations, Desktop, Folders, Files, Notepad, etc.)	2	4	1, b2, c1, c2, d1, d3
3	Microsoft Word (Documents/new/open/save, update, page/text format, Figures, photos, tables)	2	4	a1, b3, c1, c2, c3, d1, d3
4	Microsoft Excel (New, Open, Save, Calculation, Graphs types, Pages, Formats)	2	4	a1, b2, c1, c2, c3, d1, d3
5	Microsoft PowerPoint (slides, formats, slide show, timers, inserts)	3	6	a1, b2, c1, c2, c3, d1, d2, d3
6	Internet, Web and Email (connections, searching, create email)	2	4	a1, a2, a3, b2, b3, c1, c2, c3, d1, d2, d3
7	Lab Test	1	2	
Number of Weeks/and Units Per Semester		13	26	

#### VI. Teaching Strategies:

- Lectures
- Labs
- Brainstorming
- Group projects
- Group Discussions
- Presentations

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	Make a PowerPoint presentation and present (group).	b2, b3, c1, c2, c3, d1, d2, d3	10-12	5

#### VIII. Assessment Tasks:



No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises and Home works and Quizzes	3, 4, 8, 9	5	5%	a1, b1, d2
2	Assignment	10, 11, 12	5	5%	b2, b3, c1, c2, c3, d1, d2, d3
3	Practical Tests	6	10	10%	a1, b2, b4, c1, c2, c3, d1, d2, d3
4	Written Test (1)	7	15	15%	a1, b1, b2, c1, c2, d1, d2, d3
5	Final Exam (theoretical)	15	50	50%	a1, a2, a3, b1, b2, d1, d2, d3
6	Final Exam (practical)	13	20	20%	a1, b2, b3, c1, c2, c3, d1, d2, d3
	Total		100	100%	

#### IX. Learning Resources:

##### 1- Required Textbook(s) ( maximum two ).

- 1- Anita Goel, "Computer Fundamentals", Pearson Education India, first Edition, 2010.
- 2- Joan Preppernau and Joyce Cox, "Windows 7 Step by Step", 2009.

##### 2- Recommended Books and Reference Materials.

- 1- Suzanne Weixel, Jennifer Fulton, Faithe Wempen, Catherine Skintik, "Learning Microsoft Office 2007", Prentice Hall, 2007.
- 2- William Stalling, "Computer Organization and Architecture", Fifth Edition, Prentice Hall, 2000.
- 3- Jeffrey S. Beasley, Piyasat Nilkaew, "Networking Essentials", Third Edition, Pearson IT Certification, 2012.

##### 3- Electronic Materials and Web Sites *etc.*

- 1- [http://en.wikipedia.org/wiki/Computer\\_science](http://en.wikipedia.org/wiki/Computer_science)
- 2- [http://en.wikipedia.org/wiki/Microsoft\\_Office](http://en.wikipedia.org/wiki/Microsoft_Office)
- 3- [http://en.wikipedia.org/wiki/Computer\\_virus](http://en.wikipedia.org/wiki/Computer_virus)

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

<p>The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook</p>	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"> <li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>Midterm Exam cheating results in giving the student a mark of zero</li> <li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in</li> </ul>



	<p>two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</p> <ul style="list-style-type: none"><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism): “To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>





## Course Specification of General Biology

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	General Biology			
2	Course Number and Code:	<b>B11111</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		
4	Study level/year at which this course is offered:	<i>First semester/ First year</i>			
5	Pre –requisite :	None			
6	Co –requisite :	None			
7	Program (s) in which the course is offered:	Medical Lab			
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Mohammed F. Al-Helali			
10	Approved By:				

II. Course Description:	
This course is important since it provides brief differences between living and non-living organisms. The topics will cover the cell structure, cell function, cell division including enzymes and material transport.	

III. ILOs:	
At the end of this course students should be able to:	
<ol style="list-style-type: none"> <li>1. Describe the function and chemical composition of macromolecules like carbohydrates, lipids, proteins and nucleic acids.</li> <li>2. List the enzymes and material transport in and outside the cell.</li> <li>3. Explain the cells structure, functions and reproduction of mitosis and meiosis emphasizing on their significance to organism breeding.</li> <li>4. Distinguish the level of organization and function of organelles.</li> <li>5. Compare between macromolecules, cell organelles enzymes and transport.</li> <li>6. Use microscope and chemicals safely.</li> <li>7. Operate different equipment's and instruments related to biology.</li> <li>8. Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.</li> <li>9. Work effectively individually or as a part of team work.</li> </ol>	

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:			
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:			
	<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of this course students should be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1	Describe the function and chemical composition of macromolecules like carbohydrates, lipids, proteins and nucleic acids.	Lectures using data show and seminars	Quizzes, written exam, and participation
a2	List the enzymes and material transport in and outside the cell.		
a3	Explain the cells structure, functions and reproduction of mitosis and meiosis emphasizing on their significance to organism breeding.		
(B) Intellectual Skills:			
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:			
	<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At the end of this course students should be able to:	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1	Distinguish the level of organization and function of organelles.	Lectures, practice session, Discussion, solving problem methods	Oral presentation, evaluation, interpretative exercises
b2	Compare between macromolecules, cell organelles enzymes and transport.		
(C) Professional and Practical Skills.			
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:			
	<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i> At the end of this course students should be able to:	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
c1	Use microscope and chemicals safely.	Lectures, laboratory work, directed reading, and Group assignments	Practical works, practical reports and presentation based on experimental work
c2	Operate different equipment's and instruments related to biology.		

(D) General/ Transferable Skills:			
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.			
	Course Intended Learning Outcomes (CILOs) in General and Transferable Skills At the end of this course students should be able to:	Teaching strategies to be used	Methods of assessment
d1	Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.	Small group discussions, Practical classes	reports, presentation and communication with the lecturer and students
d2	Work effectively individually or as a part of team work.		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction	History of evolution	1	2	a1
2	Macromolecules	carbohydrates, lipids, proteins and nucleic acid	3	6	a1, b1, b2, d1
3	Cells and midterm	prokaryotes, eukaryotes, cell organelles	4	8	a2, b1, b2, d1, d2
4	Transport	active, passive, and bulky	2	4	a2-a3, b1, b2, c1, d1
5	Enzymes	properties, function and composition	2	4	a1-a3, b1, b2, d1, d2
6	Cell division	mitosis and meiosis in animal cell	2	4	a1-a3, b1, b2, d1, d2
7	Final Exam		1	2	a1-a3, b1, b2, d1, d2
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Introduction	1	2	a1
2	Macromolecules	3	6	a1-a3, b1,

				b2, c1, c2d1, d2
3	Cells and tissues	3	6	a1-a3, b1, b2, c1, c2d1, d2
4	Transport	3	6	a1-a3, b1, b2, c1, c2d1, d2
5	Enzyme and Cell division	1	2	a1-a3, b1, b2, c1, c2d1, d2
6	Animal kingdom	1	2	a1-a3, b1, b2, c1, c2d1, d2
7	Final Exam	1	2	a1-a3, b1, b2, c1, c2d1, d2
Number of Weeks/and Units Per Semester		13	26	

#### VI. Teaching Strategies:

Lectures using data show, Video animation, Seminars, Solving problem method, Laboratory work, Directed reading, Independent study, Discussion.

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-3, b1-2, d1-d2	5	5

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1-3, b1-2, d1-d2
2	Practical reports	1-10	10	10%	a1-3, b1-2, c1-c2, d1-d2
3	Oral Tests	5, 9	5	5%	a1-3, b1-2, d1-d2
4	Written Test (1)	7	10	10%	a1-3, b1-2, d1-d2
5	Final Exam (theoretical)	14	50	50%	a1-3, b1-2, d1-d2
6	Final Exam (practical)	11	20	20%	a1-3, b1-2, c1-c2, d1-d2
7			100	100%	

IX. Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	1.Sylvia/S.Mader 2012, Human Biology, 1 <sup>st</sup> Edition (McGraw-Hill) N.Y.USA. 2.E.Solomon, L.Berg, D.Martin 2008 Biology 8 <sup>th</sup> edition (Thomson Brooks Cole, Belmont.U.S.A College Publishing)
2- Recommended Books and Reference Materials.	
	1.Bruce Albert, Alexander Johnson, Peter Walter (2008), Molecular biology of the cell, Fifth edition, (Garland Science), New York. U.S.A. 2.Cecie Starr (1997), Basic concept in biology Third edition, (International Thomson Publishing Company), Belmont, U.S.A. 3.Shuaa Al-Yousufy (1994), Cell structure and function, (Qatar Publishing Library), Qatar. 4.Aish Zaytoon (1996), Human biology, (National Publishing Library), Jordan.
3- Electronic Materials and Web Sites <i>etc.</i>	
	1- <i>Journal of biology</i> , <a href="http://www.jbiol.com">www.jbiol.com</a> 2- <i>Biology of Reproduction</i> , <a href="http://www.biolreprod.org">www.biolreprod.org</a>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	Class Attendance: <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	(Tardy): Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.
3	(Exam Attendance/Punctuality): <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> </ul>

	<ul style="list-style-type: none"><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Medical Terminology

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:					
1	Course Title:	Medical Terminology			
2	Course Number and Code:	<b>B11113</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	-	-	
4	Study level/year at which this course is offered:	<i>First semester/First year.</i>			
5	Pre –requisite :	None			
6	Co –requisite :	English 101			
7	Program (s) in which the course is offered:	Medical Lab			
8	Language of teaching the course:	English			
9	Prepared By:	Dr. Iman Al- Mahdi			
10	Approved By:				

### II. Course Description:

The course is consisted of different medical terms in English language. Medical terminology is one of the important Subjects in medical science. The usage of correct spelling and correct accent with pronunciation.

### III. ILOs:

After participating in this course students must be able to:

1. Define medical terminology in English language.
2. Recognize correct and perfect accent of each medical terms with correct spelling.
3. Reproduce correct Grammar and writing lessons taught in the class.
4. Quote medical terms and prescriptions.
5. Review medical terms in English books, references, medical dictionaries etc. by using medical terminology.
6. Use prescriptions without spelling and grammar mistakes.
7. Apply Medical Terminology and reading with comprehension.

8. Write medical terms in English language fluently
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**IV. Alignment Learning Outcomes with Teaching and Assessment Methods:**

**Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:**

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1 Define medical terminology in English language.	Lectures with different topics in English language Grammar courses with relevant grammar usage. Oral communication with students	Quiz and questions in each class Grammar exercise using in the class Presentation in every week Homework Written exams
a2- Recognize correct and perfect accent of each medical terms with correct spelling.		
a3- Reproduce correct Grammar and writing lessons taught in the class.		

**(B) Intellectual Skills:**

**Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:**

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1- Quote medical terms and prescriptions.	Stories reading Creative writing Conversation. Reading, Using skimming Discussion and problem solving	Oral exam Quiz for skimming
b2 Review medical terms in English books, references, medical dictionaries etc. by using medical terminology.		

**(C) Professional and Practical Skills.**

**Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:**

<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>





c1- Use prescriptions without spelling and grammar mistakes.	Lectures and Oral conversation in the class and group discussion. Communication between the teacher, students in the class	Oral exam
c2-Apply Medical Terminology and reading with comprehension.		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<b>Course Intended Learning Outcomes (CILOs) in General and Transferable Skills</b>	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
d1 Write medical terms in English language fluently	Reading, group discussion	Exams, Homework, Oral questions and quiz.

<b>IX. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to medical terminology	Importance of medical term- part of medical term - root	1	2	a1, a2, b1, c1, d1
2	Prefixes	Meaning of Prefixes :color, number, size, location degree ,direction	1	2	a1, a2, b1, c1, d1
3	Suffixes	Meaning of Suffixes: disease ,surgical procedures , instruments	1	2	a1- a3, b1-b2, c1-c2, d1
4	Analyzing and defining medical term	- Breaking down a medical term - Rules of defining medical term	1	2	a1- a3, b1-b2, c1-c2, d1
5	Combining a medical term	- Combining form , Combining vowels - Rules of using Combining vowels	1	2	a1- a3, b1-b2, c1-c2, d1
6	Cardiovascular tract	Analyzing and defining terms related to Cardiovascular tract	1	2	a1- a3, b1-b2, c1-c2, d1
7	Mid-term examination		1	2	a1- a3, b1-b2, c1-c2, d1

8	Respiratory tract	Analyzing and defining terms related to Respiratory tract	1	2	a1- a3, b1-b2, c1-c2, d1
9	Musculoskeletal term + skin	Analyzing and defining terms related to Musculoskeletal term + skin	1	2	a1- a3, b1-b2, c1-c2, d1
10	Gastrointestinal tract	Analyzing and defining terms related to Gastrointestinal tract	1	2	a1- a3, b1-b2, c1-c2, d1
11	Body structure	Direction terms , anatomical planes , body cavity	1	2	a1- a3, b1-b2, c1-c2, d1
12	Abbreviation	Most uses abbreviation	1	2	a1- a3, b1-b2, c1-c2, d1
13	Final Exam		1	2	a1- a3, b1-b2, c1-c2, d1
Number of Weeks/and Units Per Semester			13	26	

#### VI. Teaching Strategies:

Lectures, using diagrams, pictures and captions.  
Stories reading  
Creative writing  
Conversation.  
Group discussion.  
Reading, Using skimming  
problem solving

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Creative writing	b1-b2, c1, d1-d3	6	5

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Creative writing	6	5	5%	b1-b2, c1, d1-d3
2	Oral Tests	1-12	5	5%	a1-a3, b1-b2, c1, d1-d3
3	Written Test (1)	6	30	30%	a1-a3, b1-b2, c1, d1-d3

4	Final Exam (theoretical)	12	60	60%	a1-a3, b1-b2, c1, d1-d3
5	Total		100	100%	

IX. Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>1. Amr Al Himairi, (2005), English for medical students, Sana'a University, Sana'a, Republic of Yemen</li> <li>2. Laquire Blass, (2005), Well read 1, Oxford University press.</li> </ol>
2- Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>1. Medical Terminology and Abbreviations References.</li> <li>2. Mosby's Medical and Nursing Dictionary, second edition. Glotia Publication Pvt. Ltd. 1989.</li> </ol>
3- Electronic Materials and Web Sites <i>etc.</i>	
	<ol style="list-style-type: none"> <li>1. <a href="http://www.wow.com/Medical+Terminology">www.wow.com/Medical +Terminology</a></li> <li>2. <a href="http://www.webcrawler.com/">www.webcrawler.com/</a></li> <li>3. <a href="http://www.amazon.com">www.amazon.com</a></li> </ol>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> </ul>

	<ul style="list-style-type: none"><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	(Assignments and Projects): <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	(Cheating): <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	(Plagiarism): <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	(Other policies): <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



**First year: second semester**

## Course Specification of General Chemistry II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:					
1	Course Title:	General Chemistry II			
2	Course Number and Code:	B11123			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		
4	Study level/year at which this course is offered:	Second Semester/First Year			
5	Pre –requisite :	General Chemistry 1			
6	Co –requisite :				
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English			
9	Prepared by:	Dr. Abdulamjid Alsaifi			
10	Approved by:				

II.Course Description:	
<p>This course will introduce the students the gas law's, properties of liquids and solids, chemical thermodynamics, chemical kinetics, basic concepts of chemical equilibrium and electrochemistry. The practical part will focus on different laboratory tests related to inorganic chemistry</p>	

III. ILOs:	
<p>At the end of the course, the successful student will be able to:</p> <ol style="list-style-type: none"> <li>1. Define terms of thermodynamics, kinetics, and electrochemistry.</li> <li>2. Identify the basic principles of gases, liquids and solids, thermodynamics, chemical kinetics, chemical equilibrium and electrochemistry</li> <li>3. Classify various kinds of intermolecular attractions and how they are related to physical properties.</li> <li>4. Describe the regular structure of crystalline solids, various types of solids, common processes of thermodynamics, and types of order reactions.</li> </ol>	

5. Interpret biological phenomenon by using natural physical laws.
6. Distinguish between the laws of thermodynamics, chemical kinetics, chemical equilibrium and electrochemistry.
7. Evaluate different types of chemical calculations.
8. Apply appropriate laboratory techniques in basic inorganic and physical chemistry.
9. Choose appropriate laboratory techniques in basic inorganic and physical chemistry.
10. Perform a selection of basic laboratory procedures in general chemistry.
11. Work effectively both in a team, and independently on solving problems.
12. Use internet and search for information.
13. Communicate effectively with his teacher and colleagues.

IV.1- Intended learning outcomes (ILOs) of the course:

(A) Knowledge and Understanding:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
By the end of the course, students will be able to: a1-Define some terms of thermodynamics, kinetics, and electrochemistry.	Lectures using data show, video, homework and class discussion	Quizzes, Written exam, short answers and homework. Participation.
a2- Identify the basic principles of gases, liquids and solids, thermodynamics, chemical kinetics, chemical equilibrium and electrochemistry		
a3- Classify various kinds of intermolecular attractions and how they are related to physical properties.		
a4 -Describe the regular structure of crystalline solids, various types of solids, common processes thermodynamics, and types of order reactions.		

(B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods.</i>
On completing this course, students will be able to: b1- Interpret biological phenomenon by using natural physical laws.	Lectures, practice session, discussions, solving problem methods	Oral presentation, criteria-based performance

b2- Distinguish between the laws of thermodynamics, chemical kinetics, chemical equilibrium and electrochemistry.		evaluation Interpretative exercises
b3- Evaluate different types of chemical calculations.		

### (C) Professional and Practical Skills:

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
By the end of the course, students will be able to: c1- Apply appropriate laboratory techniques in basic inorganic and physical chemistry.	Lectures, Laboratory work, directed reading, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c2- Choose appropriate laboratory techniques in basic inorganic and physical chemistry.		
c3- Perform a selection of basic laboratory procedures in general chemistry.		

### (D) General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
By the end of the course, students will be able to: d1- Work effectively both in a team, and independently on solving problems.	Small group discussions practical classes micro assignments	reports, presentations and communication with the lecturer and his colleagues.
d2- Use internet and search for information.		
d3- Communicate effectively with his teacher and colleagues.		

### V. Course Content:

Course Topics/Items:

a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	CILOs
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1	<p>Gases and the Kinetic–Molecular Theory</p> <ul style="list-style-type: none"> <li>• Common Properties of Gases</li> <li>• Pressure</li> <li>• Gas Laws:</li> <li>• Determination of Molecular Weights and Molecular Formulas of Gaseous Substances</li> <li>• Dalton’s Law of Partial Pressures</li> <li>• Mass–Volume Relationships in Reactions Involving Gases</li> <li>• The Kinetic–Molecular Theory</li> <li>• Diffusion and Effusion of Gases</li> <li>• Real Gases: Deviations from Ideality</li> </ul>	<ul style="list-style-type: none"> <li>• Boyle’s Law, Charles’s Law, Gay – Lussac’s Law, Standard Temperature and Pressure, Avogadro’s Law, The Combined Gas Law Equation, The Ideal Gas Equation and Graham’s law</li> </ul>	3	6	a1, a2, b3, c2
2	<p>Liquids and Solids:</p> <ul style="list-style-type: none"> <li>• Kinetic–Molecular Description of Liquids and Solids</li> <li>• Intermolecular Attractions and Phase Changes</li> <li>• Liquid State:</li> <li>• The Solid State: Melting Point, Heat Transfer Involving Solids, Sublimation and the Vapor Pressure of Solids</li> <li>• Phase Diagrams (P versus T)</li> <li>• Amorphous Solids and Crystalline Solids</li> <li>• Structures of Crystals</li> <li>• Bonding in Solids</li> <li>• Band Theory of Metals</li> </ul>	<ul style="list-style-type: none"> <li>• Viscosity, Surface Tension, Capillary Action, Evaporation, Vapor Pressure, Boiling Points and Distillation and Heat Transfer Involving Liquids</li> </ul>	2	4	a2, a3, a4, c2
3	<p>Chemical Thermodynamics:</p> <ul style="list-style-type: none"> <li>• Heat Changes and Thermochemistry</li> <li>• The First Law of Thermodynamics</li> <li>• Some Thermodynamic Terms</li> <li>• Enthalpy Changes</li> <li>• Calorimetry</li> <li>• Thermochemical Equations</li> <li>• Standard States and Standard Enthalpy Changes</li> <li>• Standard Molar Enthalpies of Formation, <math>\Delta H_f^\circ</math></li> </ul>		2	4	a1, a2, b2, b3, c2



	<ul style="list-style-type: none"> <li>• Hess's Law</li> <li>• Bond Energies</li> <li>• Changes in Internal Energy, <math>\Delta E</math></li> <li>• Relationship of <math>\Delta H</math> and <math>\Delta E</math></li> <li>• Spontaneity of Physical and Chemical Changes</li> <li>• The Two Aspects of Spontaneity</li> <li>• The Second Law of Thermodynamics</li> <li>• Entropy, <math>S</math></li> <li>• Free Energy Change, <math>\Delta G</math>, and Spontaneity</li> <li>• The Temperature Dependence of Spontaneity</li> </ul>				
4	Mid Exam		1	2	a1, a2, a3, a4, b2, b3
5	<p>Chemical Kinetics:</p> <ul style="list-style-type: none"> <li>• The Rate of a Reaction</li> <li>• Factors That Affect Reaction Rates</li> <li>• Nature of the Reactants</li> <li>• Concentrations of Reactants: The Rate-Law Expression</li> <li>• Concentration versus Time: The Integrated Rate Equation</li> <li>• Collision Theory of Reaction Rates</li> <li>• Transition State Theory</li> <li>• Reaction Mechanisms and the Rate-Law Expression</li> <li>• Temperature: The Arrhenius Equation</li> </ul> <p>Catalysts</p>		2	4	a1, a2, a3, a4, b2, b3, c2
6	<p>Chemical Equilibrium</p> <ul style="list-style-type: none"> <li>• Basic Concepts</li> <li>• The Equilibrium Constant</li> <li>• Variation of <math>K_c</math> with the Form of the Balanced Equation</li> <li>• The Reaction Quotient</li> <li>• Uses of the Equilibrium Constant, <math>K_c</math></li> <li>• Factors That Affect Equilibria</li> <li>• The Haber Process: A Practical Application of Equilibrium</li> <li>• Application of Stress to a System at Equilibrium</li> </ul>		2	4	a1, a2, a3, b2, b3, c2



	<ul style="list-style-type: none"> <li>• Partial Pressures and the Equilibrium Constant</li> <li>• Relationship between <math>K_P</math> and <math>K_c</math></li> <li>• Heterogeneous Equilibria</li> <li>• Relationship between <math>\Delta G^0</math> Rxn and the Equilibrium Constant</li> </ul> <p>Evaluation of Equilibrium Constants at Different Temperatures</p>				
7	<p>Chapter Electrochemistry</p> <ul style="list-style-type: none"> <li>• Electrical Conduction</li> <li>• Electrodes Electrolytic Cells and Faraday's Law of Electrolysis</li> <li>• Faraday's Law of Electrolysis</li> <li>• Commercial Applications of Electrolytic Cells Voltaic or Galvanic Cells</li> <li>• The Standard Hydrogen Electrode</li> <li>• Standard Electrode Potentials</li> <li>• Uses of Standard Electrode Potentials</li> <li>• Standard Electrode Potentials for Other Half-Reactions</li> <li>• Nernst Equation</li> <li>• Using Electrochemical Cells to Determine Concentrations</li> <li>• The Relationship of <math>E^0</math> Cell to <math>\Delta G^0</math> and <math>K</math> Primary Voltaic Cells</li> </ul>		2	4	a1, a2, a3, b2, b3, c2
8	Final Exam		1	2	a1, a2, a3, a4, b2, b3
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	CILOs
1	Density	1	3	b1, c1-c3, d1
2	Determination of the Value of the Gas Constant	1	3	b2, c1-c3, d1
3	Determination of viscosity of a liquid	1	3	b1-b3, c1-c3, d1, d3
4	Determine the Freezing Temperature	1	3	b1-b3, c1-c3, d1, d3



5	Vapor Pressure and Heat of Vaporization	1	3	b1-b3, c1-c3, d1, d3
6	Separation of Mixtures by Gravity Filtration and Evaporation	1	3	b1-b3, c1-c3, d1, d3
7	Heat of Solution and Neutralization	1	3	b1-b3, c1-c3, d1, d3
8	Determination of equilibrium constant of reaction	1	3	b1-b3, c1-c3, d1, d3
9	Determination of order of the reaction	1	3	b1-b3, c1-c3, d1, d3
10	Determination of conductometric of solution	1	3	b1-b3, c1-c3, d1, d3
11	Final Exam	1	3	b1, c1-c3, d1
Number of Weeks/and Units Per Semester		11	33	

#### VI. Teaching Strategies:

- Lectures using data show, video animation and seminars
- Solving Problem method, Laboratory work, directed reading, independent study and discussion

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Micro assignment	a1-a4, b1-b3, d1-d3	9	5

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	ALL	5	5 %	a1-a4, b1-b3, d1- d3
2	Practical reports	1-10	10	10 %	b1, c1-c3, d1
3	Written Test (1) Exercises and Home works Quizzes	7	15	15 %	a1, a2, a3, a4, b2, b3



4	Final Exam (theoretical)	15	50	50 %	a1, a2, a3, a4, b2, b3
5	Final Exam (practical)	10	20	20 %	b1, c1-c3, d1
	total		100	100 %	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>Whitten, Davis, Peck, and Stanley (2004), <i>General Chemistry</i>, Thomson: Brooks Cole; 7th edition.</li> <li>Darrell D. Ebbing and Steven D. Gammon (2009). <i>General Chemistry</i>. 9<sup>th</sup> Edition Houghton Mifflin Company, BOSTON, NEW YORK</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>Course Notes Handout Texts: Prepared by</li> <li>Satyajit D. Sarker and Lutfun Nahar. <i>Chemistry for Pharmacy Students: General, Organic and Natural Product Chemistry</i>. John Wiley and Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, 2007</li> <li>C.V.S. Subrahmanyam, <i>Essentials of Physical Pharmacy</i>, Published by Vallabh Prakashan (2005)</li> </ol>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<ol style="list-style-type: none"> <li><a href="http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm">http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm</a></li> <li><a href="http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm">http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm</a></li> <li><a href="http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm">http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm</a></li> </ol>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>

2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>



7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>
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## قالب توصيف مقرر اللغة العربية II

الجامعة: الناصر.

الكلية: العلوم الطبية.

القسم: الصيدلة

البرنامج: الصيدلة

I.General Information: معلومات عامة					
1	Course Title: اسم المقرر	اللغة العربية II			
2	Course Number and Code: رمز ورقم المقرر	B11102			
3	Credit hours: الساعات المعتمدة	س.م C.H			الاجمالي
		نظري	عملي	تطبيق	
		2			2
4	Study level/year at which this course is offered: الفصل /المستوى الدراسي الذي يدرس فيه المقرر	الفصل الثاني، المستوى الأول.			
5	Pre –requisite : المقررات السابقة	لغة عربية I			
6	Co –requisite : المقررات المصاحبة				
7	Program (s) in which the course is offered: البرامج التي يدرس فيها المقرر	المختبرات			
8	Language of teaching the course: لغة تدريس المقرر	اللغة العربية			
9	Prepared By: اعداد	د.صادق الصلاحي			
10	Approved By: تم اقراره من				

## II. Course Description: وصف المقرر

يسعي هذا المقرر الي تزويد الطالب بمهارة القراءة والكتابة حيث يشمل دراسة النحو: الجملة الفعلية والأدب: المدرسة الإحيائية، المدارس الرومانسية، مدرسة الشعر الحر.



### III. ILOs: مخرجات تعلم المقرر

بعد الانتهاء من المقرر سيكون الطالب قادرا على ان:

١. يصف مهارة القراءة السليمة و الكتابة
٢. يشرح الجملة الفعلية وأركانها. وصور الفاعل وصور المفعول به، ونائب الفاعل
٣. يعدد انواع الأدب في العصر الحديث
٤. يحلل علامات الترقيم، ومواطنها الصحيحة
٥. يطبق القواعد الإملائية الصحيحة
٦. يجيد مهارة التلخيص، وكتابة السيرة الذاتية، والرسالة الإدارية
٧. يتعامل بمهارة اخلاقية مع مختلف المكونات

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods: تسكين المخرجات مع طرق التدريس والتقييم

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods: تسكين مخرجات المعرفة والفهم مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. مخرجات المعرفة والفهم	Teaching strategies to be used. طرق التدريس	Assessment Methods. طرق التقييم
a1 يصف مهارة القراءة السليمة و الكتابة	١- المناقشة، والحوار أثناء الشرح والإلقاء	حل التدريبات المتعلقة بالدرس الامتحانات
a2 يشرح الجملة الفعلية وأركانها. وصور الفاعل وصور المفعول به، ونائب الفاعل		
a3 يعدد انواع الأدب في العصر الحديث		

### (B) Intellectual Skills: المهارات الذهنية

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods: تسكين مخرجات المهارات الذهنية مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Intellectual Skills. مخرجات المقرر في المهارات الذهنية	Teaching strategies to be used استراتيجيات التدريس	Assessment Methods طرق التقييم
b1 يحلل علامات الترقيم، ومواطنها الصحيحة	- استراتيجيات التواصل اللغوي. - استراتيجيات التفكير البنائي. - استراتيجيات التفكير الناقد.	بعض التدريبات والتكاليف الامتحانات

### (C) Professional and Practical Skills. المهارات المهنية والعملية.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills مخرجات المقرر في المهارات المهنية والعملية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
c1 يطبق القواعد الإملائية الصحيحة	- استراتيجية حل المشكلات. - استراتيجية التفكير الناقد.	الامتحان تدريبات وتكاليف
(D)General/ Transferable Skills: المهارات العامة والانتقالية		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods. تسكين مخرجات العامة والانتقالية مع طرق التدريس والتقييم.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills مهارات المقرر العامة والانتقالية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
d1 يجيد مهارة التلخيص، وكتابة السيرة الذاتية، والرسالة الإدارية	- استراتيجية التواصل اللغوي.	التدريبات والتكاليف
d2 يتعامل بمهارة اخلاقية مع مختلف المكونات		

V. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order سلسل	Topic/ unit الوحدة / الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسبوع	Contact hours الساعات الفعلية	C- مخرجات تعلم المقرر
1	مهارات القراءة، أهميتها، أنواعها...		1	2	a1, b1, d1-d2
2	مهارات القراءة حل أسئلة الكتاب		1	2	a3, c1
3	مهارات الكتابة	أهميتها وتاريخها	1	2	a3, c1
4	التلخيص		1	2	a3, c1
5	الرسائل والسيرة		1	2	a1-a3, a2, b1, c1, d1-d2

6	قواعد إملائية		1	2	a1-a3, a2, b1, c1, d1-d2
7	علامات الترقيم		1	2	a1-a3, a2, b1, c1, d1-d2
8	امتحان تحريري نصفي		1	2	a1-a3, a2, b1, c1, d1-d2
9	الأدب في النهضة والعصر الحديث	المدرسة الإحيائية	1	2	a1-a3, a2, b1, c1, d1-d2
10	المدارس الرومانسية		1	2	a1-a3, a2, b1, c1, d1-d2
11	مدرسة الشعر الحر		1	2	a1-a3, a3, b1, c1, d1-d2
12	الجملة الفعلية وأركانها		1	2	a1-a3-, b1, c1, d1-d2
13	المفعول به وصوره		1	2	a1-a3-, b1, c1, d1-d2
14	نائب الفاعل		1	2	a1-a3-, b1, c1, d1-d2
15	قواعد العدد		1	2	a1-a3-, b1, c1, d1-d2
16	الامتحان النهائي		1	2	a1-a3-, b1, c1, d1-d2
عدد الاسابيع او الوحدات في الفصل الدراسي				32	

#### VI. Teaching Strategies: استراتيجيات التدريس

- ١- المناقشة، والحوار أثناء الشرح والإلقاء
- استراتيجيات التواصل اللغوي.
- استراتيجيات التفكير البنائي.
- استراتيجيات التفكير الناقد.
- حل المشكلات

#### VII. Assignments and projects: الأبحاث والواجبات

no	Assignment البحث	مخرج تعلم CILOs المقرر	Week Due الاسبوع	Mark الدرجة
1	المهارات التفصيلية للاستماع.	a1-a4, b1, c1, d1	5	5
2	الشروء الذهني الأسباب والعلاج.		10	

VIII. Assessment Tasks: طرق التقييم					
no	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	Aligned Course Learning Outcomes مخ رج التعلم الذي يحققه
1	المهارات التفصيلية للاستماع الشرود الذهني الأسباب والعلاج.	5, 10	5	5%	a1-a4, b1, c1, d1
2	Quizzes اسئلة قصيرة	3, 6, 9, 14	5	5%	a1-a4, b1, c1, d1
3	Written Test (1) امتحان تحريري	7	30	30%	a1-a4, b1, c1, d1
4	Final Exam (theoretical) امتحان نهائي (نظري)	16	60	60%	a1-a4, b1, c1, d1
5	Total		100	100%	

IX. Learning Resources: مصادر التعلم	
1-Required Textbook(s) ( maximum two). المراجع المطلوبة (بحد اقصى ٢).	
	١- مجد الدين الفيروز آبادي، ١٩٩٨، القاموس المحيط، الطبعة الاولى، دار الفكر للطباعة والنشر، بيروت، لبنان. ٢- د. محمد صالح الشنطي، ٢٠١٣م، المهارات اللغوية، الطبعة الاولى، دار الاندلس للنشر والتوزيع حائل، السعودية.
2-Recommended Books and Reference Materials. المراجع الموصي بها.	
	١- د. محمد عبدالله المحجري، ٢٠١٣م، المهارات اللغوية، الطبعة الاولى، دار الكتب اليمنية للنشر، صنعاء، اليمن. ٢- د. صادق الصلاحي، الوجيز في اللغة العربية. (مخطوط)
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت.	
	1- موقع اللغة العربية تعلماً وتعلماً. 2- فنون اللغة العربية 3 الموسوعة العربية العالمية دليل المهارات.

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
سياسات المقرر (يشمل السرقة الادبية وموائيق الشرف والحضور الخ	
The University Regulations on academic misconduct will be strictly enforced. Please refer to ----- بحسب لائحة جامعة الناصر لشئون الطلاب---	
1	<p>Class Attendance: حضور المحاضرات</p> <ul style="list-style-type: none"> <li>الالتزام بالمواعيد المحددة للمحاضرات والانتظام في الحضور، وضرورة حضور ( ٧٥ %) من ساعات المقرر.</li> <li>إذا تجاوز نسبة غياب الطالب (٢٥%) من ساعات المقرر يعتبر محروماً في المقرر. إلا إذا كان غيابه بسبب مرض او بعذر قاهر تقبله عمادة الكلية، وبموجب وثائق رسمية ومعتمدة.</li> </ul>

2	<p><b>Tardy: التأخير</b></p> <ul style="list-style-type: none"><li>يسمح للطالب المتأخر بدخول المحاضرة إذا تأخر في حدود ربع ساعة فقط وبعذر. وإذا تكرر تأخر الطالب أكثر من ثلاث مرات بدون عذر يتم تنبيهه واخذ تعهد كتابي بعدم تكرار ذلك مالم يستدعي ولى امره ويشعر بذلك ويمنع من حضور المحاضرات ويعتبر راسباً في المقرر.</li></ul>
3	<p><b>Exam Attendance/Punctuality: حضور الامتحان والانضباط</b></p> <ul style="list-style-type: none"><li>عدم السماح بدخول الامتحان بعد مرور أكثر من نصف ساعة من بدء الامتحان.</li><li>لا يسمح للطالب الخروج من القاعة الامتحانية بعد توزيع الأسئلة إلا بعد مرور نصف وقت الامتحان.</li><li>في حالة تغيب الطالب عن الامتحان بعذر مقبول يعاد له الاختبار بالدور الثاني بدرجة كاملة.</li><li>يعتبر الطالب الغائب في اختبار نهاية الفصل راسباً في المقرر الذي تغيب فيه وعند اعادة الامتحان تحسب له الدرجة الصغرى (٥٠٪).</li><li>يحرم الطالب من المقرر الذي اخل فيه بالنظام.</li><li>في المقررات العملية اذا رسب الطالب في الجزء العملي او النظري يعتبر راسباً في المقرر وعليه اعادة الامتحان في الجزء الذي رسب به وتحسب له الدرجة الصغرى.</li><li>يمنع استخدام الهواتف المحمولة اثناء الامتحان ويعتبر الطالب محروماً من المقرر اذا قام باستخدامه.</li></ul>
4	<p><b>Assignments and Projects: الابحاث والمشاريع</b></p> <ul style="list-style-type: none"><li>- تقديم الابحاث والمشاريع في الوقت المحدد تماماً.</li><li>إذا تأخر الطالب عن تقديم واجباته في الموعد الذي حدد له لن يقبل إلا إذا ما وافق الأستاذ على قبول التأخير، بناءً على ظروف قاهرة يتم شرحها والإعلان عنها خطياً قبل رفع درجات المقرر مالم يحرم الطالب من الدرجة المخصصة لهذا النشاط.</li></ul>
5	<p><b>Cheating: الغش</b></p> <ul style="list-style-type: none"><li>لن يتم التسامح مع الغش وهو: محاولة الطالب الغش بالحديث أو النظر في ورقة الغير أو الإشارة أو محاولة استخدام أية وسيلة من وسائل الغش.</li><li>الغش في الامتحان النصفى أو الشروع فيه يعتبر الطالب محروماً من درجة الامتحان النصفى للمقرر.</li><li>الطالب الذي يغش في الامتحان النهائي يحرم من المقرر اذا لم يستقد من الغش او المقرر الذي غش فيه والذي يليه اذا استفاد من الغش. ويحرم من المقرر الذي غش فيه والمقرر الذي قبله اذا غش في اخر مقرر.</li><li>إذا تكرر غش الطالب أكثر من مرة في الدورة الامتحانية الواحدة يطبق عليه حكم الفصل من الدراسة لمدة عام جامعي او فصل نهائي اذا تكرر الغش لاكثر من مرتين.</li></ul>
6	<p><b>Plagiarism: الانتحال والسرقه الادبية</b></p> <ul style="list-style-type: none"><li>الطالب الناقل لأفكار الآخرين دون التوثيق يحرم من الدرجة ويعنف على فعلته تلك دون التشهير به أمام زملائه.</li><li>الطالب المنتحل صفة طالب آخر أثناء أداء الامتحان تطبق عليه المادة (٦٥) الفقرة (٢) من اللائحة الموحدة لشئون الطلاب بجامعة الناصر، وهو "الفصل" ويكون بقرار من الجهات المعنية.. وتسري العقوبة نفسها على الطالب الذي انتحل شخصيته لنفس الغرض.</li></ul>

قالب توصيف مقرر ( الثقافة الإسلامية )

الجامعة: جامعة الناصر

الكلية: كلية العلوم الطبية

القسم: الصيدلة

البرنامج: الصيدلة

I. General Information: معلومات عامة						
1	Course Title: اسم المقرر /	الثقافة الإسلامية				
2	Course Number and Code: رمز ورقم المقرر	B11105				
3	Credit hours: الساعات المعتمدة	س. م C.H			الاجمالي	
		نظري	عملي	تطبيق		تدريب
		2	-	-	-	2
4	Study level/year at which this course is offered: الفصل /المستوى الدراسي الذي يدرس فيه المقرر	الفصل الثاني/ المستوى الأول				
5	Pre –requisite : المقررات السابقة	لا توجد				
6	Co –requisite : المقررات المصاحبة	لا توجد				
7	Program (s) in which the course is offered: البرامج التي يدرس فيها المقرر	برنامج المختبرات				
8	Language of teaching the course: لغة تدريس المقرر	اللغة العربية				
9	Prepared By: اعداد	د. محمد شوقي ناصر عبدالله				
10	Approved By: تم اقراره من					

II. Course Description: وصف المقرر	
<p>يسعى هذا المقرر للتعريف بمفهوم الثقافة الإسلامية ومصادرها وخصائصها وأصول العقيدة الإسلامية. كما سيتطرق الي التعرف على أنواع التكافل الاجتماعي في الإسلام، وموقف الإسلام من المرأة وموقف الإسلام من بعض القضايا الطبية المعاصرة كتحديد وتنظيم النسل والاستنساخ وبنوك الأجنة وأطفال الأنابيب وحكم الإجهاض في الإسلام وتشريح الجثة في الإسلام ، مع بيان حقوق الإنسان في الإسلام وحقوق الأقليات غير المسلمة من رعايا الدولة المسلمة، بالإضافة إلى بيان موقف الإسلام من الوحدة ومفهوم الوطن والمواطنة، بالإضافة إلى بيان العلمانية والعولمة والرسالية والتغريب الثقافي والاجتماعي والغزو الفكري بأنواعه المختلفة</p>	

### III. ILOs: مخرجات تعلم المقرر

بعد الانتهاء من تدريس المقرر سيكون الطالب قادرا على :

- ١- يعرّف مفهوم الثقافة الإسلامية وخصائصها ومصادرها
- ٢- يشرح أصول العقيدة الإسلامية وأركانها
- ٣- يميز بين نظام الحكم في الإسلام ونظام العلمانية والرأسمالية والعدولمة.
- ٤- يصف حقوق المرأة في الإسلام والجاهلية والمجتمع الغربي.
- ٥- يفرق بين انواع التكافل الاجتماعي في الاسلام المسنون والمفروض واثره في حياة الفرد المسلم
- ٦- يحلل موقف الإسلام من الوحدة والمواطنة المتساوية.
- ٧- يطبق موقف الإسلام من بعض القضايا المعاصرة كالاستنساخ وأطفال الايبب وبنوك الأجنة والإجهاض وتشريح جثة الميت وغيرها من القضايا المعاصرة.
- ٨- يتعامل بمهارة اخلاقية مع مختلف شرائح الانسان في العالم.
- ٩- يقيم التغريب الثقافي والغزو الفكري.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods: تسكين المخرجات مع طرق التدريس والتقييم

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods: تسكين مخرجات المعرفة والفهم مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. مخرجات المعرفة والفهم بعد التهاء من تدريس المقرر سيكون الطالب قادرا على :	Teaching strategies to be used. طرق التدريس	Assessment Methods. طرق التقييم
a1- يعرّف مفهوم الثقافة الإسلامية وخصائصها ومصادرها	المحاضرة وحل المشكلات. التقليد والمحاكاة.	الواجبات المنزلية. المشاركة الفاعلة في قاعة الدرس
a2 يشرح أصول العقيدة الإسلامية وأركانها	العمل الفردي التعلم التعاوني وطريقة الأداء العملي	الملاحظة. الاختبارات التحريرية والشفهية.
a3 يميز بين نظام الحكم في الإسلام ونظام العلمانية والرأسمالية والعدولمة.	البحث والاستقصاء المناقشة	الواجبات المنزلية.
a4 يصف حقوق المرأة في الإسلام والجاهلية والمجتمع الغربي.	وطريقة ضرب الأمثال	

### (B) Intellectual Skills: المهارات الذهنية

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods: تسكين مخرجات المهارات الذهنية مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Intellectual Skills. مخرجات المقرر في المهارات الذهنية. بعد انتهاء من تدريس المقرر سيكون الطالب قادرا على	Teaching strategies to be used استراتيجيات التدريس	Assessment Methods طرق التقييم
b1 يفرق بين انواع التكافل الاجتماعي في الاسلام المسنون والمفروض واثره في حياة الفرد المسلم	الأستقراء الاستكشاف الاستنباط التخطيط والتنفيذ والتقييم	الواجبات المنزلية. المشاركة الفاعلة في قاعة الدرس الملاحظة. الاختبارات التحريرية والشفهية.
b2 يحلل موقف الإسلام من الوحدة والمواطنة المتساوية.		
<b>(C)Professional and Practical Skills. المهارات المهنية والعملية.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills مخرجات المقرر في المهارات المهنية والعملية بعد انتهاء من تدريس المقرر سيكون الطالب قادرا على	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
c1 يطبق موقف الإسلام من بعض القضايا المعاصرة كالاستنساخ وأطفال الايب وبنوك الأجنة والإجهاض وتشريح جثة الميت وغيرها من القضايا المعاصرة.	الأستقراء الاستكشاف الاستنباط التعلم الذاتي التخطيط والتنفيذ والتقييم	المشاركة الفاعلة في قاعة الدرس الملاحظة. الاختبارات التحريرية والشفهية. الواجبات المنزلية.
<b>(D)General/ Transferable Skills: المهارات العامة والانتقالية:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods. تسكين مخرجات العامة والانتقالية مع طرق التدريس والتقييم.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills مهارات المقرر العامة والانتقالية بعد انتهاء من تدريس المقرر سيكون الطالب قادرا على	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
d1 يتعامل بمهارة اخلاقية مع مختلف شرائح الانسان في العالم.	الأستقراء الاستكشاف الاستنباط التعلم الذاتي والتخطيط والتنفيذ والتقييم	الواجبات المنزلية. المشاركة الفاعلة في قاعة الدرس الملاحظة. الاختبارات التحريرية والشفهية.
d2 يقيم التغريب الثقافي والغزو الفكري.		



V. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order مسلسل	Topic/ الوحدة /الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسابيع	Contact hours الساعات الفعلية	C-ILOs مخرجات تعلم المقرر
1	مفهوم الثقافة الإسلامية وخصائصها ومصادرها	١- تعريف الثقافة الإسلامية في اللغة والاصطلاح ٢- خصائص الثقافة الإسلامية) الربانية – الشمولية – الوسطية والاعتدال- العمومية والعالمية ( – حفظ الضروريات الخمس ) ٣- مصادر الثقافة الإسلامية ( ) القرآن الكريم – السنة النبوية المطهرة)	1	2	a1, b1, c1, d1
2	أصول العقيدة الإسلامية	١- أهمية دراسة العقيدة الإسلامية ٣-تعريف العقيدة الإسلامية. ٤-أركان العقيدة الإسلامية: الركن الأول : الإيمان بالله. الركن الثاني : الايمان بالملائكة. الركن الثالث : الايمان بالكتب السماوية. الركن الرابع : الايمان بالانبياء والمرسلين. الركن الخامس : الايمان باليوم الأخر. الركم السادس : الايمان بالقضاء والقدر.	1	4	a2, b1, b2, c1, d1, d2
3	التكافل الاجتماعي في الإسلام	١- تعريف التكافل في اللغة والاصطلاح. ٢- أسباب وجوب التكافل في الاسلام.. أولاً: القرابة الموجبة للتكافل. ثانياً: أصل مشروعية كفالة الزوجة بالنفقة. ٣-الاصناف التي يستحب كفالتها. ٤-بعض الامور التي تدخل السرور على المسلمين وأجرها عند الله عظيم. ٥-أنواع الكفارات في الاسلام.	1	2	a1, a3, b1, b2, c1, d1, d2
4	الاسلام والمرأة	١- مقارنة بين ما كانت عليه المرأة في الجاهلية وما هي عليه في الاسلام.	2	4	a1, a2, a4, b1, b2, c1, d1, d2

		<p>٢-مكانة المرأة عند اليهود والنصارى والمجتمع المدني الحديث.</p> <p>٣-مكانة المرأة في الاسلام.</p> <p>٤-بعض مظاهر تكريم الاسلام للمرأة.</p> <p>٥-الحياء والمرأة.</p> <p>٦-الفوارق الشرعية بين الرجل والمرأة وموقف العلم الحديث منها.</p> <ul style="list-style-type: none"> <li>- القوامة.</li> <li>- النبوة والرسالة</li> <li>- والولاية العظمى والعامه.</li> <li>- اختصاص الرجال بكثير من التكاليف دون المرأة.</li> <li>- الطلاق.</li> <li>- نسبة الأولاد.</li> <li>- الميراث.</li> <li>- الدية.</li> <li>- العقيقة.</li> <li>- الشهادة.</li> <li>- تأديب الرجل للمرأة.</li> <li>- تعدد الزوجات.</li> <li>- الحجاب الشرعي وشروطه.</li> <li>-ولباس القوى ذلك خير.</li> </ul>			
5	موقف الاسلام من تنظيم النسل وبعض القضايا الطبية المعاصرة.	<p>١-تنظيم النسل.</p> <p>٢-الاسباب الداعية لتنظيم النسل.</p> <p>٣-بعض القضايا الطبية المعاصرة:</p> <ul style="list-style-type: none"> <li>- الاستنساخ البشري والحيواني والنباتي.</li> <li>- حكم الاسلام في الاستنساخ البشري</li> <li>- أطفال الأنابيب.</li> <li>- بنوك الأجنة.</li> <li>- حكم الاجهاض في الاسلام.</li> <li>- الترقيع الجلدي وزراعة الأعضاء..</li> <li>- تشريح جثة الميت.</li> </ul>	1	2	a2, b1, b2, c1, d1, d2
6	كل ما سبق دراسته	الامتحان النصفي	1	2	a1-a4, b1, b2, c1, d1, d2
7	حقوق الإنسان في الاسلام	<p>١-الاعلان العالمي لحقوق الاسلام.</p> <p>٢-الاسلام وحقوق الانسان:</p> <ul style="list-style-type: none"> <li>- حق الحياة.</li> <li>- حق المساواة.</li> <li>- حق الحرية.</li> <li>- حق العدالة.</li> <li>- حق الفرد في محاكمة عادلة.</li> <li>- حق الحماية من تعسف السلطة.</li> </ul>	2	4	a1-a4, b1, b2, c1, d1, d2

		<ul style="list-style-type: none"> <li>- حق الحماية من التعذيب.</li> <li>- حق الفرد في حماية عرضه وسمعته.</li> <li>- حق اللجوء الى ديار المسلمين.</li> <li>- حق حرية التفكير والاعتقاد والتعبير.</li> <li>- حق المشاركة في الحياة العامة.</li> <li>- حق احترام حقوق الاقليات.</li> <li>- حق الحرية الدينية.</li> <li>- حق الدعوة والبلاغ.</li> <li>- حق العمل.</li> <li>- حق بناء الاسرة.</li> <li>- حق التربية الصالحة.</li> <li>- حقوق الزوجة.</li> <li>- حق التنقل.</li> <li>- حق الفرد في حماية خصوصيته.</li> <li>- حق حماية الملكية الفكرية.</li> <li>- حق التمتع بكافة الحقوق الاقتصادية</li> </ul>			
8	الاسلام والوحدة	<ul style="list-style-type: none"> <li>١-الوحدة والأصل في مشروعيتها.</li> <li>٢-مظاهر وحدة الأمة الإسلامية.</li> <li>٣-أهمية وحدة الأمة الإسلامية.</li> </ul>	1	2	
9	الوطن والمواطن	<ul style="list-style-type: none"> <li>١-مفهوم الوطن وأقسامه.</li> <li>٢-تقسيم العالم على مسلمين وذميين ومستأمنين.</li> <li>٣-ماذا يعني انتمائي للوطن.</li> <li>٤-حقوق المواطن:</li> <li>- العدل.</li> <li>- المساواة.</li> <li>- الحرية.</li> <li>- الشورى.</li> <li>- الديمقراطية</li> </ul>	1	4	a1-a4, b1, b2, c1, d1, d2
10	العلمانية والعولمة	<ul style="list-style-type: none"> <li>١-مفهوم العلمانية ونشأتها ومدة ظهورها في العلم الاسلامي.</li> <li>٢-مفهوم العولمة ونشأتها وأهدافها وأضرارها على العالم الإسلامي.</li> </ul>	1	2	a1-a4, b1, b2, c1, d1, d2
11	الرأسمالية	<ul style="list-style-type: none"> <li>١-مفهوم الرأسمالية ونشأتها وأهدافها وأضرارها.</li> <li>٢-موقف الإسلام منها.</li> </ul>	1	2	
12	الغزو الفكري	<ul style="list-style-type: none"> <li>١-مفهوم الغزو الفكري وأنواعه ومظاهره وأهدافه والمؤسسات التابعة له.</li> <li>٢-موقف الإسلام منه.</li> </ul>	1	2	a1-a4, b1, b2, c1, d1, d2
13	التغريب الثقافي والاجتماعي	<ul style="list-style-type: none"> <li>١-مفهوم التغريب وأنواعه ومظاهره وأهدافه والمؤسسات التابعة له.</li> </ul>	1	2	

		٢-موقف الإسلام منه.			
14	كل ما سبق تدريسه	الامتحان النهائي	1	2	a1-a4, b1, b2, c1, d1, d2
Number of Weeks/and Units Per Semester عدد الاسبوع او الوحدات في الفصل الدراسي				32	الإجمالي

#### VI. Teaching Strategies: استراتيجيات التدريس

المحاضرة وحل المشكلات. التقليد والمحاكاة. العمل الفردي. التعلم التعاوني وطريقة الأداء العملي. البحث والاستقصاء. المناقشة وطريقة ضرب الأمثال، الأستقراء، الاستكشاف، الاستنباط، التعلم الذاتي والتخطيط والتنفيذ والتقييم

#### VII. Assignments and projects: الأبحاث

No	Assignment البحث	مخرج تعلم CILOs المقرر	Week Due الاسبوع	Mark الدرجة
1	بحث منزلي	a1-a4, b1, b2, d1, d2	9	5

#### VIII. Assessment Tasks: طرق التقييم

No	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	Aligned Course Learning Outcomes مخرج التعلم الذي يحققه
1	Assignment بحث	9	5	5%	a1-a4, b1, b2, d1, d2
2	Exercises and Home works oral الاختبار الشفوي والتمارين والواجبات المنزلية	4,6,10	5	5%	a1-a4, b1, b2, d1, d2
3	Written Test (1) امتحان تحريري (1)	7	30	30%	a1-a4, b1, b2, c1, d1, d2
4	Final Exam (practical) امتحان نهائي (عملي)	16	60	60%	a1-a4, b1, b2, c1, d1, d2
			100	100%	

#### IX. Learning Resources: مصادر التعلم

##### 1-Required Textbook(s) ( maximum two ). (بعد أقصى ٢).

- أ.د/ علي أحمد القاعدي ، مبادئ الثقافة الإسلامية طبعة ١٤٣٤ هـ - ٢٠١٣ م، منشورات المتفوق للطباعة والنشر، صنعاء اليمن.
- د/ عبدالكريم عثمان، معالم الثقافة الإسلامية، الطبعة الثانية عشر، ١٤٠٦ هـ - ١٩٨٥ م، مؤسسة الرسالة.

##### 2-Recommended Books and Reference Materials. المراجع الموصي بها.

- د/ عبدالكريم السروري، الثقافة الإسلامية، الطبعة الثانية ١٤٣١ هـ - ٢٠١٠ م، دار الفكر.

	<ul style="list-style-type: none"> <li>▪ د/ يوسف القرصاوي، ثقافة الداعية، الطبعة الأولى ١٤١٧ هـ - ١٩٩٧ م ، مؤسسة الرسالة بيروت.</li> <li>▪ الثقافة الإسلامية - مجموعة من دكاترة جامعة العلوم - الطبعة الثالثة ٢٠١٤ م - منشورات جامعة العلوم.</li> <li>▪ د/ عبدالله أحمد فروان - المدخل الى الثقافة الإسلامية منشورات الصادق للطباعة والنشر ٢٠١٤ م.</li> </ul>
المراجع الالكترونية ومواقع النت. 3-Electronic Materials and Web Sites etc.	

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
سياسات المقرر (يشمل السرقة الادبية وموثيق الشرف والحضور الخ	
The University Regulations on academic misconduct will be strictly enforced. Please refer to ----- بحسب لائحة جامعة الناصر لشئون الطلاب----	
1	<p>حضور المحاضرات Class Attendance:</p> <ul style="list-style-type: none"> <li>▪ الالتزام بالمواعيد المحددة للمحاضرات والانتظام في الحضور، وضرورة حضور ( ٧٥٪ ) من ساعات المقرر.</li> <li>▪ إذا تجاوز نسبة غياب الطالب (٢٥٪) من ساعات المقرر يعتبر محروماً في المقرر. إلا اذا كان غيابه بسبب مرض او بعذر قاهر تقبله عمادة الكلية، وبموجب وثائق رسمية ومعتمدة.</li> </ul>
2	<p>التأخير: Tardy</p> <ul style="list-style-type: none"> <li>▪ يسمح للطالب المتأخر بدخول المحاضرة إذا تأخر في حدود ربع ساعة فقط وبعذر. وإذا تكرر تاخر الطالب أكثر من ثلاث مرات بدون عذر يتم تنبيهه واخذ تعهد كتابي بعدم تكرار ذلك ما لم يستدعي ولى امره ويشعر بذلك ويمنع من حضور المحاضرات ويعتبر راسباً في المقرر.</li> </ul>
3	<p>حضور الامتحان والانضباط: Exam Attendance/Punctuality:</p> <ul style="list-style-type: none"> <li>▪ عدم السماح بدخول الامتحان بعد مرور أكثر من نصف ساعة من بدء الامتحان.</li> <li>▪ لا يسمح للطالب الخروج من القاعة الامتحانية بعد توزيع الأسئلة إلا بعد مرور نصف وقت الامتحان.</li> <li>▪ في حالة تغيب الطالب عن الامتحان بعذر مقبول يعاد له الاختبار بالدور الثاني بدرجة كاملة.</li> <li>▪ يعتبر الطالب الغائب في اختبار نهاية الفصل راسباً في المقرر الذي تغيب فيه وعند اعادة الامتحان تحسب له الدرجة الصغرى (٥٠٪).</li> <li>▪ يحرم الطالب من المقرر الذي اخل فيه بالنظام.</li> <li>▪ في المقررات العملية اذا رسب الطالب في الجزء العملي او النظري يعتبر راسباً في المقرر وعليه اعادة الامتحان في الجزء الذي رسب به وتحسب له الدرجة الصغرى.</li> <li>▪ يمنع استخدام الهواتف المحمولة اثناء الامتحان ويعتبر الطالب محروماً من المقرر اذا قام باستخدامه.</li> </ul>
4	<p>الابحاث والمشاريع: Assignments and Projects:</p> <ul style="list-style-type: none"> <li>▪ - تقديم الابحاث والمشاريع في الوقت المحدد تماماً.</li> <li>▪ إذا تأخر الطالب عن تقديم واجباته في الموعد الذي حدد له لن يقبل إلا إذا ما وافق الأستاذ على قبول التأخير، بناءً على ظروف قاهرة يتم شرحها والإعلان عنها خطياً قبل رفع درجات المقرر ما لم يحرم الطالب من الدرجة المخصصة لهذا النشاط.</li> </ul>

5	<p><b>Cheating: الغش</b></p> <p>لن يتم التسامح مع الغش وهو: محاولة الطالب الغش بالحديث أو النظر في ورقة الغير أو الإشارة أو محاولة استخدام أية وسيلة من وسائل الغش.</p> <ul style="list-style-type: none"><li>■ الغش في الامتحان النصفى أو الشروع فيه يعتبر الطالب محروما من درجة الامتحان النصفى للمقرر.</li><li>■ الطالب الذي يغش في الامتحان النهائي يحرم من المقرر اذا لم يستفد من الغش او المقرر الذي غش فيه والذي يليه اذا استفاد من الغش. ويحرم من المقرر الذي غش فيه والمقرر الذي قبله اذا غش في اخر مقرر.</li><li>■ إذا تكرر غش الطالب أكثر من مرة في الدورة الامتحانية الواحدة يطبق عليه حكم الفصل من الدراسة لمدة عام جامعي او فصل نهائي اذا تكرر الغش لاكثر من مرتين.</li></ul>
6	<p><b>Plagiarism: الانتحال والسرقه الادبية</b></p> <p>الطالب الناقل لأفكار الآخرين دون التوثيق يحرم من الدرجة ويعنف على فعلته تلك دون التشهير به أمام زملائه.</p> <ul style="list-style-type: none"><li>■ الطالب المنتحل صفة طالب آخر أثناء أداء الامتحان تطبق عليه المادة (٦٥) الفقرة (٢) من اللائحة الموحدة لشئون الطلاب بجامعة الناصر، وهو "الفصل" ويكون بقرار من الجهات المعنية. وتسري العقوبة نفسها على الطالب الذي انتحل شخصيته لنفس الغرض.</li></ul>
7	<p><b>Other policies: سياسات اخرى</b></p> <ul style="list-style-type: none"><li>■ لا يسمح استخدام الهواتف المحمولة داخل قاعة المحاضرة، أو أثناء سير الامتحان.</li><li>■ إذا سلك الطالب سلوكاً غير مقبول فإنه يُحال إلى الجهات المعنية لاتخاذ اللازم، مشفوعاً بتقرير عن ذلك.</li><li>■ يمنع الاكل او الشرب اثناء المحاضرة.</li></ul>

## Course Specification of English II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	English II			
2	Course Number and Code:	<b>B11104</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	-	-	
4	Study level/year at which this course is offered:	<i>Second semester/First year.</i>			
5	Pre –requisite :	English I			
6	Co –requisite :	None			
7	Program (s) in which the course is offered:	Medical Lab			
8	Language of teaching the course:	English			
9	Prepared By:	Dr. Iman Al-Mahdi			
10	Approved By:				

II. Course Description:	
	The course is concerned with continuing English course to second semester to achieve fluency and accuracy in English language of medical students. English language which is the medium of teaching and learning in medical sciences also the window to the world of education. The course consist extensive and intensive learning in English language.

III. ILOs:	
	<p>After participating in this course students must be able to:</p> <ol style="list-style-type: none"> <li>1. Identify the usage of English language</li> <li>2. Define Extensive and intensive learning in English.</li> <li>3. Classify Oral and written communication in medical vocabularies fluently</li> <li>4. Analyze the correct grammar and spelling.</li> <li>5. Create ability to talking and writing lecture notes with ease.</li> <li>6. Apply read and write English language very well.</li> <li>7. Perform listening and speaking fluently.</li> <li>8. Search English books, references, medical dictionaries etc.</li> </ol>

9. Express English language with confidence.

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> After participating in this course students must be able to:	<i>Teaching strategies to be used.</i>	Assessment Methods.
a1- Identify the usage of English language. a2- Define Extensive and intensive learning English. a3- Classify Oral and written communication in medical vocabularies fluently	Lectures with different topics in English language Grammar courses with relevant grammar usage. Oral communication with students	Quiz and questions in each class Grammar exercise using in the class Presentation in every week Homework written exams

(B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> After participating in this course students must be able to:	Teaching strategies to be used	Assessment Methods
b1 Analyze the correct grammar and spelling. b2 Create ability to talking and writing lecture notes with ease.	Stories reading Creative writing Conversation. Reading, Using skimming Discussion and problem solving	Oral exam Quiz for skimming

(C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i> After participating in this course students must be able to:	Teaching strategies to be used	Methods of assessment
c1- Apply read and write English language very well. c2- Perform listening and speaking fluently.	Lectures and Oral conversation in the class and group discussion. Communication between the teacher, students in the class	Oral exam



(D) General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills After participating in this course students must be able to:	Teaching strategies to be used	Methods of assessment
d1 Search English books, references, medical dictionaries etc.	Reading, group discussion	Exams, Homework, Oral questions and quiz.
d2 Express English language with confidence.		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Unit: 7 Smoking	Problems of smoking	2	4	a1, a2, b1, c1, d1
2	Unit: 8 writing : Definition	Stage 1 writing	2	4	a1-a3, b1-b2, c1-c2, d1-d2
3	Unit : 9 writing 2. Definition. Part.2 and midterm exam	Structure 2	3	6	a1-a3, b1-b2, c1-c2, d1-d2
4	Unit 10. Writing 3 exemplification	Stage 1 and 2	2	4	a1-a3, b1-b2, c1-c2, d1-d2
5	Unit 11.writing.4 classification	Stage 1 and 2	2	4	a1-a3, b1-b2, c1-c2, d1-d2
6	Unit: 12 Writing 5 classification	Classification part two.	2	4	a1-a3, b1-b2, c1-c2, d1-d2
7	Final exam		1	2	a1-a3, b1-b2, c1-c2, d1-d2
Number of Weeks/and Units Per First semester4				28	

VI. Teaching Strategies:
Lectures, using diagrams, pictures and captions. Stories reading



Creative writing  
Conversation.  
Group discussion.  
Reading, Using skimming  
problem solving

VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Creative writing	b1-b2, c1, d1-d3	6	5

VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Creative writing and Oral Tests	6	10	10%	b1-b2, c1, d1-d3
2	Written Test (1)	6	30	30%	a1-a3, b1-b2, c1, d1-d3
3	Final Exam (theoretical)	12	60	60%	a1-a3, b1-b2, c1, d1-d3
4	Total		100	100%	

IX. Learning Resources:

1- Required Textbook(s) ( maximum two ).

1. Amr Al Himairi, (2005), English for medical students, Sana'a University, Sana'a, Republic of Yemen
2. Laquire Blass, (2005), Well read 1, Oxford University press.

2- Recommended Books and Reference Materials.

- Jack C. Richard (2005), Person to Person Starter, Oxford University press.
- Mosby's (1989), Medical and Nursing Dictionary, second edition. Glotia Publication Pvt. Ltd.

3- Electronic Materials and Web Sites *etc.*

X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"> <li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>Midterm Exam cheating results in giving the student a mark of zero</li> </ul>



	<ul style="list-style-type: none"><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism): “To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## علم نفس

الجامعة: الناصر

الكلية: العلوم الطبية

القسم: صيدلة

البرنامج: صيدلة

I. General Information: معلومات عامة						
1	Course Title: اسم المقرر	علم نفس				
2	Course Number and Code: رمز ورقم المقرر	B11112				
3	Credit hours: الساعات المعتمدة	س. م C.H			الاجمالي	
		نظري	عملي	تطبيق		تدريب
		2	-	-	-	2
4	Study level/year at which this course is offered: الفصل /المستوى الدراسي الذي يدرس فيه المقرر	الفصل الاول / المستوى الأول				
5	Pre –requisite : المقررات السابقة :	- - - -				
6	Co –requisite : المقررات المصاحبة :	- - - -				
7	Program (s) in which the course is offered: البرامج التي يدرس فيها المقرر	المختبرات				
8	Language of teaching the course: لغة تدريس المقرر	اللغة العربية				
9	Prepared By: اعداد	د. على حسن وهبان				
10	Approved By: تم اقراره من					

II. Course Description: وصف المقرر	
يقدم المقرر اطلالة عامة على ابرز موضوعات علم النفس من خلال التعريف بعلم النفس وميادينه ومدارسه واهدافه كما يتناول المقرر الشخصية ومحددات السلوك الانساني والدافعية والاحساس والانتباه والادراك البشري واخيرا يتطرق المقرر لموضوعات الذاكرة والنسيان.	

III. ILOs: مخرجات تعلم المقرر	
بعد الانتهاء من المقرر سيكون الطالب قادرا على ان:	
١. يصف مفاهيم واهداف وميادين ومدارس علم النفس	
٢. يعرّف مفاهيم وانواع الذاكرة والذكاء	
٣. يشرح أنماط الشخصية الانسانية	
٤. يقارن بين محددات السلوك الانساني البيولوجية منها والبيئية	
٥. يحلل اهمية وانواع الدوافع البشرية	
٦. يفرق بين كل من الاحساس والانتباه والادراك	

٧. يطور قدراته الذاتية من خلال استخدام مصادر التعلم المختلفة ومنها الانترنت.  
٨. يعرض أفكاره ويتواصل مع الآخرين بوضوح كتابة أو شفها.

IV. Alignment Learning Outcomes with Teaching and Assessment Methods: تسكين المخرجات مع طرق التدريس والتقييم

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods: تسكين مخرجات المعرفة والفهم مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. مخرجات المعرفة والفهم	Teaching strategies to be used. طرق التدريس	Assessment Methods. طرق التقييم.
بعد الانتهاء من المقرر سيكون الطالب قادرا على ان: a1- يصف مفاهيم واهداف وميادين مدارس علم النفس a2- يعرف مفاهيم وانواع الذاكرة والذكاء a3- يشرح أنماط الشخصية الإنسانية	المحاضرات والنقاش	الاختبارات الشهرية والنصفية الاسئلة الصفية والتكاليف الورقية

(B) Intellectual Skills: المهارات الذهنية

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods: تسكين مخرجات المهارات الذهنية مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Intellectual Skills. مخرجات المقرر في المهارات الذهنية	Teaching strategies to be used استراتيجيات التدريس	Assessment Methods طرق التقييم
بعد الانتهاء من المقرر سيكون الطالب قادرا على ان: b1- يقارن بين محددات السلوك الانساني البيولوجية منها والبيئية b2- يحلل اهمية وانواع الدوافع البشرية	الإلقاء والحوار والنقاش تحليل المواقف في التجارب الحياتية عروض الباوربينت	الاختبارات الشهرية والنصفية الاسئلة الصفية عروض الباوربينت والتكاليف الورقية اختبارات نهاية الفصل الدراسي

(C) Professional and Practical Skills. المهارات المهنية والعملية.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills مخرجات المقرر في المهارات المهنية والعملية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
بعد الانتهاء من المقرر سيكون الطالب قادرا على ان: c1- يفرق بين كل من الاحساس والانتباه والادراك	الإلقاء والحوار والنقاش تحليل المواقف في التجارب الحياتية عروض الباوربينت	الاختبارات الشهرية والنصفية الاسئلة الصفية والتكاليف الورقية

(D)General/ Transferable Skills: المهارات العامة والانتقالية		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods. تسكين مخرجات العامة والانتقالية مع طرق التدريس والتقييم.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills مهارات المقرر العامة والانتقالية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
بعد الانتهاء من المقرر سيكون الطالب قادرا على ان d1- يطور قدراته الذاتية من خلال استخدام مصادر التعلم المختلفة ومنها الانترنت. d2- عرض أفكاره ويتواصل مع الآخرين بوضوح كتابة أو شفها.	الإلقاء والحوار والنقاش تحليل المواقف في التجارب الحياتية عروض الباوربينت الامثلة والسيكودراما	الاختبارات الشهرية والنصفية الاسئلة الصفية عروض الباوربينت والتكاليف الورقية

V. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order مسلسل	Topic/ unit الوحدة /الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسابيع	Contact hours الساعات الفعلية	C-ILOs مخرجات تعلم المقرر
1	علم النفس , مدخل مفاهيمي عام	- تعاريف العلم , علم النفس - أهمية واهداف علم النفس - موضوعات علم النفس - العلوم ذات العلاقة بعلم النفس	1	2	a1, b1, d1
2	مناهج البحث في علم النفس	- تعريف منهج البحث - أنواع مناهج البحث - تقنيات جمع المعلومات في البحوث - سمات واخلاقيات البحث	1	2	a1, a2, b1, b2, c1, d1, d2
3	مدارس علم النفس	- مدرسة التحليل النفسي - المدرسة السلوكية - المدرسة الإنسانية - المدرسة الإيجابية	1	2	a2, a3, b2, c1, d2
4	مجالات علم النفس	- مجالات علم النفس النظرية - مجالات علم النفس التطبيقية	1	2	a2, b2, c1, d2
5	محددات السلوك العصبية والغدية	- الجهاز العصبي والسلوك - جهاز الغدد والسلوك	1	2	a1, a2, a3, b1, b2, c1, d1, d2
6	محددات السلوك البيئية	- البيئة الطبيعية للسلوك - البيئة الاجتماعية للسلوك	1	2	a1, a2, a3, b1, b2, c1, d1, d2
7	الامتحان النصفى		1	2	a1, a2, a3, b1, b2, c1, d1, d2

8	الدافعية Motivation	- تعريف الدافعية, المفاهيم ذات العلاقة - تصنيف الدوافع - العلاقة بين الدافعية والسلوك - قياس الدوافع - تطبيقات دراسة الدافعية في الحياة	1	2	a1, a3, b2, c1, d1, d2
9	الانفعالات Emotions	- تعريف الانفعالات والمفاهيم ذات العلاقة - تصنيف الانفعالات - بنية الانفعالات - نمو الانفعالات - العلاقة بين الانفعالات والسلوك - قياس الانفعالات	1	2	a1, a2, a3, b1, b2, c1, d1, d2
10	العمليات العقلية Mental process	- العمليات العقلية , تعريف عام ١- الاحساس ٢- الانتباه ٣- الادراك ٤- التفكير - مسار نمو وبناء العمليات العقلية	1	2	a1, a2, a3, b1, b2, c1, d1, d2
11	الشخصية Personality	- تعريف الشخصية - نظريات الشخصية - العوامل المؤثرة في تكوين الشخصية - قياس الشخصية	1	2	a1, a2, a3, b1, b2, c1, d1, d2
12	الصحة النفسية Health psychology	- مفهوم الصحة , الصحة النفسية , علم الصحة النفسية . - اهمية وفلسفة دراسة الصحة النفسية – منهجية دراسة الصحة النفسية - معايير (محكات ) الصحة النفسية - فريق العمل في مجال الصحة النفسية – تعزيز الصحة النفسية	1	2	a1, a3, b1, b2, d1, d2
13	الاضطرابات النفسية Psychological Disorders	- تعريف عام للاضطرابات النفسية والعقلية - تصنيف للاضطرابات النفسية والعقلية للاضطرابات النفسية والعقلية - اسباب للاضطرابات النفسية والعقلية - تقييم ومواجهة للاضطرابات النفسية والعقلية	1	2	a2, a3, b1, b2, c1, d1, d2
14		الامتحان النهائي	1	2	a1, a2, a3, b1, b2, c1, d1, d2



Number of Weeks/and Units Per Semester عدد الاسبوع خمسة عشر اسبوع 28

VI. Teaching Strategies: استراتيجيات التدريس

اللقاء والشرح  
النقاش والحوار  
الوسائل والرسوم التعليمية والالكترونية  
اوراق العمل  
الاسئلة الصفية  
التجارب الحياتية والتطبيقات المهنية  
الامثلة التوضيحية  
عروض الباوربينت من الطلبة

VII. Assignments and projects: الابحاث والواجبات

no	Assignment البحث	CILOs مخرج تعلم المقرر	Week Due الاسبوع	Mark الدرجة
1	عروض الباوربينت	a1, a2, a3, b1, b2, c1, d1, d2	4-12	5
2		a1, a2, a3, b1, b2, c1, d1, d2		

VIII. Assessment Tasks: طرق التقييم

no	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	Aligned Course Learning Outcomes مخرج التعلم الذي يحققه
1	عروض الباوربينت تلخيص الموضوعات وتمثيل عليها	4-12	5	%5	a1, a2, a3, b1, b2, c1, d1, d2
2	Oral Tests شفوي Quizzes اختبار قصيرة اسئلة قصيرة	5-12	5	%5	a1, a2, a3, b1, b2, c1, d1, d2
3	Written Test (1) امتحان تحريري	7	30	30%	a1, a2, a3, b1, b2, c1, d1, d2
4	Final Exam (theoretical) امتحان نهائي (نظري)	14	60	60%	a1, a2, a3, b1, b2, c1, d1, d2
	Total		100	100%	

IX. Learning Resources: مصادر التعلم	
1-Required Textbook(s) ( maximum two ).(المراجع المطلوبة (بحد أقصى ٢)).	
1-	د محمود فتحي عكاشو د محمد ابو حلاوة. ٢٠٠٨. مدخل الى علم النفس، جامعة العلوم والتكنولوجيا. اليمن.
2-	د طارق محمود رمزي واخرون. ٢٠٠٠. مقدمة في علم النفس، دار الفكر العربي، لبنان.
2-Recommended Books and Reference Materials.المراجع الموصى بها.	
1-	د محيي الدين توفيق ١٩٩٢. المدخل الى علم النفس، دار الفكر للنشر، عمان
2-	د فاروق عبد الفتاح موسى. ٢٠٠٤. اسس السلوك الانساني – المدخل الى علم النفس العام – مكتبة زهراء الشرق. القاهرة
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت.	
1-	www.arabpsynet.com/archives/op/OP.khat-jordcons.htm.
2-	www.arabpsynet.com/book/samer

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
سياسات المقرر (يشمل السرقة الادبية وموائيق الشرف والحضور الخ	
The University Regulations on academic misconduct will be strictly enforced. Please refer to ----- بحسب لائحة جامعة الناصر لشئون الطلاب----	
1	<p>Class Attendance: حضور المحاضرات</p> <ul style="list-style-type: none"> <li>الالتزام بالمواعيد المحددة للمحاضرات والانتظام في الحضور، وضرورة حضور ( ٧٥٪ ) من ساعات المقرر.</li> <li>إذا تجاوز نسبة غياب الطالب (٢٥٪) من ساعات المقرر يعتبر محروماً في المقرر. إلا إذا كان غيابه بسبب مرض أو بعدد قاهر تقبله عمادة الكلية، وبموجب وثائق رسمية ومعتمدة.</li> </ul>
2	<p>Tardy: التأخير</p> <ul style="list-style-type: none"> <li>يسمح للطالب المتأخر بدخول المحاضرة إذا تأخر في حدود ربع ساعة فقط وبعذر. وإذا تكرر تأخر الطالب أكثر من ثلاث مرات بدون عذر يتم تنبيهه واخذ تعهد كتابي بعدم تكرار ذلك ما لم يستدعي ولى امره ويشعر بذلك ويمنع من حضور المحاضرات ويعتبر راسباً في المقرر.</li> </ul>
3	<p>Exam Attendance/Punctuality: حضور الامتحان والانضباط</p> <ul style="list-style-type: none"> <li>عدم السماح بدخول الامتحان بعد مرور أكثر من نصف ساعة من بدء الامتحان.</li> <li>لا يسمح للطالب الخروج من القاعة الامتحانية بعد توزيع الأسئلة إلا بعد مرور نصف وقت الامتحان.</li> <li>في حالة تغيب الطالب عن الامتحان بعذر مقبول يعاد له الاختبار بالدور الثاني بدرجة كاملة.</li> <li>يعتبر الطالب الغائب في اختبار نهاية الفصل راسباً في المقرر الذي تغيب فيه وعند اعادة الامتحان تحسب له الدرجة الصغرى (٥٠٪).</li> <li>يحرم الطالب من المقرر الذي اخل فيه بالنظام.</li> <li>في المقررات العملية اذا رسب الطالب في الجزء العملي او النظري يعتبر راسباً في المقرر وعليه اعادة الامتحان في الجزء الذي رسب به وتحسب له الدرجة الصغرى.</li> <li>يمنع استخدام الهواتف المحمولة اثناء الامتحان ويعتبر الطالب محروماً من المقرر اذا قام باستخدامه.</li> </ul>
4	<p>Assignments and Projects: الابحاث والمشاريع</p> <ul style="list-style-type: none"> <li>- تقديم الابحاث والمشاريع في الوقت المحدد تماماً.</li> <li>أذا تأخر الطالب عن تقديم واجباته في الموعد الذي حدد له لن يقبل إلا إذا ما وافق الأستاذ على قبول التأخير، بناءً على ظروف قاهرة يتم شرحها والإعلان عنها خطياً قبل رفع درجات المقرر ما لم يحرم الطالب من الدرجة المخصصة لهذا النشاط.</li> </ul>

5	<p><b>Cheating: الغش</b></p> <p>لن يتم التسامح مع الغش وهو: محاولة الطالب الغش بالحديث أو النظر في ورقة الغير أو الإشارة أو محاولة استخدام أية وسيلة من وسائل الغش.</p> <ul style="list-style-type: none"><li>■ الغش في الامتحان النصفى أو الشروع فيه يعتبر الطالب محروماً من درجة الامتحان النصفى للمقرر.</li><li>■ الطالب الذي يغش في الامتحان النهائي يحرم من المقرر اذا لم يستفد من الغش او المقرر الذي غش فيه والذي يليه اذا استفاد من الغش. ويحرم من المقرر الذي غش فيه والمقرر الذي قبله اذا غش في اخر مقرر.</li><li>■ إذا تكرر غش الطالب أكثر من مرة في الدورة الامتحانية الواحدة يطبق عليه حكم الفصل من الدراسة لمدة عام جامعي او فصل نهائي اذا تكرر الغش لأكثر من مرتين.</li></ul>
6	<p><b>Plagiarism: الانتحال والسرقه الادبية</b></p> <p>الطالب الناقل لأفكار الآخرين دون التوثيق يحرم من الدرجة ويعنف على فعلته تلك.دون التشهير به أمام زملائه.</p> <ul style="list-style-type: none"><li>■ الطالب المنتحل صفة طالب آخر أثناء أداء الامتحان تطبق عليه المادة (٦٥) الفقرة (٢) من اللائحة الموحدة لشئون الطلاب بجامعة الناصر، وهو "الفصل" ويكون بقرار من الجهات المعنية. وتسري العقوبة نفسها على الطالب الذي انتحل شخصيته لنفس الغرض.</li></ul>
7	<p><b>Other policies: سياسات اخرى</b></p> <ul style="list-style-type: none"><li>■ لا يسمح استخدام الهواتف المحمولة داخل قاعة المحاضرة، أو أثناء سير الامتحان.</li><li>■ إذا سلك الطالب سلوكاً غير مقبول فإنه يُحال إلى الجهات المعنية لاتخاذ اللازم، مشفوعاً بتقرير عن ذلك.</li><li>■ يمنع الاكل او الشرب أثناء المحاضرة.</li></ul>

## Course Specification of Pharmacy Management

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	<b>Pharmacy Management</b>				
2	Course Number and Code:	<b>B11481</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	-	-	-	2
4	Study level/year at which this course is offered:	Second semester/Fourth year				
5	Pre –requisite :					
6	Co –requisite					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Nawal Ali AL-Zandani and Alzomor				
10	Approved By:					

### II. Course Description:

The basics and principles of management as an important tool to achieve objectives of an organization including health organizations such as hospitals and health offices will be introduced to build the students skills and abilities in the management of themselves, and to deliver better business results. Throughout the course, the student will be exposed to important element in health management such as management theory and function, planning process, human resources management, financial management, organizational behavior and strategic planning. Using appropriate example in health management, student will be able to understand better issues and challenges in health management and apply them in their practice as health manager of the future.

III. ILOs: At the end of this course, student must be able to:

1. Recognize the basics and principles of management.
2. Identify the importance of financial management and control in health care.
3. Explain the environmental factors that may influence health management.
4. Distinguish the basics and principles of management in the development of health care system..
5. Investigate the important elements in human resources management in health care.
6. Select the appropriate, methods and business type.
7. Operate basics of planning, managing and control in health care organization.
8. Carry out management skills for management of themselves
9. Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and life-long learning.
10. Work effectively in a team and demonstrate creativity and time management abilities.
11. Demonstrate critical thinking and decision making abilities and life-long learning

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of this course, student must be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1-Recognize the basics and principles of management.	Lectures and seminars	Quizzes, Written exam, short answers and homework. Participation
a2- Identify the importance of financial management and control in health care.		
a3- Explain the environmental factors that may influence health management.		

#### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At the end of this course, student must be able to:	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1-Distinguish the basics and principles of management in the development of health care system.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises
b2- Investigate the important elements in human resources management in health care.		
b3- Select the appropriate, methods and business type.		

#### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills At the end of this course, student must be able to:	Teaching strategies to be used	Methods of assessment
c1- Operate basics of planning, managing and control in health care organization.	Lectures and Group assignments	reports and presentations based on their managerial skills
c2-Carry out management skills formangement of themselves		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills At the end of this course, student must be able to:	Teaching strategies to be used	Methods of assessment
d1-Implement writing and presentation skills.	-Small group discussions -Micro assignments	reports, presentations and communication with the lecturer and his colleagues.
d2-Work effectively in a team and demonstrate creativity and time management abilities.		
d3-Demonstrate critical thinking and decision making abilities and life-long learning.		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Course introduction	.General information about the importance of health management. .define the main topic in this course.	1	2	a1, b1
2	Health and management	-definition _ Why study management ? _ Management functions _ Management roles _ Types of managers _ Management skills	1	2	a1, a2, a3, a4, b1, b2, c1, d1, d2.d3
3	Organizational development	-definition	1	2	a2, a3, b3, c2, c1, d2, d3.



		-important of organization development(od) -role of od services/ consultant -od services/ techniques -conditions that had to be present if an OD intervention could have any meaningful chance of bringing about the desired change:			
4	Organizational behavior	-introduction -important of ob -concept of ob -Organizational Citizenship Behavior (OCB)	1	2	a2, a3, b1, b3, c1, c2, d1, d2.
5	Leadership	-definition -introduction -nature of power -Decision-making authority of leaders -Factors affecting leadership style. -Participative leadership. -Guidelines to make full use of participative approach.	1	2	a2, a3, a4, b1, b2, b3, c1, c2, d1, d2,
6	Planning process	-Definition -stage of planning -Type of planning	1	2	a1, b2, b3, c1, c2, , d1, d2.
7	Mid-term exam		1	2	a1, a2, a3, b1, b2, b3, c1, c2, , d1.
8	Decision making process	-Definition -Steps of DM -Problems in DM -condition of DM -style of DM	1	2	a3, b1, b2, b3, b4, c1, d1, d2, d3.
9	Human Resource Management	-Definition of HRM -HRM process	1	2	a1, a2, a3, b2, b3, c1, d2, d3.



10	Controlling	-Definition -type of controlling.	1	2	a3, b2, c1, , d1, d2, d3.
11	Budgeting and financial management	.Issues in Financial Allocation • Methods of Financial Control – Budgeting • Bottom-up • Top down • Zero-based – Auditing • Internal • External	1	2	a1, a2, a3, b1, b2, b3, d1, d2, d3.
12	Strategic management	-Development of Strategic Management -Levels of Strategy -Strategic Management Process -SWOT Analysis -Corporate Portfolio Matrix	1	2	a1, a2, a3, b1, b2, b3, c1, , d1, d3.
13	Inventory management	-definition -INTRODUCTION -Function -Method of IM	1	2	a1, a2, a3, b1, b2, b3, c2, , d1, d2, d3.
14	Management theory	-Why study management theory? -The evolution of management -The evolution of management theory. -Recent developments in management theory.	1	2	a3, b1, b3, c1, c2 d2.
15	Health care system	- definition -contents of HCS.	1	2	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2.
16	Final exam		1	2	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2.
Number of Weeks/and Units Per Semester			16	32	

VI. Teaching Strategies:





- Lectures and seminars
- Solving Problem method and discussion

#### VII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Quiz 1	5	5	5%
2	Oral test	10	5	5%
3	Mid Exam (theoretical)	7	30	30%
4	Final Exam (theoretical)	16	60	60%
5	Total		100	100%

#### VIII. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Kreitner. 2002. Foundations of Management: Basics and Best Practices. Robert New York: Thompson
- 2- Robbins and Coulter. 2002. Management, 7th Edition. Prentice and Hall International Inc.

##### 2-Recommended Books and Reference Materials.

1. Robbin, S.P. 2002. Management Concepts and Practice. Prentice-Hall Inc. New Jersey
2. Shonell, S.M. and Kaluzzy, A.D. 2000. Health Care Management : A Text in Organizational Theory and Behavior. John Wiley and Sons, New Jersey, 4nd. Ed.

##### 3- Electronic Materials and Web Sites etc.

1. <http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html>
2. <http://www.chemistanddruggistjobs.co.uk/jobs/pharmacy-manager/>

#### IX. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmaceutical Calculation

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	<b>Pharmaceutical Calculation</b>			
		Mathematics			
2	Course Number and Code:	<b>B11152</b>			
3	Credit hours: 2hrs.	C.H			Total
		Th.	Pr.	Tut.	
		2	-	-	-
4	Study level/year at which this course is offered:	<i>Second semester/First year</i>			
5	Pre –requisite :	None			
6	Co –requisite :				
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Dr. Abdulkarim Alzomor			
10	Approved By:				

### Course Description:

This course is designed to provide calculus for students of pharmacy to develop an understanding of the derivative, types of functions including calculations related in several aspects of pharmaceuticals, such as pharmaceutical technology, clinical and preparation pharmacy, pharmacology, pharmaceutical chemistry .and pharmacokinetics



## II. ILOs: at end of the course students will be to:

1. Understand of the weights, measures the function of pharmaceutical balances,
2. Perform pharmaceutical calculations; the preparation of certain pharmaceutical dose forms.
3. Appreciate the need for accuracy and thoroughness in manufacture of pharmaceutical products.
4. Formulate liquid, mixture and powder pharmaceutical products.
5. Calculate isonicity and osmolality of pharmaceutical preparations.
6. Measurement and applications of specific gravity and concentrations of solids and liquids in calculating relative quantities in solid, semisolid or liquid components of pharmaceutical Prescriptions.
7. Understanding and applying dilutions as a concept in formulation and pharmaceutical analysis.
8. Performing calculations related to the preparation of isotonic solutions.
9. Performing calculations related to preparation of common pharmaceutical types such as powders, suspensions, capsules etc.
10. Solve problems and calculate the dose
11. Apply calculation in the field of pharmacy
12. Evaluate calculation data.
13. Work effectively both in a team, and independently on solving problems

## III. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. At end of the course students will be able to:</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Understand of the weights, measures the function of pharmaceutical balances	Lecture  Group discussion	Quiz  Written exam
a2 Calculate isonicity and osmolality of pharmaceutical preparations		
a3- Formulate liquid, mixture and powder pharmaceutical products.		
a4- Understanding and applying dilutions as a concept in formulation and pharmaceutical analysis.		

(B)Intellectual Skills:



Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Intellectual Skills. <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Assessment Methods
b1- Perform pharmaceutical calculations; the preparation of certain pharmaceutical dose forms.	Group discussion  Seminar  Lecture	Oral exam  Presentation  Quiz
b2- Performing calculations related to the preparation of isotonic solutions.		
b3- Appreciate the need for accuracy and thoroughness in manufacture of pharmaceutical products.		

(C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
c1- Solve problems and calculate the dose	Problem solving methods	Written exam
c2- Apply calculation in the field of pharmacy		
c3- Performing calculations related to preparation of common pharmaceutical types such as powders, suspensions, capsules etc.		
c4- Measurement and applications of specific gravity and concentrations of solids and liquids in calculating relative quantities in solid, semisolid or liquid components of pharmaceutical Prescriptions.		

(D) General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
d1- Evaluate calculation data. d2- Work effectively both in a team, and independently on solving problems	Problem solving methods	Written exam

Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction & Roman numerals	<ul style="list-style-type: none"> <li>• Introduction of pharmaceutical calculation</li> <li>• Type of Roman number and problems</li> </ul>	1	2	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1,d2
2	System used in the measurement	<ul style="list-style-type: none"> <li>• Metric system</li> <li>• Apothecary system</li> <li>• Avoirdupois system</li> <li>• Intersystem conversion</li> <li>• Problems</li> </ul>	2	4	
3	Common household & Techniques measures	<ul style="list-style-type: none"> <li>• Household measuring devices</li> <li>• Techniques of pharmaceutical measurement</li> <li>• Problems</li> </ul>	1	2	
4	Quantitative product strength	<ul style="list-style-type: none"> <li>• Percentage</li> <li>• Ratio strength</li> <li>• Dilution and concentration</li> <li>• Problems</li> </ul>	2	4	
5	Reducing and enlarging formulas	<ul style="list-style-type: none"> <li>• Reducing and enlarging formulas</li> <li>• Problems</li> </ul>	1	2	
6		Midterm exam	1	2	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1
7	Biological fluids and electrolytes	<ul style="list-style-type: none"> <li>• Electrolyte solutions and concept of milliequivalent.</li> <li>• Buffers and Buffered solutions.</li> <li>• Isotonic solutions</li> <li>• Problems</li> </ul>	2	4	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1,d2
8	Drug doses & other subjects	<ul style="list-style-type: none"> <li>• Density, Temperature and specific gravity</li> <li>• Allegation methods in pharmaceutical sciences</li> <li>• Fundamental concepts of dosage calculations</li> <li>• Dosage calculations based on body surface area (BSA)</li> </ul>	2	4	



		• Problems			
9	Prescription	• Define, Types , Symbols	1	2	
10	Final exam		1	2	
Number of Weeks/and Units Per Semester			14	28	

IV. Teaching Strategies:
<ul style="list-style-type: none"> <li>Lectures using data show</li> <li>Group discussion</li> <li>Problem solving method</li> </ul>

V. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises and Home works and oral test	8, 12	10	10%	a1, a2, a3, a4, b1, b2, b3, c1, c2, c3, d1
2	Written Test (midterm exam)	6	30	30%	a1, a2, a3, a4, b1, b2, b3, c1, c2, c3, d1
3	Final Exam (theoretical)	16	60	60%	a1, a2, a3, a4, b1, b2, b3, c1, c2, c3, d1
4	Total	100	100%		

I. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1. M.Savva. (2006). Rational Approach to Pharmaceutical Calculations, V agmaLLC.
2-Recommended Books and Reference Materials.	
	1. H.C .Ansel (2013). Pharmaceutical Calculations. Lippincott Williams & Wilkin 14 <sup>th</sup> ed. 2. S. Parsons. (2013); Pharmaceutical Calculations. Parsons Printing Pre.
3-Electronic Materials and Web Sites <i>etc.</i>	





	(Also available as open source e-book: <a href="http://pharmaceuticalcalculations.org">http://pharmaceuticalcalculations.org</a> )
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VI. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p style="text-align: right;">(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p style="text-align: right;">(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>



4	<p style="text-align: right;">(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p style="text-align: right;">(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p style="text-align: right;">(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p style="text-align: right;">(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Biostatistics

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Biostatistics				
2	Course Number and Code:	<b>B11518 (Part B)</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2				2
4	Study level/year at which this course is offered:	<i>First semester/ Fifth year</i>				
5	Pre –requisite :	None				
6	Co –requisite :	Research Methodology				
7	Program (s) in which the course is offered:	Medical Lab				
8	Language of teaching the course:	Arabic/ English				
9	Prepared By:	Dr. Nagwa Ahmed Noman Othman				
10	Approved By:					

II. Course Description:	
<p>The course aims to providing the students with the basic knowledge and training aspects in the field of biostatistics. This includes the capabilities of using different mathematical and graphical methods for presenting data and estimating the level of significance differences between these data.</p>	

III. ILOs: At end of the course students will be to	
<ol style="list-style-type: none"> <li>1. Recognize how to collect different data ways</li> <li>2. Explain the data using tables and graphs.</li> <li>3. Illustrate the advantages and disadvantages of different types of data representation.</li> <li>4. Calculate central tendency and measures of dispersion measurements.</li> <li>5. Average calculated and the degree of confidence interval and interpret the result.</li> <li>6. Perform the normal distribution properties.</li> <li>7. Use Probabilities Distribution and other statistical methods to solve problems.</li> </ol>	

8. Conduct statistical analysis of measured data
9. Develop self-competencies of bio-statistics in teamwork.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	Assessment Methods.
a1-Recognize how to collect different ways data	Lecture	Quiz Written exam
a2- Explain the data using tables and graphs		
a3- Illustrate the advantages and disadvantages of different types of data representation		

#### (B)Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At end of the course students will be able to:	Teaching strategies to be used	Assessment Methods
b1- Calculate central tendency and measures of dispersion measurements	Group discussion Lecture	Written Exam Quiz
b2-Average calculated and the degree of confidence interval and explain the result		

#### (C)Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
c1 Perform the normal distribution properties	Problem solving Computer for Application onSPSS program	Presentation Written Exam
c2 Use Probabilities Distribution and other statistical methods to solve problems.		

#### (D)General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills	Teaching strategies to be used	Methods of assessment
d1 Conduct statistical analysis of measured data	Group discussion	Presentation
d2 Develop self-competencies of bio-statistics in teamwork.		

#### V. Course Content:

1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	The concept of statistics and its relationship to other sciences.		1	2	a1, b1, c1, d1
2	Statistical Research and basic steps. Measures of central tendency.		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
3					
4	Measures of dispersion, skewness and Kurtosis		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
5	principles and rules of the possibilities and		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
6	Probability distributions		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
7	MIDTERM		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
8	sampling distributions statistical inference on communities large volume of samples		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
			1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
9	Statistical inference on the communities of small size samples- the distribution of t-test		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
10	statistical hypothesis tests using the distribution of chi-square		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
11	variance analysis using a distribution F		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
12	Some statistical methods parametric and nonparametric.		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
13	Statistical methods for quality control.		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2



14	Final Exam		1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
Number of Weeks/and Units Per Semester				28	

#### VI. Teaching Strategies:

Lectures  
Computer for Application on SPSS program  
Group discussion  
Problem solving method

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	- Project	b1, b2, c1, c2, d1, d2	5	5

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises and Home works quizzes	8, 12	5	5%	a1, a2, a3, b1, b2, c1, c2, d1, d2
2	Project	12	5	5%	b1, b2, c1, c2, d1, d2
3	Written exam (mid term)	6	10	10%	a1, a2, a3, b1, b2, c1, c2, d1, d2
4	Final Exam (theoretical)	14	30	30%	a1, a2, a3, b1, b2, c1, c2, d1, d2
5	Total		50	50%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. Al-Mansoob MA and Masood MS, 2012. Introductory to Statistics and Probability, first edition, Yemen.
2. Chernick and Friser., 2003. Introductory Biostatistics for the Health Sciences.



	Modern Applications Including Bootstrap. California State University Long Beach, California.
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X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>





## Second year: first semester

## Course Specification of Analytical Chemistry I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Analytical Chemistry I			
2	Course Number and Code:	<b>B11224</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		3
4	Study level/year at which this course is offered:	<i>First semester/Second year</i>			
5	Pre –requisite :	General Chemistry			
6	Co –requisite :				
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy			
10	Approved By:				

### II. Course Description:

This course focuses on the basic principles of pharmaceutical analytical chemistry, the Qualitative Inorganic Analysis of anions and cations, aqueous and non-aqueous method of titration. Also this course cover some practical method of analysis.

### III. ILOs:

At the end of this course the student should be able to:

1. Recognize the basic principle of pharmaceutical analytical chemistry.
2. Explain the Qualitative Inorganic Analysis of anions and cations
3. Illustrate the indicators, solvents and reagents used in studied classes.
4. Describe the advantage and disadvantages of different method of analysis.
5. Determine the functional groups and their effect on acidity and basicity of pharmaceutical compounds.
6. Identify the concentration, yield and pH of the pharmaceutical compounds.
7. Diagram the schemes that explain different method of quantitative analysis.
8. Predict the pH through the functional groups in the pharmaceutical substances.
9. Operate different pharmaceutical instrument and equipment in the lab.
10. Evaluate the result of the practical part.



11. Solve some problems that are related to acidity and basicity and their effect on drug action.
12. Practice the standardization of some studied substances.
13. Cooperate with his/her colleagues to prepare a scientific topic.
14. Demonstrate critical thinking and decision making abilities
15. Work effectively in team

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course the student should be able to: a1-Recognize the basic principle of pharmaceutical analytical chemistry.	Lectures using data show video animation	MCQ Oral Exam, Quizzes, exam, short answers Homework and Participation.
a2-Explain the Qualitative Inorganic Analysis of anions and cations		
a3- Illustrate the indicators, solvent reagent used in studied classes..		
a4- Describe the advantages and disadvantages of different method of analysis.		

##### (B)Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
At the end of this course the student should be able to: b1-Determine the functional groups and their effect on acidity and basicity of pharmaceutical compounds.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2- Identify the concentration, yield and pH of the pharmaceutical compounds.		
b3- Diagram the schemes that explain different method of quantitative analysis.		



b4- Predict the pH through the functional groups in the pharmaceutical substances.		
<b>(C) Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able to: c1-Operate different pharmaceutical instrument and equipment in the lab.	Lectures and Group assignments, Practical classes.	Practical works, And practical reports.
c2-Evaluate the result of the practical part..		
c3-Solve some problems that are related to acidity and basicity and their effect on drug action.		
c4-Practice the standardization of some studied substances.		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able to: d1-Cooperate with his/her colleagues to prepare a scientific topic.	Small group discussions Practical classes	Reports, presentations and communication with the lecturer and his colleagues.
d2- Demonstrate critical thinking and decision making abilities		
d3-Work effectively in team		

<b>V. Course Content:</b>
1 – Course Topics/Items:
a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to analytical chemistry	Definition and scope. Introduction to analytical chemistry, The Analytical Perspective, Common Analytical Problems, why analytical chemistry?	1	2	a1, a3, b1, b2, b3, b4, c3, d1
2	Basic Tools of Analytical Chemistry	Numbers in Analytical Chemistry Fundamental Units of Measure Significant Figures Units for Expressing Concentration Molarity and Formality, Normality Molality Weight, Volume, and Weight-to-Volume Ratios Converting Between Concentration Units p-Functions Stoichiometric Calculations Conservation of Mass Conservation of Charge Conservation of Protons Conservation of Electron Pairs	1	2	a1, a3, b1, b2, b3, b, c3, d1-3
3	Qualitative Inorganic Analysis 1	-identification of six groups of Anions : 1- Carbonates and Bicarbonates group 2- Sulphur-containing anions 3- Halides 4- Cyanogen anions 5- Arsinic and phosphorous containing anions 6- Nitrogen- containing anions - separation of a mixture of Anions	3	7	a1, a2, a3, b1, b2, b3, b4, c1, c2, c5
4	Qualitative Inorganic Analysis 2	identification of five groups of cations:	2	4	



		<p>Group 1 : lead(II), mercury(I), and silver(I).</p> <p>Group 2: mercury(II), copper(II), bismuth(III), cadmium (II), tin(II), tin(IV), arsenic(III), arsenic(V), antimony(III), and antimony(V).</p> <p>Group 3: iron(II), iron(III), cobalt(II), nickel(II), manganese(II), chromium(III), aluminium(III), and zinc(II).</p> <p>Group 4: calcium(II), strontium(II), and barium(II).</p> <p>Group 5: Magnesium(II), lithium(I), sodium(I), potassium(I), and ammonium(I) ions.</p> <p>-separation of a mixture of Anions</p>			a1, a2, a3, b1, b2, b3, b4, c1, c2, c5
5	Midterm exam		1	2	a1-a4, b1-b4
6	Acid Base titration :	<p>Modern concepts of acids and base, acid base equilibria, law of mass action, dissociation constants, Common ion effect, Ionic product of water, pH, buffer solutions, theory of acid base titration, neutralization curves, neutralization indicators, mixed and universal indicators. Formal titrations. Pharmaceutical applications</p>	4	8	a1, a2, a3, b1, b2, b3, b4, c3
7	Non aqueous titration:	<p>Theory, advantages and limitation, non-aqueous solvents, ionization and dissociation in non-aqueous media, titration of weak acids and bases, indicators in non-aqueous titration,</p>	3	6	a1, a4, b1, b2, b3, c3 d3



	preparation of standard solutions, Pharmaceutical applications			
8	Final exam	1	2	a1-a4, b1-b4
Number of Weeks/and Units Per First semester6			32	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Identification of cations	1	2	a2, c1, c2, c5, b2-3, d2
2	Separation of mixture of cations	1	2	a2, c1, c2, c5, b2-3, d2
3	Separation of mixture of anions	1	2	a2, c1, c2, c5, b2-3, d2
4	Calibration of volumetric apparatus	1	2	c1-4, b2-3, d2
5	Preparation and standardization of HCl and NaOH solutions	1	2	a1, c1-4, b2-3, d1
6	Assay of sodium bicarbonate	1	2	a1, c1-4, d1-4, b2-3
7	Assay of benzoic acid,	1	2	a1, c1-4, b2-3, d3
8	Preparation and standardization of perchloric acid	1	2	c1-4, b2-3, d2
9	Preparation and standardization of sodium methoxide solutions	1	2	a1, c1-4, b2-3
10	Assay of ephedrine	1	2	a1, c1-4, b2-3, d2
11	Assay of Metformin hydrochloride	1	2	a1, c1-4, b2-3, d1-3
12	Final Exam	1	2	a1, c1-4, b2-3, d1-3
Number of Weeks/and Units Per First Second semester			24	

VI. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions, Tutorials and Practical classes.

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-4, d1-d3	5	5

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project	2, 8	5	5%	a1-4, b1-4, d1-d3
2	Practical reports	1-9	10	10%	a1, a3, c1-5,
3	Oral Tests	5, 9	5	5%	a1, a3, b1, b2
4	Written Test (1)	7	10	10%	a1-a4, b1-b4
5	Final Exam (theoretical)	14	50	50%	a1-a4, b1-b4
6	Final Exam (practical)	10	20	20%	a1, c1-4, b2-3, d1-3
7			100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- Douglas A. Skoog, Donald M. West, F. James Holler and Stanley R. Crouch Fundamentals of Analytical Chemistry, 2004, 8<sup>th</sup> edition, Thomson Brooks/Cole, Belmont, USA.</p> <p>2-F.W. Fifield and D. Kealey, "Principles and Practice of Analytical Chemistry" Fifth Edition, 2000, Blackwell Science, London.</p>
2-Recommended Books and Reference Materials.	
	<p>1- DEAN'S Analytical Chemistry Handbook, 2004, Second edition, McGraw-Hill Handbooks, New York, USA.</p> <p>2- Somenath Mitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada.</p> <p>3- K. Danzer, Analytical Chemistry Theoretical and Metrological Fundamentals, 2007, Springer-Verlag Berlin Heidelberg.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	





	<p>1-The Analytical Abstracts database (<a href="http://www.rsc.org/CFAA/AASearchPage.cfm">http://www.rsc.org/CFAA/AASearchPage.cfm</a>)</p> <p>2-The Analytical Forum on ChemWeb (<a href="http://analytical.chemweb.com/search/search.exe">http://analytical.chemweb.com/search/search.exe</a>)</p>
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X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Human Anatomy

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Human Anatomy				
2	Course Number and Code:	<b>B11142</b>				
3	Credit hours: 2hrs.	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1		3	
4	Study level/year at which this course is offered:	<i>second semester/first year</i>				
5	Pre –requisite :	Biology				
6	Co –requisite :					
7	Program (s) in which the course is offered:	Medical Lab				
8	Language of teaching the course:	English/Arabic				
9	Prepared By:					
10	Approved By:					

II. Course Description:	
<p>This course is designed to provide students with the necessary knowledge on human anatomy. This course will develop the basic understanding of different topics in anatomy with special focus on the terminology including; the skin, the skeletal system, the muscular system, the nervous system, the senses, the endocrine system, the urinary system and the circulatory system.</p>	

III. ILOs: at end of the course students will be to:	
<ol style="list-style-type: none"> <li>1. Describe Anatomical terms of position and movement</li> <li>2. Identify the gross morphology of different body organs.</li> <li>3. Discuss structure and features of different body organs.</li> <li>4. Explain the basic principles of structure of the different tissues and organs</li> <li>5. Differentiate between different anatomical parts of human body</li> <li>6. Categorize human body skeleton.</li> <li>7. Correlate the anatomical structure with the function of every part of human body</li> <li>8. Determine different anatomical parts of human body</li> </ol>	

9. Communicate fairly fluently via spoken and written English  
10. Use effectively the computer, software applications related to the subject.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Describe Anatomical terms of position and movement	Lecture Video Models	Quiz Written exam
a2-Identify the gross morphology of different body organs.		
a3- Discuss structure and features of different body organs.		
a4- Explain the basic principles of structure of the different tissues, organs and systems of the human body		

#### (B)Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b2-Differentiate between different anatomical parts of human body	Seminar Lecture	Presentation Quiz Case study exam
b3-Categorize human body skeleton.		
b3- Correlate the anatomical structurewith the function of every part of human body.		

#### (C)Professional and Practical Skills.

##### Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
<i>At end of the course students will be able to:</i>		
C1-Determinedifferent anatomical parts of human body	TutorialandModels	Quiz exam

#### (D)General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
d1-Communicate fairly fluently via spoken and written English	Tutorial classes	Report
d2- Use effectively the computer, software applications related to the subject.	Seminar	Presentation

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction Anatomical terms	<ul style="list-style-type: none"> <li>Overview of the subject and its different parts</li> <li>Overview of the different body regions and systems</li> <li>Terms related to position</li> <li>Terms related to movement</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
2	Skin and fascia	<ul style="list-style-type: none"> <li>Structure Skin</li> <li>Functions of skin</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
3	Anatomy of muscular system	<ul style="list-style-type: none"> <li>Types of muscles</li> <li>Structure of muscles</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
4	Anatomy of Bone and cartilage	<ul style="list-style-type: none"> <li>Joints, ligaments, bursa, synovial sheath</li> <li>Bones and cartilage</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
5	Anatomy of blood and lymph	<ul style="list-style-type: none"> <li>Heart and blood vessels</li> <li>lymph vessels and nodes</li> </ul>	2	4	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
6	Anatomy of nervous system	<ul style="list-style-type: none"> <li>Central nervous system</li> <li>Peripheral nervous system</li> </ul>	1	2	a1, a2, a3, a4, b1, b2,

					b3, c1, d1, d2
7	Anatomy of respiratory system	<ul style="list-style-type: none"> <li>• Structure of respiratory organs</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
8	Midterm exam		1	2	a1, a2, a3, a4
9	Anatomy of digestive system	<ul style="list-style-type: none"> <li>• Alimentary canal</li> <li>• Digestive glands</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
10	Anatomy of genital system	<ul style="list-style-type: none"> <li>• Female: <ul style="list-style-type: none"> <li>▪ The uterus</li> <li>▪ The vagina</li> <li>▪ The ovary</li> <li>▪ Anatomy of the breast</li> </ul> </li> <li>• Male : <ul style="list-style-type: none"> <li>▪ The testis</li> <li>▪ Scrotum</li> <li>▪ The penis</li> </ul> </li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
11	Anatomy of urinary system	<ul style="list-style-type: none"> <li>• The kidney</li> <li>• Ureter</li> <li>• Urinary bladder</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
12	Anatomy of Sense Organs :	<ul style="list-style-type: none"> <li>• Structure of Skin, Eye, ear, Nose, Tongue.</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
13	Anatomy of Endocrine System:	<ul style="list-style-type: none"> <li>• Thyroid</li> <li>• Pancreas</li> <li>• Pituitary</li> <li>• Adrenal glands</li> <li>• Gonads</li> </ul>	1	2	a1, a2, a3, a4, b1, b2, b3, c1, d1, d2
14	Final exam		Week 15	2	a1, a2, a3, a4
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
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1	<b>Introduction and terminology</b>	1	2	b2, c1, d1-d2.
2	Anatomy of Bone and cartilage	1	2	b2, c1, d1-d2.
3	Anatomy of blood and lymph	1	2	b2, c1, d1-d2.
4	Anatomy of nervous system	1	2	b2, c1, d1-d2.
5	Anatomy of respiratory system	1	2	b2, c1, d1-d2.
6	Anatomy of digestive system	1	2	b2, c1, d1-d2.
7	Anatomy of genital system	1	2	b2, c1, d1-d2.
8	Anatomy of urinary system	1	2	b2, c1, d1-d2.
9	Anatomy of Sense Organs:	1	2	b2, c1, d1-d2.
10	Anatomy of Endocrine System:	1	2	b2, c1, d1-d2.
11	<b>Final exam</b>	1	2	b2, c1, d1-d2.
Number of Weeks/and Units Per Semester		11	22	

#### VI. Teaching Strategies:

- Lectures using data show
- Video animation and seminars
- Laboratory work (Models)
- Directed reading
- Independent study
- Group discussion
- Tutorial

#### VII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises & Home works	3	2.5	2.5%	a1,a2,,b2,b3,c1,
2	Project ( single\group)	4	2.5	2.5%	a1,a2,,b2,b3,c3,d1,d3,
3	Practical reports	1-10	10	10%	a1,a2,,b2,b3,c1,
4	Mid Exam	8	15	15%	a1,a2,a3,,b1,b2,b3,d1,d2,d3,
5	Final Exam (theoretical)	14	50	50%	a1,,a2,,b1,b2,,b3.c1.



6	Final Exam (practical)	11	20	20%	a1,,a2,,b1,b2,,b3.c1
7			100	100%	

VII. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>1. John A. Gosling, Philip F. Harris (2008). Human anatomy color atlas and textbook Fifth edition. Elsevier, Spain.</li> <li>2. Inderbir Singh (2011). Textbook of Human Histology: With Colour Atlas and Practical Guide. 6<sup>th</sup> edition. Jaypee, Newdelhi, India.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>1. Gerard J. Tortora, Mark Nielsen (2013). Principles of Human Anatomy, 13th Edition. Wiley, UK.</li> </ol>

VIII. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> </ul>



	<ul style="list-style-type: none"><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	(Assignments and Projects): <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	(Cheating): <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	(Plagiarism): <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	(Other policies): <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Pharmaceutics I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	<b>Pharmaceutics I</b>				
2	Course Number and Code:	<b>B11253</b>				
3	Credit hours: 3 hrs.	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	<i>First semester/Second year</i>				
5	Pre –requisite :	None				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Mohammed Addoais & Dr. Abdulkarim Alzomor				
10	Approved By:					

II. Course Description:	
<p>This course is designed to provide students with a detailed knowledge and understanding of certain aspects of the physical, chemical and biological phenomena which relate to the formulation of drugs and their distribution in the body. It will covers the fundamental Principals of solubility, interfacial phenomena, colloids, rheology, adsorption, micrometrics, drug incompatibilities, coarse dispersion and finally study of stability and kinetics of drug degradation and rate processes.</p>	

### III. ILOs: at end of the course students will be to:

1. Explain the different methods of drug decomposition
2. Recognize the risk and importance of drug complexation
3. Identify origin and the consequences of the interfacial phenomenon
4. Define viscosity and mention its application in pharmacy
5. Analyze pharmaceutical degradation data and relate it to drug stability.
6. Compare between Newtonian and non-Newtonian fluids
7. Design stability study
8. Differentiate the instability of pharmaceutical dosage forms when occurred
9. Estimate shelf lives and suitable storage conditions for a drug formulation
10. Measure surface tension, viscosity, and other phenomenon
11. Solve stability problems arise during drug formulation.
12. Formulate good and stable dosage form
13. Write a scientific report.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

#### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Explain the different methods of drug decomposition	Lectures using data show Video animation and seminars	Written exam Quiz
a2- Recognize the risk and importance of drug complexation		
a3-Identify origin and the consequences of the interfacial phenomenon		
a4- Define viscosity and mention its application in pharmacy		

#### (B)Intellectual Skills:

#### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b1-Analyze pharmaceutical degradation data and relate it to drug stability.	Seminars Directed reading Independent study	Presentation Written exam Quiz
b2- Compare between Newtonian and non-Newtonian fluids		
b3- Design stability study		

b4- Differentiate the instability of pharmaceutical dosage forms when occurred	Group Discussion	
<b>(C) Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
c1- Estimate shelf lives and suitable storage conditions for a drug formulation	Laboratory work Directed reading Independent study	Presentation Practical work Report
c2- Measure surface tension, viscosity and other phenomenon		
c3- Solve stability problems arises during drug formulation.		
c4- Formulate good and stable dosage form		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
d1- Write a scientific report.	Directed reading Independent study Group Discussion	Assignment Report

<b>V. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Solubility	<ul style="list-style-type: none"> <li>Determination of solubility</li> <li>Techniques of aqueous solubility determination of non-ionized, ionized and unstable drugs</li> <li>Factors/ parameters affecting solubility</li> <li>Enhancement of solubility</li> <li>Extraction</li> <li>Solubility and partitioning coefficient</li> <li>Preservative action in oil-water systems</li> </ul>	2	4	c1, d1
2	Principles of dissolution	<ul style="list-style-type: none"> <li>Definition of dissolution and dissolution rate, Noyes-Whitney equation.</li> <li>Dissolution process and its mathematical treatment</li> <li>Dissolution rate determination</li> </ul>	1	2	a1, d2

3	Diffusion	<ul style="list-style-type: none"> <li>• Diffusion definition, mechanisms, pharmaceutical applications.</li> <li>• Ficks first law, second law and steady state diffusion.</li> <li>• Diffusion controlled drug delivery (reservoir systems).</li> <li>• Diffusion controlled drug delivery (matrix systems) and the Higuchi equation</li> </ul>	1	2	a4, b3, d2
4	Rheology	<ul style="list-style-type: none"> <li>• Principles of rheology.</li> <li>• Measuring methods in the rheology.</li> <li>• Application of rheology in pharmacy</li> </ul>	1	2	a4, b4, c3
5	Surface tension	<ul style="list-style-type: none"> <li>• Concepts of surfaces, interfaces, surface and interfacial tension.</li> <li>• Wetting of solid surfaces, spreading of liquids over liquid substrates</li> <li>• critical micelle concentration(CMC)</li> <li>• Effect of counter ion and temperature on surface tension and temperature on CMC-values</li> <li>• Pharmaceutical applications of surfactants</li> </ul>	2	4	a3, b4, c3, d1
6		Midterm exam	1	2	a1, a2, b1, b2
7	Adsorption	<ul style="list-style-type: none"> <li>• Adsorption at solid surfaces</li> <li>• adsorption isotherms</li> </ul>	1	2	a3, d1
8	Micrometrics of powders	<ul style="list-style-type: none"> <li>• Micromeritics and characterization of powders</li> <li>• Shape factors</li> <li>• Angle of repose</li> <li>• Flowability and aging</li> <li>• Effect of glidants compactability</li> <li>• Parenteral powders</li> </ul>	1	2	c4, d1
9	Complexation	<ul style="list-style-type: none"> <li>• Definition of complexes, donor-acceptor interactions, Lewis acid-base system, types of complexes</li> <li>• Metal ion complexes, chelates and organic molecular complexes</li> <li>• Inclusion complexes, pharmaceutical applications and quantitative analysis of complexation (stoichiometric ratio determination and association constants</li> </ul>	1	2	a2, b1, d1
10	Drug and formulation stability	<ul style="list-style-type: none"> <li>• various types and sources of stability problems and procedure/ protocol for carrying out stability studies of drug substances and their formulations with special reference to ICH guidelines</li> <li>• Physical stability testing</li> </ul>	3	6	a3, b2, b4, c2, c4, d1

		<ul style="list-style-type: none"> <li>Highlights on accelerated/ ambient/ controlled physical stability testing of solutions, disperse systems, aerosols, coated/ uncoated tablets, gelatin capsules, and sustained release products</li> <li>Degradation mechanisms.</li> <li>Pharmaceutical stability problems (hydrolysis, oxidation, photodegradation, ...)</li> <li>First order reactions and second order reactions, integrated rate laws and half-life.</li> <li>Determination of shelf life and recommended storage conditions.</li> </ul>			
11	Incompatibility	<ul style="list-style-type: none"> <li>Type of drug incompatibilities</li> <li>Causes of drug incompatibilities</li> </ul>	1	2	b2, d1
12		Final exam	1	2	a1, a2, a3, a4, b1, b2 b3, b4
Number of Weeks/and Units Per Semester			16	32	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1.	Separation of solid/ liquid by Filtration.	1	2	c1, c2, c3, c4, d1
2.	Reduction size of solid matter by Grinding and Sieving.	1	2	a1, c1, c2, c3, c4, d1
3.	Separation of solid/ liquid by Centrifugation.	1	2	c1, c2, c3, c4, d1
4.	Separation of liquid/ liquid matter by Extraction.	1	2	c1, c2, c3, c4, d1
5.	Determination the Solubility.	1	2	a1, c1, c2, c3, c4, d1
6.	Measurement the surface tension.	1	2	b4, c1, c2, c3, c4, d1
7.	The role of surfactant on the interfacial tension.	1	2	b4, c1, c2, c3, c4, d1
8.	Determination the Angle of repose.	1	2	c1, c2, c3, c4, d1
9.	Determination the Chemical drug incompatibility.	1	2	b2, c1, c2, c3, c4, d1
10.	Determination the physical drug incompatibility.	1	2	b2, c1, c2, c3, c4, d1



11.	Determination of order of degradation reaction and calculation of shelf life	2	4	c1, c2, c3, c4, d1
12.	Measurement of viscosity of different fluids	1	2	b4, c1, c2, c3, c4, d1
13.	Finalexam	1	2	a1, b2-4, c1, c2, c3, c4, d1
Number of Weeks/and Units Per Semester			28	

#### VI. Teaching Strategies:

- Lectures using data show
- Video animation and seminars
- Laboratory work
- Directed reading
- Independent study
- Group Discussion

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Assignment	b1, b2, b3, b4, d1	9	5%

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	9	5	5%	b1, b2, b3, b4, d1
2	Practical Reports	1-13	10	10%	b1, b2 b3, b4, c1, c2, c3, d1
3	Quizzes	2, 5, 12	5	5%	a1, a2, a3, a4, b1, b2 b3, b4
4	Written Test (midterm exam )	8	10	10%	a1, a2, a3, a4, b1, b2 b3, b4
5	Final Exam (practical)	14	20	20%	a1, a2, a3, a4, b1, b2 b3, b4
6	Final Exam (theoretical)	16	50	50%	a1, a2, a3, a4, b1, b2 b3, b4
Total			100	100%	



IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK.</li> <li>2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>1. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup>edition., Williams and Wilkins. Maryland, USA.</li> </ol>
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www.joblearning.com/basicphysicalpharmacy

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>



3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the beginning of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Physiology I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Physiology I			
2	Course Number and Code:	B11214			
3	Credit hours:	C.H			Total Th.
		Th.	Pr.	Th.	
		2	1		
4	Study level/year at which this course is offered:	First semester/ Secondyear			
5	Pre –requisite :	Human Anatomy			
6	Co –requisite :	NA			
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Dr. Sadeq Abdulmogny			
10	Approved By:				

II. Course Description:
<p>This introductory physiology course introduces basics concepts in physiology of human body. The course familiarizes students with basic definitions and principles related to physiology. This course helps students to understand body fluid and cellular physiology including the functions of cell components. The course gives an overview on the physiology of autonomic nervous system, structure of nerve, and compositions of blood.</p>

III. ILOs: At the end of this course students must be able to:
<ol style="list-style-type: none"> <li>1. Recognize the basic concepts of the physiology</li> <li>2. List the functions of the different organelles in the human cell, and describe the transport system across the cell membranes.</li> <li>3. Describe the body fluids, compartments, composition and function of blood.</li> <li>4. Define basal metabolism, metabolic rate and factors affecting it, and homeostasis</li> <li>5. Distinguish between physiological and pathological performance of body cells.</li> <li>6. Integrate physiology with other sciences.</li> </ol>

7. Reform hematological analysis related to units.
8. Demonstrate the general body composition and function.
9. Choose and classify data obtained from physiological experiments.
10. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day
11. Communicate effectively with students by discussing results obtained from experimental physiological lab.

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	Assessment Methods.
<p><b>At the end of this course students must be able to:</b></p> <p>a1: Recognize the basic concepts of the physiology</p> <p>a2: List the functions of the different organelles in the human cell, and describe the transport system across the cell membranes.</p> <p>a3: Describe the body fluids, compartments, composition and function of blood.</p> <p>a 4: Define basal metabolism, metabolic rate and factors affecting it, and homeostasis</p>	Lectures	Written examinations and Quizzes.
(B)Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	Teaching strategies to be used	Assessment Methods
<p><b>At the end of this course students must be able to:</b></p> <p>b1: Distinguish between physiological and pathological performance of body cells.</p> <p>b2: Integrate physiology with other sciences. temperature.</p>	Lectures and interactive class discussions.	Written examinations and Quizzes.
(C)Professional and Practical Skills.		

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
<p><b>At the end of this course students must be able to:</b></p> <p>c1: Reform hematological analysis related to units.</p>	Lectures and Problem solving	Written examinations and Quizzes
c2: Demonstrate the general body composition and function.		
c3: Choose and classify data obtained from physiological experiments.		
(D)General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
<p><b>At the end of this course students must be able to:</b></p> <p>d1: Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day</p>	Presentation and discussion	Written exams and performance based on presentation
d2: Communicate effectively with students by discussing results obtained from experimental physiological lab.		

V. Course Contents
1. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs
Topics/Units of Course Contents

First: Theoretical Aspects					
No.	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours	CILOs
1	1-Physiology of the cell. 2-Transport across the cell membrane.	Cell compositions Cell membrane Cytoplasmic organelles Nucleus Movements of molecules across membranes Mechanism of particles and water diffusion across cell membrane	2	4	a1, a2
2	1-Body fluids, composition, distribution, general functions. 2-Osmosis, tonicity and water balance	Body fluid importance Body fluid compartments Intracellular fluid (ICF) Extracellular fluid (ECF)	2	4	a1, a2, a3, a4, b1, b2
3	1-Composition and functions of the blood. 2- RBCs, Formation and general functions.	Blood Composition of blood: Plasma Blood elements Red blood corpuscles Most common types of normal and abnormal hemoglobin Anemia: Types of anemia RBCs functions	2	4	a1, a2, a3, a4, b1, b2
4	Midterm	—————	1	2	a1, a2, a3, a4 b1, b2

5	1- WBCs: structures, classifications and functions 2- Hemostasis and its disorders	White blood cells Types of leucocytes White blood cells functions Platelets Hemostasis and WBCs disorders	2	4	a1, a2, a3, b1, b2, c1, c2
6	1- Nerve fibers, structures, classifications, functions and properties of nerves. 2- Resting membrane potentials, action potentials and factors affecting them. 3- Conduction of nerve impulse, neuromuscular transmission.	The neuron (Nerve cell) neuron classification, structure and function Resting and action potential Myelin sheath Neuroglia or glial cells General functions of neuroglia Types of neuroglia cells	3	6	a1, a2, b1, b2, c1, c2, d2
7	1-Autonomic nervous system, origin, organization, distribution. 1-Autonomic ganglia, chemical transmitters and functions of ANS.	Autonomic (involuntary or visceral) nervous system(ANS) Types of autonomic nervous system	2	4	a1, a2, b1, b2, c1, d2
8	Final exam		1	2	a1, a2, a3, a4 b1, b2
Total number of weeks and hours			16	32	

## 2. Practical/Tutorial/Clinical Aspects

Write up practical/tutorial/clinical topics



No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours	CILOs
1	Separation of the blood	1	2	a1, a2,a3, a4 b1, b2, c1, d1, d2
2	Measurement of the hemoglobin.	1	2	a1, a2,a3, a4 b1, b2, c1, d1, d2
3	Erythrocyte sedimentation rate (ESR)	1	2	a1, a2, a3, a4, b1, b2, c1, c2,c3,
4	The hematocrit (H)	1	2	a1, a2, b1, c1, c2
5	Bleeding time and Clotting time	1	2	a1, a2, b1, b2, c1, c2, c3, d1- d2
6	Blood groups	1	2	a1, b1, b2, c1, c2, c3, d1-d2
7	The white blood cells	1	2	a1, a2, b1, c1, c2, c3, d1-d2
Total number of weeks and hours		7	14	

VI. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	Assignment	a1-a4, b1-b2, d1- d2	9	5



VIII. Learning Assessment:					
No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	Aligned CILOs
1	Assignments	9	5	5%	a1-a4, b1-b2, d1-d2
2	Quiz Homework	4	5	5%	a1, a2
3	Midterm Exam	7	10	10%	a1, a2, b1, b2,
4	Practical Report	ALL	10	10%	a1, a2, b1, b2
5	Final Exam Practical	14	20	20%	d1. d2
6	Final Exam Theory	16	50	50%	a1, a2, b1, b2
Total			100	100%	

VII. Teaching Strategies
The methodologies and teaching and learning strategies that can be used: 1 - Lectures 2 –Discussions (Seminars)

IX. Learning Resources :
(Author, (Year), Book Title, Edition, Publisher, Country of publishing)
Textbooks-not more than 2
1- Text book of medical physiology, Guyton and Hall, 12 <sup>th</sup> Ed 2010, Mississippi Medical Center, Jackson, Mississippi, USA 2- Essentials of Human Physiology for Pharmacy, Laurie Kelly first Ed. 2005, CRC Press, Pharmacy Education series
Essential References-not less than 4





- 1- Textbook: Human Physiology, 13<sup>th</sup> Ed. Stuart Ira Fox
- 2- Anatomy and Physiology, Fifth Ed. Thibodeahandpatton 1999.
- 3- A-Z of Haematology first Ed. Barbara J. Bain and Rajeev Gupta, Blackwell Publishing Ltd. London 2003.
- 4- Textbook of Anatomy and Physiology. William Arnould-Taylor and Nelson Thornes, 1998)
- 5- Human Anatomy and Physiology 13<sup>th</sup> Ed. David Shier 2012

#### Electronic Materials and Web Sites

1. [www.csun.edu/science/biology/anatomy/anatomy.html](http://www.csun.edu/science/biology/anatomy/anatomy.html)
2. [www.cliffsnotes.com](http://www.cliffsnotes.com)
3. [www.innerbody.com](http://www.innerbody.com)
4. [www.anatomyandphysiology.com/](http://www.anatomyandphysiology.com/)
5. [www.mhhe.com/biosci2/anatomyrevealed](http://www.mhhe.com/biosci2/anatomyrevealed)
6. [www.le.ac.uk/pa/teach/va/anatomy](http://www.le.ac.uk/pa/teach/va/anatomy)

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1

##### Class Attendance:

- Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.

2

##### (Tardy):

Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.

3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of First Aid

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	First Aid				
2	Course Number and Code:	B11143				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	-	-	-	2
4	Study level/year at which this course is offered:	Second Semester/ First Year				
5	Pre –requisite :					
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	Mixed English and Arabic				
9	Prepared By:	Dr. Abdulrakib Al –Hanani				
10	Approved By:					

II. Course Description:	
This course helps students to play a major role in saving patients lives and decreasing further complications, through teaching students how to provide initial assistance to patient with injury or emergency medical illness until medical assistance arrive.	

III. ILOs: By the end of the course the student will be able to	
1.	Describe initial assessment of patient with injury or medical emergency
2.	Classify bleeding and methods to control external bleeding
3.	Identify first, second and third burn degree
4.	List methods for splinting dressing and bandaging
5.	Analyze symptoms and signs in relation to specific illness and injury.
6.	Apprize items used to estimate fluid and blood loss for adult patient with trauma
7.	Explore risks associated with splinting
8.	Demonstrate how to provide basic life support for cardiac arrest patient

<ol style="list-style-type: none"> <li>9. Use device to, proper position, transfer patient to the device</li> <li>10. Carryout basic dressing and bandaging techniques</li> <li>11. Apply step by step procedure for opening air way</li> <li>12. Cooperate with more highly trained medical personnel</li> <li>13. Cooperate with more highly trained medical personnel and work as individual or a twam partner</li> <li>14. Communicate clearly with patient, bystanders and other health care professionals</li> <li>15. Protect patient privacy and confidentiality while providing emergency first aid</li> </ol>
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IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> After participating in this course students must be able to:	<i>Teaching strategies to be used.</i>	Assessment Methods.
a1- Describe initial assessment of patient with injury or medical emergency	Lecture Problem solving Cooperative learning Discussion Demonstration Video clips	Wittenexam And presentation
a2- Classify bleeding and methods to control external bleeding		
a3- Identify first, second and third degree burn		
a4- List methods for splinting dressing and bandaging		
(B) Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> After participating in this course students must be able to:	Teaching strategies to be used	Assessment Methods
b1- Analyze symptoms and signs in relation to specific illness and injury.	Problem solving Cooperative learning Discussion Demonstration	Presentation
b2- Apprize items used to estimate fluid and blood loss for adult patient with trauma		
b3- Explore risks associated with splinting		
(C) Professional and Practical Skills.		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		



Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills After participating in this course students must be able to:	Teaching strategies to be used	Methods of assessment
c1- Demonstrate how to provide basic life support for cardiac arrest patient	Lecture Cooperative learning Discussion Demonstration	Written exam And presentation
c2- Use device to, proper position, transfer patient to the device		
c3- Carry out basic dressing and bandaging techniques		
c4- Apply step by step procedure for opening air way		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills After participating in this course students must be able to:	Teaching strategies to be used	Methods of assessment
d1- Cooperate with more highly trained medical personnel and work as individual or a team partner	Cooperative learning Discussion Demonstration	Presentation
d2- Communicate clearly with patient, bystanders and other health care professionals		
d3- Protect patient privacy and confidentiality while providing emergency first aid		

<b>V. Course Content:</b>
1 – Course Topics/Items:
a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	CILOs
1.	Introduction to first aid	- Definitions	1	2	a1, d1, d3
		- Rules, - Responsibility			
		- Vital signs			
2.	Initial patient assessment	- Forming General impression	1	2	a1, a4, b1, b2, c1, c2, d1, d2
		- Primary and Second survey			
		- SAMPLE history			
3.	Basic life support	- Adult	2	4	a1, a2, b1, b2, c1, c2, d1, d2
		- Child and infant			
		- Choking			
		- Near drowning			
4.	Bleeding and shock	- Internal and external	1	2	a1, a2, a3, a4, b1, b2, b3, c1- c4, d1- d3
5	Midterm exam		1	2	a1-a4, b1, b2, b3, c1- c4
6	Medical emergency and Poisoning	- Management	2	2	a1, a2, a3, a4, b1, b2, b3, c1- c4, d1- d3
7	Trauma	- musculoskeletal Injuries( fracture ) - Wounds - Burn	3	6	a1, a2, a3, a4, b1, b2, b3, c1- c4, d1- d3
8.	Final exam		1	2	a1-a4, b1, b2, b3, c1- c4
Number of Weeks/and Units Per First Second semester				24	

VI. Teaching Strategies:
- Lecture
- Problem solving



<ul style="list-style-type: none"> <li>- Cooperative learning</li> <li>- Discussion</li> <li>- Demonstration</li> <li>- Videoclips</li> </ul>
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VII. Assignments and projects:				
no	Assignment	CILOS	Week Due	Mark
1	Group <ul style="list-style-type: none"> <li>- Posters</li> <li>- Guide lines</li> <li>- Equipment used in first aid</li> </ul>	a1, a2, a3, a4, b1, b2, b3, c1-c4, d1- d3	9	10%
2.	Group web search <ul style="list-style-type: none"> <li>- Trauma</li> <li>- Near drawing</li> <li>- Shock</li> </ul>			

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignments	9	10	10%	a1, a2, a3, a4, b1, b2, b3, c1- c4, d1- d3
2	Written Test (1)	7	30	30%	a1-a4, b1, b2, b3, c1- c4
3	Final Exam (theoretical)	1	60	60%	a1-a4, b1, b2, b3, c1- c4
			100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-Austen M.2011, First Aid Manual. 9 <sup>th</sup> edition.London
2-Recommended Books and Reference Materials.	
	1. Crouch R. 2009, Emergency nursing hand bookfirst edition.Oxford University press
3-Electronic Materials and Web Sites <i>etc.</i>	

	1-http: www.trauma.org 2-http: BLS.com
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<b>X. Course Policies: (including plagiarism, academic honesty, attendance etc)</b>	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p><b>Class Attendance:</b></p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p><b>(Tardy):</b></p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p><b>(Exam Attendance/Punctuality):</b></p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p><b>(Assignments and Projects):</b></p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>





5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmaceutical Organic Chemistry I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Pharmaceutical Organic Chemistry I			
2	Course Number and Code:	B11231			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		
4	Study level/year at which this course is offered:	First semester/Second year			
5	Pre –requisite :	General Chemistry			
6	Co –requisite :				
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy			
10	Approved By:				

II. Course Description:	
<p>The course aims to introducing the students to organic chemistry, structure and physical properties, orbital hybridization, factor affecting chemical reactivity. Also it covers the study of alkanes, cycloalkanes, alkenes, alkynes; the chemistry of Alcohol, Carboxylic acid and their derivatives, Aldehyde, Ketone, Ether, Amines, Reaction mechanisms and Stereochemistry. Also it covers the study of identification and preparation of some organic compounds.</p>	

III. ILOs:	
<p>At the end of this course the student should be able:</p> <ol style="list-style-type: none"> <li>1. Recognize classification of hydrocarbons structure and physical properties of organic compounds.</li> <li>2. Explain the factors affecting the chemical reactivity and orbital hybridization.</li> <li>3. Illustrate the IUPAC nomenclature, physical, chemical properties, preparation and reaction of reactions of hydrocarbons.</li> </ol>	

4. List the differences between the types of hydrocarbons.
5. Identify the types of hybridization.
6. Predict the method of preparation of the studied organic compounds.
7. Diagram the schemes that relate all the reactions of hydrocarbons
8. Practice the method of purification of organic compounds.
9. Perform qualitative test for some elements.
10. Operate different equipment and instruments.
11. Demonstrate the differentiation between aliphatic and aromatic compounds.
12. Acquire an ethical attitude and approach.
13. Use properly and safely the organic compounds and new tools in the laboratories.
14. Work independently or as a team.
15. Manage and organize the time.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course the student should be able: a1- Recognize classification of hydrocarbons structure and physical properties of organic compounds.	Lectures using data show video animation and	MCQ Oral Exam, Quizzes, exam, short answers , Homework and Participation.
a2- Explain the factors affecting the chemical reactivity and orbital hybridization.		
a3- Illustrate the IUPAC nomenclature, physical, chemical properties, preparation and reactions of hydrocarbons.		
a4- List the differences between the types of hydrocarbons		

##### (B) Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:



<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	Teaching strategies to be used	Assessment Methods
At the end of this course the student should be able: b1- Identify the types of hybridization.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-Predict the method of preparation of the studied organic compounds.		
b3-Diagram the schemes that relate all the reactions of hydrocarbons		
<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able: c1-Practice the method of purification of organic compounds	Lectures and Group assignments.	Practical works, and practical reports.
c2- Perform qualitative test for some elements.		
c3- Operate different equipment and instruments.		
c4-Demonstrate the differentiation between aliphatic and aromatic compounds.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able: d1-Acquire an ethical attitude and approach.	Group assignments.	Practical works, And practical reports.
d2-Use properly and safely the organic compounds and new tools in the laboratories.		
d3- Work independently or as a team.		
d4-Manage and organize the time.		



Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	ILOs
1	Introduction to Organic Chemistry	<ul style="list-style-type: none"> <li>➤ The Origins of Organic Chemistry</li> <li>➤ Classification of carbon compounds</li> <li>➤ Classification According to Molecular Framework                             <ul style="list-style-type: none"> <li>▪ Acyclic Compounds</li> <li>▪ Carbocyclic Compounds</li> <li>▪ Heterocyclic Compounds</li> </ul> </li> <li>➤ Classification According to Functional Group</li> <li>➤ Principles of Atomic Structure</li> <li>➤ Bond Formation: The Octet Rule</li> <li>➤ How Electrons are Arranged in Atoms</li> <li>➤ Bonding in organic compounds</li> <li>➤ Ionic Bonding</li> <li>➤ The Covalent Bond</li> <li>➤ Hydrogen Bond</li> <li>➤ Coordinate bonding</li> <li>➤ Carbon and the Covalent Bond</li> <li>➤ Carbon–Carbon Single Bonds</li> <li>➤ Electronegativity and Bond Polarity</li> <li>➤ Arrhenius Acids and Bases</li> <li>➤ Formal Charge</li> <li>➤ Resonance</li> <li>➤ Arrow Formalism</li> </ul>	1	2	a1, a4, b1, d1-4
2	Orbitals and Orbital Hybridization	<ul style="list-style-type: none"> <li>➤ Wave Properties of Electrons in Orbitals</li> <li>➤ Molecular Orbitals</li> <li>➤ The Sigma Bond</li> <li>➤ The Pi Bond</li> <li>➤ Hybridization and Molecular Shapes</li> <li>➤ SP<sup>3</sup> Hybridization</li> </ul>	1	2	a1, a2, b1, d1-4



		<ul style="list-style-type: none"> <li>➤ SP<sup>2</sup> Hybridization</li> <li>➤ SP Hybridization</li> <li>➤ Drawing Three-Dimensional Molecules</li> <li>➤ General Rules of Hybridization and Geometry</li> <li>➤ Bond Rotation</li> </ul>			
3	Alkanes and Cycloalkanes (Paraffinic Hydrocarbons)	<ul style="list-style-type: none"> <li>➤ The Structures of Alkanes</li> <li>➤ Nomenclature of Organic Compounds</li> <li>➤ IUPAC Rules for Naming Alkanes</li> <li>➤ Alkyl and Halogen Substituents</li> <li>➤ Use of the IUPAC Rules</li> <li>➤ Sources of Alkanes</li> <li>➤ Physical Properties of Alkanes and Nonbonding Intermolecular Interactions</li> <li>➤ Conformations of Alkanes</li> <li>➤ Cycloalkane Nomenclature and Conformation</li> <li>➤ Cis–Trans Isomerism in Cycloalkanes</li> <li>➤ Stabilities of Cycloalkanes; Ring Strain</li> <li>➤ General Methods of Preparation of Alkanes</li> <li>➤ Reactions of Alkanes</li> <li>➤ Oxidation and Combustion; Alkanes as Fuels</li> <li>➤ Halogenation of Alkanes <ul style="list-style-type: none"> <li>▪ The Free-Radical Chain Mechanism of Halogenation</li> </ul> </li> </ul>	2	4	a2,a3, a4, b2, b3, c4, d1-4
4	Alkenes and Dienes	<ul style="list-style-type: none"> <li>➤ Definition and Classification</li> <li>➤ Nomenclature</li> <li>➤ Some Facts about Double Bonds</li> <li>➤ The Orbital Model of a Double Bond; the Pi Bond</li> <li>➤ Cis–Trans Isomerism in Alkenes</li> <li>➤ Z–E Isomerism in Alkenes</li> <li>➤ General methods of Synthesis of Alkenes</li> <li>➤ Synthesis by Elimination of Alkyl Halides <ul style="list-style-type: none"> <li>▪ Dehydrohalogenation</li> </ul> </li> </ul>	3	6	a1, a2, a3, a4, b2, b3, c4, d1-4

		<ul style="list-style-type: none"> <li>▪ Debromination of a Vicinal Dibromide</li> <li>➤ Synthesis by Dehydration of Alcohols</li> <li>➤ Addition and Substitution Reactions Compared</li> <li>➤ Addition of Unsymmetric Reagents to Unsymmetric Alkenes; Markovnikov's Rule</li> <li>➤ Addition Reactions</li> <li>➤ Addition of Hydrogen</li> <li>➤ Addition of Halogens</li> </ul>			
5		Midterm exam	1	2	
6	Cont., Alkenes and Dienes	<ul style="list-style-type: none"> <li>➤ Cont., Reactions of Alkenes</li> <li>➤ Addition of Water (Hydration)</li> <li>➤ Addition of Acids</li> <li>➤ Oxidation of Alkenes</li> <li>➤ Oxidation with Permanganate</li> <li>➤ Ozonolysis of Alkenes</li> <li>➤ Mechanism of Electrophilic Addition to Alkenes</li> <li>➤ Markovnikov's Rule Explained with Rearrangement Reactions</li> <li>➤ Hydroboration of Alkenes</li> <li>➤ Additions to Conjugated Systems (Dienes)</li> <li>➤ Addition of Hydrogen</li> <li>➤ Addition of Halogens</li> <li>➤ Addition of Water (Hydration)</li> </ul>	1	2	
7	Alkynes	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Nomenclature of Alkynes</li> <li>➤ Physical Properties of Alkynes</li> <li>➤ Some Facts About Triple Bonds</li> <li>➤ The Orbital Model of a Triple Bond</li> <li>➤ Electronic Structure of Alkynes</li> <li>➤ Commercial Importance of Alkynes</li> <li>➤ Acidity of Alkynes; Formation of Acetylide Ions</li> <li>➤ Synthesis of Alkynes from Acetylides</li> </ul>	1	2	a1, a2, a3, a4, b2, b3, c4, d1-4



		<ul style="list-style-type: none"> <li>➤ Synthesis of Alkynes by Elimination Reactions</li> <li>➤ Reactions of Alkynes</li> <li>➤ Addition Reactions of Alkynes</li> <li>➤ Reduction of an Alkyne</li> <li>➤ Keto–Enol Tautomerism</li> <li>➤ Oxidation of Alkynes</li> </ul>			
8	Aromatic Compounds	<ul style="list-style-type: none"> <li>➤ Some Facts About Benzene</li> <li>➤ The Kekulé Structure of Benzene</li> <li>➤ Resonance Model for Benzene</li> <li>➤ Orbital Model for Benzene</li> <li>➤ Symbols for Benzene</li> <li>➤ Nomenclature of Aromatic Compounds</li> <li>➤ The Resonance Energy of Benzene</li> <li>➤ Electrophilic Aromatic Substitution</li> <li>➤ The Mechanism of Electrophilic Aromatic Substitution</li> <li>➤ Halogenation</li> <li>➤ Nitration</li> <li>➤ Sulfonation</li> <li>➤ Alkylation</li> <li>➤ Acylation</li> <li>➤ Ring-Activating and Ring-Deactivating Substituents</li> <li>➤ Ortho, Para-Directing and Meta-Directing Groups</li> <li>➤ Ortho, Para-Directing Groups</li> <li>➤ Meta-Directing Groups</li> <li>➤ Substituent Effects on Reactivity</li> <li>➤ The Importance of Directing Effects in Synthesis</li> </ul>	3	6	
9	Final exam		1	2	
Number of Weeks/and Units Per Semester			14	28	

b – Practical Aspect: **Organic Chemistry I**

Order	Practical Experiment	Number of weeks	Contact hours
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1	<ul style="list-style-type: none"> <li>➤ Instruction in the laboratory methods of organic chemistry</li> <li>➤ rules and ethics in laboratory.</li> <li>➤ Purification some organic compounds by Filtration</li> </ul>	1	2
2	<ul style="list-style-type: none"> <li>➤ Purification some organic compounds by Recrystallization</li> </ul>	1	2
3	<ul style="list-style-type: none"> <li>➤ Purification some organic compounds by Sublimation and Simple distillation</li> </ul>	1	2
4	<ul style="list-style-type: none"> <li>➤ Purification some organic compounds by Steam distillation and Determination of Boiling Points</li> </ul>	1	2
5	<ul style="list-style-type: none"> <li>➤ Determination of melting point and mixed melting point</li> </ul>	1	2
6	<ul style="list-style-type: none"> <li>➤ Combustion experiments (benzene and hexane)</li> </ul>	1	2
7	<ul style="list-style-type: none"> <li>➤ Extraction of caffeine from tea</li> </ul>	1	2
8	<ul style="list-style-type: none"> <li>➤ The separation of benzoic acid from p - dichloro benzene</li> <li>➤ Separation of methyl orange for methylene blue using a chromatography column (adsorption)</li> </ul>	1	2
9	<ul style="list-style-type: none"> <li>➤ acetylsalicylic acid extraction of aspirin tablets</li> <li>➤ extraction of R - (+) - limonene from orange peel and grapefruit.</li> </ul>	1	2
10	<ul style="list-style-type: none"> <li>➤ Paper chromatography (the separation of a mixture of sugars - the separation of amino acids). thin-layer chromatography (preparation of slides and the separation of dyes from the extract of spinach leaves).</li> </ul>	1	2
11	<ul style="list-style-type: none"> <li>➤ Final Exam</li> </ul>	1	2
Number of Weeks/and Units Per Semester		11	22

b - Practical Aspect :				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Purification some organic compounds by -Filtration	1	2	a1, c1, c3, d1-3
2	Purification some organic compounds by -Recrystallization	1	2	a2, c1, c3, d2-4
3	-Purification some organic compounds by Sublimation	1	2	a1, c1, c3
4	Purification some organic compounds by Simple distillation	1	2	a1, c1, c3, d4
5	Purification some organic compounds by Steam distillation	1	2	a1, c1, c3, d2
6	-Determination of melting point and mixed melting point	1	2	c1, c3, d1-4
7	Determination of Boiling Points,	1	2	a1, c1, c3, d3
8	Combustion experiments (benzene and hexane)	1	2	a1, c1, c4
9	Lassaigne's test, detection of sulphur,	1	2	a1, c1, c2, d1, d2
10	Detection of halogen.	1	2	c1, c2, d1-4
11	Detection of nitrogen.	1	2	a1, c1, c2



12	Final Exam	1	2	c1-4, d1-4
Number of Weeks/and Units Per Semester		11	22	

#### V. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions and Practical classes.

#### VI. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-4, d1-d3	5	5

#### VII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1-4, b1-4, d1-d3
2	Practical reports	1-9	10	10%	a1, c2-3
3	Oral Tests	5, 9	5	5%	a1, a3, b1, b2, b4, b5
4	Written Test (1)	7	10	10%	a1-4, b1-4, d1-d3
5	Final Exam (theoretical)	14	50	50%	a1-4, b1-4, d1-d3
6	Final Exam (practical)	10	20	20%	a1, c1-3, d1-3
7			100	100%	

#### VIII. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6<sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.
- 2- Francis A. Carey and Richard J. Sundberg, Advanced Organic Chemistry; Part B: Reactions and Synthesis, 2001, 4<sup>th</sup> edition, Wiley and Sons., Inc. New York.

##### 2-Recommended Books and Reference Materials.

	<ol style="list-style-type: none"> <li>1. I. L. Finar, Organic Chemistry: The Fundamental Principles, 1963, Fourth edition, longman green and company ltd. London.</li> <li>2. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.</li> <li>3. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6<sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey</li> <li>4. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.</li> </ol>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<ol style="list-style-type: none"> <li>1- <a href="http://www.orgsyn.org">www.orgsyn.org</a></li> <li>2-</li> <li>3-</li> </ol>

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> </ul>

	<ul style="list-style-type: none"><li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>The students have to submit the assignment or project on time.</li><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>



# Second year: second semester

## Course Specification of Pharmaceutical Organic Chemistry II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Pharmaceutical Organic Chemistry II			
2	Course Number and Code:	B11232			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		
4	Study level/year at which this course is offered:	Second semester/Second year			
5	Pre –requisite :	Pharmaceutical Organic Chemistry I			
6	Co –requisite :				
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy			
10	Approved By:				

II. Course Description:	
<p>This course will enhance students understanding of different organic compounds that includes; the chemistry of Alcohol, Carboxylic acid and their derivatives, Aldehyde, Ketone, Ether, aromatic compounds containing carbonyl group, aliphatic moiety, halogen Also it covers the study of identification and preparation of some organic compounds.</p>	

III. ILOs:	
<p>At the end of this course the student should be able to:</p> <ol style="list-style-type: none"> <li>1. Describe the nomenclature, physical and chemical properties of organic compounds</li> <li>2. Illustrate the different method of preparations.</li> <li>3. Explain the mechanism of reactions of different organic compounds.</li> <li>4. Recognize the pharmaceutical application of the organic compounds.</li> <li>5. Suggest the possible method of preparation of organic compounds.</li> <li>6. Design some models that facilitate the stereochemistry of compounds.</li> <li>7. Interpret the common features between the different classes of organic compounds.</li> </ol>	

8. Predict the orientation of addition in different conditions.
9. Differentiate between isomers and their importance.
10. Practice some method of preparation of studied classes.
11. Carry out experiments for identification of some studied organic compounds.
12. Operate different equipment such as balances, hot plates, etc.
13. Work independently or as a team.
14. Manage and organize the time.
15. Implement writing and presentation skills and demonstrate critical thinking.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course the student should be able to: a1-Describe the nomenclature, physical and chemical properties of organic compounds	Lectures using data show.	MCQ Oral Exam, Quizzes, exam, short answers and Homework
a2- Illustrate the different method of preparations.		
a3-Explain the mechanism of reactions of different organic compounds.		
a4-Recognize the pharmaceutical application of the organic compounds.		

#### (B)Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
At the end of this course the student should be able to: b1-Suggest the possible method of preparation of organic compounds.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-Design some models that facilitate the stereochemistry of compounds.		
b3-Interpret the common features between the different classes of organic compounds.		
b4-Predict the orientation of addition in different conditions.		
b5-Differentiate between isomers and their importance.		

#### (C)Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
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At the end of this course the student should be able to: c1-Practice some example for method of preparation of studied classes	Lectures, Laboratory work, directed reading, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c2-Carry out experiments for identification of some studied organic compounds.		
c3-Operate different equipment such as balances, hot plates...etc		

**(D)General/ Transferable Skills:**

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able to:.	Small group discussion, and Group assignments.	Practical works, presentation and practical reports.
d1-Work independently or as a team.		
d2-Manage and organize the time.		
d3-Implement writing and presentation skills and demonstrate critical thinking.		

**Course Content:**

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Organic Halogen Compounds	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification</li> <li>➤ Nomenclature</li> <li>➤ Physical Properties</li> <li>➤ Interesting Alkyl Halides</li> <li>➤ The Polar Carbon–Halogen Bond</li> <li>➤ General methods of Synthesis of Organic Halogen Compounds</li> <li>➤ Nucleophilic Substitution Reaction</li> <li>➤ Examples of Nucleophilic Substitutions                             <ul style="list-style-type: none"> <li>▪ The Leaving Group</li> <li>▪ The Nucleophile</li> </ul> </li> <li>➤ Nucleophilic Substitution Mechanisms                             <ul style="list-style-type: none"> <li>▪ The SN2 Mechanism</li> <li>▪ The SN1 Mechanism</li> <li>▪ Stereochemistry of the SN2 and SN1 Reaction</li> <li>▪ The SN1 and SN2 Mechanisms Compared</li> </ul> </li> </ul>	3	6	





		<ul style="list-style-type: none"> <li>➤ Elimination Reaction</li> <li>➤ The E2 Mechanism</li> <li>➤ The Zaitsev Rule</li> <li>➤ The E1 Mechanism</li> <li>➤ Stereochemistry of the E2 Reaction</li> <li>➤ Substitution and Elimination in Competition</li> </ul>			
2	Alcohols, Phenols and Thiols	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification</li> <li>➤ Nomenclature of Alcohols, Phenols and Thiols</li> <li>➤ Hydrogen Bonding in Alcohols and Phenols</li> <li>➤ Physical Properties</li> <li>➤ Acidity and Basicity Reviewed</li> <li>➤ The Acidity of Alcohols and Phenols</li> <li>➤ The Basicity of Alcohols and Phenols</li> <li>➤ Preparation of Alcohols</li> <li>➤ The Grignard Reagent; an Organometallic Compound</li> <li>➤ General Features—Reactions of Alcohols</li> <li>➤ Dehydration of Alcohols to Alkenes</li> <li>➤ The Reaction of Alcohols with Hydrogen Halides</li> <li>➤ Prepare Alkyl Halides from Alcohols</li> <li>➤ Oxidation of Alcohols to Aldehydes, Ketones, and Carboxylic Acids</li> <li>➤ Alcohols with More Than One Hydroxyl Group</li> <li>➤ Aromatic Substitution in Phenols</li> <li>➤ Oxidation of Phenols</li> <li>➤ Phenols as Antioxidants</li> <li>➤ Thiols, the Sulfur Analogs of Alcohols and Phenols</li> </ul>	2	4	a1, a2, b1-5, d1-d3
3	Midterm Exam		1	2	a1, a2, a3, a4, b3, d1-d3
4	Ethers and Epoxides	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification</li> <li>➤ Nomenclature of Ethers</li> <li>➤ Physical Properties of Ethers</li> <li>➤ Ethers as Solvents</li> <li>➤ Preparation of Ethers</li> <li>➤ Reaction</li> <li>➤ Ethers with Strong Acid</li> <li>➤ Epoxides</li> </ul>	1	2	a1-4, b1, d3

		➤ Cleavage of Ethers			
5	Aldehydes and Ketones	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Nomenclature of Aldehydes and Ketones</li> <li>➤ Some Common Aldehydes and Ketones</li> <li>➤ Aldehydes and Ketones in Nature</li> <li>➤ The Carbonyl Group</li> <li>➤ Preparation of Aldehydes and Ketones</li> <li>➤ Reactions of Aldehydes and Ketones</li> <li>➤ Nucleophilic Addition to Carbonyl Groups</li> <li>➤ Addition of Alcohols: Formation of Hemiacetals and Acetals</li> <li>➤ Addition of Water; Hydration of Aldehydes and Ketones</li> <li>➤ Addition of Grignard Reagents and Acetylides</li> <li>➤ Addition of Hydrogen Cyanide; Cyanohydrins</li> <li>➤ Addition of Nitrogen Nucleophiles</li> <li>➤ Reduction of Carbonyl Compounds</li> <li>➤ Oxidation of Carbonyl Compounds</li> <li>➤ Keto–Enol Tautomerism</li> <li>➤ Acidity of <math>\alpha</math>-Hydrogens; the Enolate Anion</li> <li>➤ The Aldol Condensation</li> <li>➤ The Mixed Aldol Condensation</li> </ul>	2	4	a1, a3, a4, b1-5, d1-d3
6	Carboxylic Acids and Their Derivatives	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification and Structure of Carboxylic Acids and Their Derivatives</li> <li>➤ Nomenclature of Acids</li> <li>➤ Physical Properties of Acids</li> <li>➤ Acidity and Acidity Constants</li> <li>➤ Effect of Structure on Acidity; the Inductive Effect Revisited</li> <li>➤ Conversion of Acids to Salts</li> <li>➤ Preparation of Acids</li> <li>➤ Oxidation of Primary Alcohols and Aldehydes</li> <li>➤ Oxidation of Aromatic Side Chains</li> <li>➤ Reaction of Grignard Reagents with Carbon Dioxide</li> <li>➤ Hydrolysis of Cyanides (Nitriles)</li> <li>➤ Carboxylic Acid Derivatives</li> <li>➤ Preparation and Reactions of <ul style="list-style-type: none"> <li>▪ Esters</li> <li>▪ Acyl Halides</li> </ul> </li> </ul>	2	4	a1, a3, a4, b1



		<ul style="list-style-type: none"> <li>▪ Acid Anhydrides</li> <li>▪ Amides</li> <li>➤ Application: The Mechanism of Action of <math>\beta</math>-Lactam Antibiotics</li> </ul>			
7	Final Exam		1	2	
Number of Weeks/and Units Per semester			14	28	

b – Practical Aspect: <b>Organic Chemistry II:</b>			
Order	Practical Experiment	Number of weeks	Contact hours
1	➤ Identification of Alcohols	1	2
2	➤ Identification of aldehyde and ketones	1	2
3	➤ Identification of carboxylic acids	1	2
4	➤ Identification of amines	1	2
5	➤ Fisher method of esterification(preparation of ethylacetate)	1	2
6	➤ Preparation of acetamide	1	2
7	➤ Hydrolysis of acetamide	1	2
8	➤ Detection of halogen and Detection of nitrogen.	2	4
9	➤ Preparation of benzoic acid oxidation of benzyl alcohol	1	2
10	Final exam	1	2
Number of Weeks/and Units Per Semester			22

b - PracticalAspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Identification of Alcohols	1	2	a1, c2, c3, d1-3
2	Identification of aldehyde and ketones	1	2	c2, c3, d2
3	Identification of carboxylic acids	1	2	a1, c2, c3, d3d4



4	Identification of amines	1	2	c2, c3, d1-d4
5	Fisher method of esterification(preparation of ethylacetate)	1	2	a1, a3, c1, c2, c3, d4
6	Preparation of acetamide	1	2	a1, c1, c2, c3, d2, d4
7	Hydrolysis of acetamide	1	2	a1, a3, c1, c2, c3, d3
8	Introduction to use of stereo models	2	4	a3, b2, b5, d1-d4
9	Final exam	1	2	a1-4, b1-b5, c1-c4, d1-3
Number of Weeks/and Units Per First semester0			20	

#### V. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions and Practical classes.

#### VI. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-5, d1-d4	5	5

#### VII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1-4, b1-5, d1-d4
2	Practical reports	1-9	10	10%	a1, c2-3
3	Oral Tests	5, 9	5	5%	a1, a3, b1, b2, b4, b5
4	Written Test (1)	7	10	10%	a1-4, b1-5, d1-d4
5	Final Exam (theoretical)	14	50	50%	a1-4, b1-5, d1-d4
6	Final Exam (practical)	10	20	20%	a1, c1-3, d1-4
7			100	100%	

#### VIII. Learning Resources:

1-Required Textbook(s) ( maximum two ).

	<p>1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6<sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.</p> <p>2- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook" 2006, Springer-Verlag Berlin Heidelberg, Berlin.</p>
2-Recommended Books and Reference Materials.	
	<p>1. I. L. Finar, Organic Chemistry: The Fundamental Principles, 1963, Fourth edition, longman green and company ltd. London.</p> <p>2. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.</p> <p>3. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6<sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey</p> <p>4. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www.orgsyn.org

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> </ul>

	<ul style="list-style-type: none"><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	(Assignments and Projects): <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	(Cheating): <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	(Plagiarism): <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	(Other policies): <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Analytical Chemistry II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Analytical Chemistry II			
2	Course Number and Code:	B11225			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		3
4	Study level/year at which this course is offered:	Second semester/Second year			
5	Pre –requisite :	Analytical Chemistry I			
6	Co –requisite :				
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy			
10	Approved By:				

II. Course Description:	
<p>This course will enhance the student's knowledge of the principles of analysis of pharmaceutical substances by oxidation reduction, gravimetric, precipitation, potentiometric method. Also this course covers the principles of gas analysis and some practical method of analysis.</p>	

III. ILOs:	
<p>By the end of this course, the student should be able to:</p> <ol style="list-style-type: none"> <li>1. Describe the basic principle of pharmaceutical analytical chemistry.</li> <li>2. Recognize different method of quantitative analysis.</li> <li>3. List the advantage and disadvantages of different method of analysis.</li> <li>4. Explain the indicators, solvent reagent used in studied classes.</li> <li>5. Diagram the schemes that explain different method of quantitative analysis.</li> <li>6. Identify the concentration and yield of the pharmaceutical compounds.</li> <li>7. Predict the oxidation number, <math>k_{sp}</math> of the pharmaceutical substances.</li> <li>8. Evaluate the result of the practical part.</li> <li>9. Operate different pharmaceutical instrument and equipment in the lab.</li> <li>10. Perform the standardization and analysis of some studied substances.</li> </ol>	



11. Communicate effectively and clearly by verbal and written means.
12. Work effectively in team and manage the time.
13. Demonstrate critical thinking and decision making abilities

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	Assessment Methods.
By the end of this course, the student should be able to: a1-Describe the basic principle of pharmaceutical analytical chemistry.	Lectures, practical sessions.	Quizzes, written exam oral exam Homework, Participation. and practical exam..
a2- Recognize different method of quantitative analysis.		
a3-List the advantage and disadvantages of different method of analysis.		
a4- Explain the indicators, solvent reagent used in studied classes.		

#### (B)Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	Teaching strategies to be used	Assessment Methods
By the end of this course, the student should be able to: b1- Diagram the schemes that explain different method of quantitative analysis.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-.identify the concentration and yield of the pharmaceutical compounds.		
b3-Predict the oxidation number, $k_{sp}$ of the pharmaceutical substances.		

#### (C)Professional and Practical Skills.





Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
By the end of this course, the student should be able to: c1- Evaluate the result of the practical part.	Lectures and Group assignments, Practical session.	Practical works, And practical reports.
c2- Operate different pharmaceutical instrument and equipment in the lab.		
c3- Perform the standardization and analysis of some studied substances.		
(D) General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
By the end of this course, the student should be able to: d1- Communicate effectively and clearly by verbal and written means.	Small group discussions Practical classes	reports, presentations and communication with the lecturer and his colleagues.
d2- Work effectively in team and manage the time		
d3- Demonstrate critical thinking and decision making abilities		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Redox titration:	Theory of redox reactions, strength and equivalent weights of oxidizing agents and reducing agents, redox titration curves, redox indicators, titration involving potassium permagnate, cerricsulphate potassium iodate, potassium bromate, titanous chloride, sodium 2, 6-dichlorophenol indophenol. Iodometry and iodimetry, Pharmaceutical application of redox titrations- Pharmaceutical applications	2	4	a1-3, b1-3, c1, d3
2	Potentiometry	Theoretical consideration, Measurement of potential, Instrumentation, Reference and indicator electrodes, ion selective electrodes, potentiometric titrations, location of end point, equipment, analytical application direct measurement of mean concentration, differential curve, determination of solubility product	2	4	a1, a3-4, b2, c1, d1
3	Gravimetric Methods of analysis:	Overview of Gravimetry Types of Gravimetric Methods Conservation of Mass Why Gravimetry Is Important Precipitation Gravimetry Theory and Practice Sparingly soluble substances, Solubility product and common ion	3	6	a1-2, b1-3, c1, d2



		<p>effect, factors affecting solubility, fractional precipitation, quantitative precipitation, condition for precipitation, contamination of precipitate-co precipitation and post precipitation, practical aspects of gravimetric analysis-precipitation, digestion, filtration, washing, drying/ignition of precipitate, introduction to thermogravimetry</p> <p>Quantitative Applications</p> <p>Qualitative Applications</p> <p>Volatilization Gravimetry</p> <p>Theory and Practice</p> <p>Quantitative Applications</p> <p>Evaluating Volatilization Gravimetry</p> <p>Particulate Gravimetry</p> <p>Theory and Practice</p> <p>Quantitative Applications</p> <p>Evaluating Precipitation Gravimetry</p>			
4	Midterm		1	2	a1-4, b1-3, d3
5	Precipitation titration:	Theory of precipitation titration, Mohrs method, Volhard's method, Adsorption indicators. Pharmaceutical application	1	2	a1-4, b1-3, c1, d3
6	Complexometric titration:	Concepts of complexation and chelation, Werner's co-ordination number, stability of complexes, titrants, titration curves, types of complexometric titrations, methods of	3	6	a1-2, b1-2, c1, d1-3



		end point detection, metallochromic indicators, metal ion buffer, titration selectivity - masking and demasking, Applications			
7	Gas analysis:	Principle of gas analysis, Hempel's apparatus, absorbants in gas analysis, applications – assay of oxygen, carbon dioxide, nitrous oxide.	1	2	a1-4, c1, d1-3
8	Final exam		1	2	a1-4, b1-3, d1-3
Number of Weeks/and Units Per First semester				4	28

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Preparation and standardization of potassium permanganate solution	1	2	a2, b1-3, c1-3, d1
2	Preparation and standardization of ceric ammonium sulphate solution	1	2	a1, b1-3, c1-3, d3
3	Preparation and standardization of potassium iodide solution	1	2	b1-3, c1-3,
4	Assay of phenol	1	2	a1-4, b1-2, c1-3, d1
5	Assay of hydrogen peroxide	1	2	a1, b1-3, c1-3, d2
6	Preparation and standardization of ammonium thiocyanate solution.	1	2	a1-4, b1-3, c1-3, d1-3
7	Preparation and standardization of a silver nitrate solution.	1	2	
8	Assay of potassium chloride.	1	2	a1-2, b1-3, c1-3, d1
9	Assay of sodium chloride.	1	2	b1-3, c1-3, d1-3
10	Preparation and standardization of EDTA solution	1	2	a1, b1-2, c1-3,
11	Assay of Calcium lactate	1	2	a1-4, b1-2, c1-3, d1-3



12	Final exam	1	2	a1-4, b1-2, c1-4, d1-3
Number of Weeks/and Units Per Semester			24	

#### VI. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions and Practical classes.

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Project	a1, a3, a4b1-4, d2	5	5

#### VIII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1, a3, a4b1-4, d2
2	Practical reports	1-9	10	10%	a1, a3, a4b1-4, c1-4, d1-d3
3	Oral Tests	5, 9	5	5%	a1, a3, b1, b2
4	Written Test (1)	7	10	10%	a1, a2, a3-4
5	Final Exam (theoretical)	14	50	50%	a1-4, b1-3, d1-3
6	Final Exam (practical)	10	20	20%	a1-4, b1-2, c1-4, d1-3
7			100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Douglas A. Skoog, Donald M. West, F. James Holler and Stanley R. Crouch  
Fundamentals of Analytical Chemistry, 2004, 8<sup>th</sup> edition, Thomson Brooks/Cole,  
Belmont, USA.
- 2- F.W. Fifield and D. Kealey, "Principles and Practice of Analytical Chemistry" Fifth

	Edition, 2000, Blackwell Science, London.
<b>2-Recommended Books and Reference Materials.</b>	
	<p>1- DEAN'S Analytical Chemistry Handbook, 2004, Second edition, McGraw-Hill Handbooks, New York, USA.</p> <p>2- Somenath Mitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada.</p> <p>3- K. Danzer, Analytical Chemistry Theoretical and Metrological Fundamentals, 2007, Springer-Verlag Berlin Heidelberg.</p>
<b>3-Electronic Materials and Web Sites etc.</b>	
	<p>1-The Analytical Abstracts database (<a href="http://www.rsc.org/CFAA/AASearchPage.cfm">http://www.rsc.org/CFAA/AASearchPage.cfm</a>)</p> <p>2- The Analytical Forum on ChemWeb (<a href="http://analytical.chemweb.com/search/search.exe">http://analytical.chemweb.com/search/search.exe</a>)</p>

<b>X. Course Policies: (including plagiarism, academic honesty, attendance etc)</b>	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p><b>Class Attendance:</b></p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p><b>(Tardy):</b></p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p><b>(Exam Attendance/Punctuality):</b></p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> </ul>

	<ul style="list-style-type: none"><li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>The students have to submit the assignment or project on time.</li><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmaceutics II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Pharmaceutics II				
2	Course Number and Code:	<b>B11254</b>				
3	Credit hours: 3 hrs.	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	<i>Second semester/Second year</i>				
5	Pre –requisite :	Physical Pharmacy				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Mohammed Addoais & Dr. Abdulkarim Alzomor				
10	Approved By:					

II. Course Description:	
<p>This course is designed to provide students with a detailed knowledge and understanding of pre-formulation concepts, design and formulation of a different pharmaceutical liquid dosage forms. Students will be given thorough knowledge on liquid dosage forms like solution, suspension and emulsion.</p>	



### III. ILOs: at end of the course students will be to:

1. Mention the types of solution.
2. List the factors that affect pre-formulation of dosage forms.
3. Illustrate the common solvents used for solution preparation
4. Compare between flocculated and deflocculated suspension
5. Differentiate between stable and unstable emulsion
6. Design stable emulsion and suspension
7. Formulate good and stable liquid dosage forms.
8. Prepare good liquid dosage forms
9. Perform quality control for liquid dosage form
10. Choose the suitable emulsifying agent.
11. Solve instability problems occur during formulation
12. Work effectively in a team.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

#### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

##### (A) Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.

*At end of the course students will be to:*

a1-Mention the types of solution.

a2-list the factors that affect preformulation of dosage forms.

a3-Illustrate the common solvents used for solution preparation

*Teaching strategies to be used.*

Lectures using data show  
Video animation and seminars

Assessment Methods.

Written exam  
Quiz

##### (B) Intellectual Skills:

#### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

##### Course Intended Learning Outcomes (CILOs) in Intellectual Skills.

*At end of the course students will be to:*

b1- Compare between flocculated and deflocculated suspension

b2-Differentiate between stable and unstable emulsion

b3- Design stable emulsion and suspension

b4- Formulate good and stable liquid dosage forms.

Teaching strategies to be used

Seminars  
Directed reading,  
Independent study  
Group Discussion

Assessment Methods

Oral exam  
Presentation  
Written exam

##### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills <i>At end of the course students will be to:</i>	Teaching strategies to be used	Methods of assessment
c1-Prepare good liquid dosage forms	Laboratory work Directed reading, Independent study Group Discussion	Presentation Practical reports
c2- Perform quality control for liquid dosage form		
c3- Choose the suitable emulsifying agent.		
c4-. Solve instability problems occur during formulation		
(D)General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills <i>At end of the course students will be to:</i>	Teaching strategies to be used	Methods of assessment
d1-Work effectively in a team	Group discussion Directed reading, Independent study	Presentation

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Pre-formulation studies	<ul style="list-style-type: none"> <li>• Study of physical properties of drug and its effect on formulation like               <ul style="list-style-type: none"> <li>○ Physical form</li> <li>○ Particle size</li> <li>○ Shape</li> <li>○ Density and angle of repose</li> <li>○ Wetting</li> <li>○ Dielectric constant</li> <li>○ Solubility</li> <li>○ Dissolution</li> <li>○ Organoleptic properties</li> </ul> </li> <li>• Excipients compatibility</li> <li>• Selection of solvent</li> </ul>	3	6	a2, c, b4, d1

		<ul style="list-style-type: none"> <li>• Common solvents used in pharmacy.</li> </ul>			
2	Solution	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Classification of pharmaceutical solution</li> <li>• Aqueous solution</li> <li>• Non aqueous solution</li> <li>• Formulation (vehicles used and additives)</li> <li>• Isotonicity</li> <li>• Stability of solution</li> <li>• Manufacture of solution</li> </ul>	5	10	a1, a2, c1, c, c3, d1
		Midterm exam	1	2	a1, a2, b1
3	Suspension	<ul style="list-style-type: none"> <li>• Advantages and disadvantages</li> <li>• Pharmaceutical application of suspension</li> <li>• Types of suspensions</li> <li>• Formulation of suspension</li> <li>• Difference between Flocculation, deflocculation.</li> <li>• Factors affecting sedimentation rate of suspension.</li> <li>• Formulation of various types of suspensions. <ul style="list-style-type: none"> <li>○ flocculating agents</li> <li>○ Viscosity modifiers</li> <li>○ Formulation additives</li> </ul> </li> <li>• Stability testing of suspension</li> </ul>	3	6	a3, b, b4, c, c2, c3, d1
4	Emulsion	<ul style="list-style-type: none"> <li>• Emulsion types</li> <li>• Emulsion uses</li> <li>• Identification of emulsion type</li> <li>• Emulsion formulation</li> <li>• Choice of emulsion type, and oil phase</li> <li>• Emulsion consistency</li> <li>• Choice of emulsifying agent</li> <li>• Preparation of emulsion</li> <li>• Classification of emulsifying agents</li> <li>• Stability of emulsion</li> <li>• Stability testing of emulsion</li> </ul>	2	4	b2, b3, b4, c1, c2, c3, c4, d1
5		Final exam	1	2	a1, a2, a3, b1, b3, b4
Number of Weeks/and Units Per Semester			15	30	
b - Practical Aspect:					

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Weights and measures, Containers, closures and Labeling	1	2	b3, b4, c1, c2, c3, c4, d1
2	Preparation Lugol's solution/ Potassium permanganate 0.2%	1	2	b3, b4, c1, c2, c3, c4, d1
3	Preparation Paracetamol elixir	1	2	b3, b4, c1, c2, c3, c4, d1
4	Preparation sodium bicarbonate Ear drops/ chloramphenicol eye drops	1	2	b3, b4, c1, c2, c3, c4, d1
5	Midterm exam	1	2	b3, b4, c1, c2, c3, c4, d1
6	Preparation Simple syrup/ cough syrup	1	2	b3, b4, c1, c2, c3, c4, d1
7	Starch mucilage.	1	2	b3, b4, c1, c2, c3, c4, d1
8	Preparation of Calamine lotion	1	2	b3, b4, c1, c2, c3, c4, d1
9	Preparation of chloramphenicol suspension	1	2	b3, b4, c1, c2, c3, c4, d1
10	Preparation of mineral oil emulsion/ Liquid paraffin emulsion.	1	2	b3, b4, c1, c2, c3, c4, d1
11	Preparation Castor oil emulsion/ Cod liver oil emulsion.	1	2	b3, b4, c1, c2, c3, c4, d1
12	Final exam	1	2	b3, b4, c1, c2, c3, c4, d1
Number of Weeks/and Units Per Semester			24	

#### VI. Teaching Strategies:

- Lectures using data show
- Video animation and seminars
- Laboratory work
- Directed reading
- Independent study
- Group Discussion

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Assignment	b1, b2, b3, b4, d1	9	5

#### VIII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	9	5	5%	b1, b2, b3, b4, d1
2	Practical Reports	7	10	10%	b1, b2, b3, b4, c1, c2, c3, c4, d1



3	Quizzes	2, 5, 12	5	5%	a1, a2, a3, b1, b3, b4
4	Written Test (midterm exam )	8	10	10%	a1, a2, a3, b1, b3, b4
5	Final Exam (practical)	14	20	20%	b1, b2, b3, b4, c1, c2, c3, c4, d1
6	Final Exam (theoretical)	16	50	50%	a1, a2, a3, b1, b2, b3, b4, c1, c2, c3, c4, d1
Total			100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK.
2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.

##### 2-Recommended Books and Reference Materials.

2. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup>edition., Williams and Wilkins. Maryland, USA.

##### 3-Electronic Materials and Web Sites *etc.*

- 1-www.go.jblearning.com/basicphysicalpharmacy

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> </ul>

	<ul style="list-style-type: none"><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Physiology II

University: Al-Nasser University

Faculty: Pharmacy

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Physiology II			
2	Course Number and Code:	B11215			
3	Credit hours:	C.H			Total Th.
		Th.	Pr.	Th.	
		2	1		
4	Study level/year at which this course is offered:	Second semester/Second year			
5	Pre –requisite :	Physiology I			
6	Co –requisite :	NA			
7	Program (s) in which the course is offered:	Medical Lab			
8	Language of teaching the course:	English			
9	Prepared By:	Dr. Sadeq Abdulmogny			
10	Approved By:				

II. Course Description:	
<p>Physiology II is a continuation of Physiology I. This course examines the function relationships of the cardiovascular system, lymph and lymphatic system, introduction to respiratory system, functional anatomy of the kidneys, functions of kidneys, introduction to reproductive system, menstrual cycle, introduction to central nervous system, physiology of pain.</p>	

### III. ILOs:

1. Describe and identify the major functions of the cardiovascular system and the physiological mechanism of ECG.
2. Recognize the function of each organ of the respiratory system and explain how oxygen and carbon dioxide are transported to and from the tissues of the body.
3. Explain basal metabolism, metabolic rate and factors affecting it, and homeostasis
4. Distinguish between physiological and pathological performance of body cells.
5. Integrate physiology with other sciences.
6. Reform hematological analysis related to units.
7. Draw the general body composition and function.
8. Choose and classify data obtained from physiological experiments.
9. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day
10. Communicate effectively with students by discussing results obtained from experimental physiological lab.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1: Describe and identify the major functions of the cardiovascular system and the physiological mechanism of ECG.	Lectures	Written examinations and Quizzes.
a2: Recognize the function of each organ of the respiratory system and explain how oxygen and carbon dioxide are transported to and from the tissues of the body..		
a3: Explain basal metabolism, metabolic rate and factors affecting it, and homeostasis		

### (B) Intellectual Skills:



Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Intellectual Skills.	Teaching strategies to be used	Assessment Methods
b1: Distinguish between physiological and pathological performance of body cells.	Lectures and interactive class discussions.	Written examinations and Quizzes.
b2: Integrate physiology with other sciences.		
(C) Professional and Practical Skills.		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
c1: Reform hematological analysis related to units.	Lectures Problem solving	Written examinations and Quizzes
c2: Draw the general body composition and function.		
c3: Choose and classify data obtained from physiological experiments.		
(D) General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
d1: Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day	Discussion during seminar	Seminar asseement
d2: Communicate effectively with students by discussing results obtained from experimental physiological lab		

Topics/Units of Course Contents					
First: Theoretical Aspects					
No	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours	CILOs
1	1- Introduction to cardiovascular system 2- Heart and its properties 3- Blood pressure	<ul style="list-style-type: none"> <li>- Physiological anatomy, pulmonary and systemic circulation</li> <li>- Properties of cardiac muscle, introduction to ECG.</li> <li>- Heart sounds, cardiac cycle and cardiac output.</li> <li>- Blood pressure and factor</li> </ul> <p>Determining and maintaining it.</p>	3	6	a1, a2, a3
2	Lymph system	Lymph and lymphatic: formation and functions.	1	2	a1, b1, b2
3	1- Introduction to respiratory system.	<ul style="list-style-type: none"> <li>- Mechanism of respiration and lung compliance.</li> <li>- Exchange and transport of gases, regulation of respiration and hypoxia.</li> </ul>	2	4	a1, a2, a3, b1, b2
4	Midterm		1	2	a1, a2, a3, b1, b2, c1
5	The kidney and its units	Functional anatomy of the kidneys.	2	4	

		Mechanisms of urine formation. Renal clearance and glomerular filtration rate (GFR). Regulation of acid-base balance by the kidneys.			a1, a2, a3, b1, b2, c1, c2
6	Endocrine system	Introduction to endocrine system: endocrine glands and their functions.	2	4	a1, a2, a3, b1, b2, c1, c2, d2
7	Reproductive system	Introduction to reproductive: male and female reproductive system. Menstrual cycle	2	4	a1, a2, a3, b1, c1, c2, d1, d2
	Central nervous system	Introduction to central nervous system. Physiology of pain.	1	2	a1, a2, a3, b1, b2, c1, d1, d2
8	Final exam		1	2	a1, a2, a3, b1, b2, c1, d1, d2
Total number of weeks and hours			15	30	

### Second: Practical/Tutorial/Clinical Aspects

Write up practical/tutorial/clinical topics

No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours	CILOs
1	Puke Rate+ Respiration	1	2	a1, a2 b1, b2, c1, d1
2	Blood Pressure	1	2	a1, a2 b1, b2, c2, c3, d1, d2
3	Measurement of temperature + hearing	1	2	a1, a2, b1, b2, c1, c2, c3



VI. Teaching Strategies				
The methodologies and teaching and learning strategies that can be used: 1 - Lectures 2 -Discussions(Seminars)				
4	Blood Glucose Test	1	2	a1, a2, b1, b2, c1, c2, c3
5	Vision.	1	2	a1, a2, b1, b2, c1, c2, c3
6	ECG	1	2	a1, b1, b2, c1, c2, c3, d1, d2
7	Enzyme	1	2	a1, a2, b1, c1, c2, d1, d2
8	Bile Juice	1	2	a1, a2, b1, c1, c2, d1, d2
9	Final Exam	1	2	a1, a2, b1, c1-c3, d1, d2
Total number of weeks and hours		9	18	

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	Assignment	a1-a3, b1-b3, d1-d2	9	5

VIII. Learning Assessment:					
No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	Aligned CILOs
1	Assignments	3, 6, 8, 11	5	5%	a1-a3, b1-b3, d1- d2
2	Midterm Exam Quizzes and Homework	7	10	15%	a1, a2, a3, b1, b2, c1, d1, d2
3	Practical Reports	All	10	10%	c1-c3, d1, d2
4	Final Exam Practical	14	20	20%	c1-c, 3d1. d2
5	Final Exam Theory	16	50	50%	a1, a2, a3, b1, b2, c1, d1, d2
Total			100	100%	

IX. Learning Resources :
(Author, (Year), Book Title, Edition, Publisher, Country of publishing)
Textbooks-not more than 2
1- Text book of medical physiology, Guyton and Hall, 12 <sup>th</sup> Ed 2010, Mississippi Medical Center, Jackson, Mississippi, USA 2- Essentials of Human Physiology for Pharmacy, Laurie Kelly first Ed. 2005, CRC Press, Pharmacy Education series
Essential References-not less than 4
1- Textbook: Human Physiology, 13 <sup>th</sup> Ed. Stuart Ira Fox 2- Anatomy and Physiology, Fifth Ed. Thibodeahandpatton 1999. 3- A-Z of Haematology first Ed. Barbara J. Bain and Rajeev Gupta, Blackwell Publishing Ltd. London 2003.

- 4- Textbook of Anatomy and Physiology. William Arnould-Taylor and Nelson Thornes, 1998)
- 5- Human Anatomy and Physiology 13<sup>th</sup> Ed. David Shier 2012

#### Electronic Materials and Web Sites

1. [www.csun.edu/science/biology/anatomy/anatomy.html](http://www.csun.edu/science/biology/anatomy/anatomy.html)
2. [www.cliffsnotes.com](http://www.cliffsnotes.com)
3. [www.innerbody.com](http://www.innerbody.com)
4. [www.anatomyandphysiology.com/](http://www.anatomyandphysiology.com/)
5. [www.mhhe.com/biosci2/anatomyrevealed](http://www.mhhe.com/biosci2/anatomyrevealed)
6. [www.le.ac.uk/pa/teach/va/anatomy](http://www.le.ac.uk/pa/teach/va/anatomy)

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p><b>Class Attendance:</b></p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p><b>(Tardy):</b></p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p><b>(Exam Attendance/Punctuality):</b></p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p><b>(Assignments and Projects):</b></p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> </ul>



	<ul style="list-style-type: none"><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Histology

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Histology				
2	Course Number and Code:	B11244				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	Second Semester/Second Year				
5	Pre –requisite :	Human Anatomy				
6	Co –requisite :					
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Ammar Saleh Omar				
10	Approved By:					

II. Course Description:	
<p>This course introduces the student to the structure of the human body and its relationship to function. Following an introduction to basic human histology, the course uses a systemic approach to the study of human anatomy.</p>	



### III. ILOs:

after participation in this course student must be able to:

1. Describe normal histological structure of various systems
2. Illustrate the distinguishing structural features of organs, regions and cell types present in each system and relate the structural variations to differences in organ function.
3. Identify pathology of cells, tissues and organs based on enough knowledge of their normal structure.
4. Correlate between histological structure and function of different organs of all studied systems.
5. Differentiate between different organs in histological slide seen under the microscope.
6. Predict the functional deficit that can arise from certain structural disorders of an organ or tissue element.
7. Compare between the blood supply of some organs and their structure and specialized functions.
8. Draw and label histological slides seen during the course.
9. Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.
10. Communicate clearly with patients and other health care professionals by verbal and written means.
11. Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
after participation in this course student must be able to: a1 Describe normal histological structure of various systems.	Lectures using data show, video animation and seminars	Exam, short answers and homework.
a2 Illustrate the distinguishing structural features of organs, regions and cell types present in each system and relate the structural variations to differences in organ function.		
a3 Identify pathology of cells, tissues and organs based on enough knowledge of their normal structure.		

### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Intellectual Skills.	Teaching strategies to be used	Assessment Methods
after participation in this course student must be able to:	Lectures, Practice session, Discussions, and Cases study.	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b1 Correlate between histological structure and function of different organs of all studied systems.		
b2 Differentiate between different organs in histological slide seen under the microscope.		
b3 Predict the functional deficit that can arise from certain structural disorders of an organ or tissue element.		
b4 Compare between the blood supply of some organs and their structure and specialized functions.		
<b>(C) Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
after participation in this course student must be able to:	Lectures, Laboratory work, directed reading, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c1 Draw and label histological slides seen during the course.		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
after participation in this course student must be able to:	1. Small group discussions 2. Tutorials 3. Practical classes 4. Micro assignments	reports, presentations and communication with the lecturer and his colleagues.
d1-Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.		
d2-Communicate clearly with patients and other health care professionals by verbal and written means.		
d3-Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning.		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Microscopy and Microtechniques		1	2	a1, b2, b3, b4, c1, c4
2	Epithelial tissue	Simple epithelium	2	4	a1, a2, b2, b3, b4, c1, a2, c3
		Stratified epithelium			
		Glandular epithelium			
		Neuroepithelium			
3	Connective tissue	Connective tissue proper	2	4	a1, a2, b2, b3, b4, c1
		Cartilage			
		Bone			
4	Blood	Granular leukocyte	1	2	a1, a2, b2, b3, b4, c1
		Non granular leukocyte			
		Platelet			
		Heamopoiesis			
5	Mild term exam		1	2	a1, a2, a3, b1, b2, b3, b4, c1, d1, d2, d3
6	Muscular tissue	Skeletal muscle	1	2	a1, a2, b2, b3, b4, c1
		Cardiac muscle			
		Smooth muscle			
7	Nervous tissue	Neuron	1	2	a1, a2, b2, b3, b4, c1
		Peripheral nervous system			
8	Circulatory system	The blood vessels	1	2	a1, a2, b2, b3, b4, c1
9	Lymphatic and macrophage system	Lymphatic vessels	1	2	a1, a2, b2, b3, b4, c1
		Lymph node			
		The spleen			
		The tonsils			



		The thymus The macrophage system			
10	Integumentary system	Skin Thick skin Thin skin Skin appendages	1	2	a1, a2, b2, b3, b4, c1
11	Revision		1	2	a1, a2, a3, b2, b3, b4, c1, d3,
12	Final exam		1	2	a1, a2, a3, b1, b2, b3, b4, c1, d1, d2, d3
Number of Weeks/and Units Per Semester				28	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Microscopy and Microtechniques	1	2	a1, ,b2,b3,c1,c2,c3,
2	Epithelial tissue	1	2	a1,a2,,b2,b3,c1,c2,c3
3	Connective tissue	1	2	a1,a2,,b2,b3,c1,c2,c3
4	Blood	1	2	a1,a2,,b2,b3,c1,c2,c3
5	Muscular tissue	1	2	a1,a2,,b2,b3,c1,c2,c3
6	Nervous tissue	1	2	a1,a2,,b2,b3,c1,c2,c3
7	Circulatory system	1	2	a1,a2,,b2,b3,c1,c2,c3
8	Lymphatic and macrophage system	1	2	a1,a2,,b2,b3,c1,c2,c3
9	Integumentary system	1	2	a1,a2,,b2,b3,c1,c2,c3
10	Revision	1	2	a1,a2,a3,,b2,b3,c1,c2,c3,d3,
11	Final exam	1	2	a1,a2,a3,,b2,b3,c1,c2,c3,d3,
Number of Weeks /and Units Per Semester			22	

VI. Teaching Strategies:

Lectures using data show, video animation and seminars  
Solving Problem method, Laboratory work, directed reading, independent study and discussion

VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
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1	Assignment	a1-a3, b1-b4, d1-d3	9	5
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VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises & Home works	3	2.5	2.5%	a1,a2,,b2,b3,c3,
2	Project ( single\group)	4	2.5	2.5%	a1,a2,,b2,b3,c3,d1,d3,
3	Practical reports	1-10	10	10%	a1,a2,,b2,b3,c1,c2,c3
4	Mid Exam	8	15	15%	a1,a2,a3,,b1,b2,b3,d1,d2,d3,
5	Final Exam (theoretical)	14	50	50%	a1,,a2,,b1,b2,,b3.c1.c2.c3
6	Final Exam (practical)	11	20	20%	a1,,a2,,b1,b2,,b3.c1.c2.c3
7			100	100%	

VIII. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	-Histology and cell biology for medical students part 1 and part 2, 2013 staff members of histology department faculty of medicine Cairo university. 2- Anthony Mescher 2013. Basic Histology: Text and Atlas, Thirteenth Edition: 9780071780339, 2013.
2-Recommended Books and Reference Materials.	
	1- Functional histology 2- Histological techniques
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.histology.com">www.histology.com</a>

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	

1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li></ul>



	<ul style="list-style-type: none"><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Botany

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:						
1	Course Title:	Botany				
2	Course Number and Code:	B11271				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	First semester/ Second year				
5	Pre –requisite :	Biology				
6	Co –requisite :	None				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/ Arabic				
9	Prepared By:	Mohammed F. Al-Helali				
10	Approved By:					

### II.Course Description:

The course will provide a brief description of plants as living organism. The topics will cover the plant morphology, growth and anatomy of roots, stem and leaves. The course will also deal with the sexual and asexual reproduction of plants.

### III.ILOs:

At the end of this course students should be able to:

1. Recognize the plant kingdom.
2. Describe plant structure, growth, anatomy and function of roots, stem and leaves.
3. Illustrate the transport of minerals, water and responses through the flowering plants.
4. Differentiate between seed plants and seed less plants and between flowering and non flowering plants.
5. Compare their experimental results with those that are found in computer sources.
6. Use microscope and make sections of the roots, stems and leaves and staining.
7. Perform experiments of dye and supply the plant with this dye to see the transport route in plants.
8. Manage time effectively and work as a part of team in order to fulfill a certain project.



IV. Alignment Learning Outcomes with Teaching and Assessment Methods:			
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:			
	<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of this course students should be able to:	<i>Teaching strategies to be used.</i>	Assessment Methods.
a1	Recognize the plant kingdom.	Lectures using data show and seminars	Quizzes, written exam, and participation
a2	Describe plant structure, growth, anatomy and function of roots, stem and leaves.		
a3	Illustrate the transport of minerals, water and responses through the flowering plants.		
(B) Intellectual Skills:			
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:			
	<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At the end of this course students should be able to:	Teaching strategies to be used	Assessment Methods
b1	Differentiate between seed plants and seed less plants and between flowering and non flowering plants.	Lectures, laboratory work, directed reading, and Group assignments	Practical works, practical reports and presentation
b2	Compare their experimental results with those that are found in computer sources.		
(C) Professional and Practical Skills.			
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:			
	Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills At the end of this course students should be able to:	Teaching strategies to be used	Methods of assessment
c1	Use microscope and make sections of the roots, stems and leaves and staining.	Lectures, laboratory work, directed reading, and Group assignments	Practical works, practical reports and presentation based on experimental work
c2	Perform experiments of dye and supply the plant with this dye to see the transport route in plants.		
(D) General/ Transferable Skills:			
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.			
	Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment

	At the end of this course students should be able to:		
	d1 Manage time effectively and work as a part of team in order to fulfill a certain project.	Small group discussions, Practical classes	reports, presentation and communication with the lecturer and students

### V.Course Content:

#### 1 – Course Topics/Items:

##### a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	The Plant Kingdom ; Seedless Plants	There Are Four Major Groups Of Plants	1	2	a1
2	Plant Structure, Growth, And Differentiation	Roots, Stems, Leaves, Flowers, And Fruits Made Up The Plant Body. Is Composed Of Cells And Tissues	2	4	a1-a2, b1-b2, d1,
3	Leaf Structure And Function	The Leaf Consists Of An Epidermis, Ground Tissue, And Vascular Tissue. Leaf Structure Differs In Dicots And Monocots.	2	4	a1-a2, b1-b2, d1,
4	Stems And Plant Transport and midterm	-Water And Minerals Are Transported In Xylem, While Sugars Are Transported In Phloem.	3	6	a1-a3, b1-b2, d1,

5	Roots And Mineral Nutrition	-There Are Two Basic Types Of Root Systems	2	4	a1-a3, b1-b2, d1,
6	Reproduction In Flowering Plants	Fertilization Is Followed By Seed And Fruit Development	2	4	a1-a3, b1-b2, d1,
7	Growth Responses And Regulation Of Growth	External And Internal Factors Affect Germination And Early Growth	2	4	a1-a3, b1-b2, d1,
8	Final Exam		1	2	a1-a3, b1-b2, d1,
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	The plant kingdom ; seedless plants	2	4	b1-b2, c1, c2 d1,
2	Plant structure, growth, and differentiation	2	4	b1-b2, c1, c2 d1,
3	Leaf structure and function	2	4	b1-b2, c1, c2 d1,
4	Stems and plant transport	2	4	b1-b2, c1, c2 d1,
5	Roots and mineral nutrition	2	4	b1-b2, c1, c2 d1,
6	Reproduction in flowering plants	2	4	b1-b2, c1, c2 d1,
7	Final exam	1	2	b1-b2, c1, c2 d1,
Number of Weeks/and Units Per Semester		13	26	

VI. Teaching Strategies:

1. Lectures using data show.
2. Video animation.
3. Seminars.
4. Solving problem method.
5. Laboratory work.
6. Directed reading.
7. Independent study.

8. Discussion.

VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-3, b1-2, d1-	5	5

VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1-3, b1-2, d1-
2	Practical reports	1-10	10	10%	a1-3, b1-2, c1-c2, d1-
3	Oral Tests	5, 9	5	5%	a1-3, b1-2, d1-
4	Written Test (1)	7	10	10%	a1-3, b1-2, d1-
5	Final Exam (theoretical)	14	50	50%	a1-3, b1-2, d1-
6	Final Exam (practical)	11	20	20%	a1-3, b1-2, c1-c2, d1-
7			100	100%	

IX. Learning Resources:

1- Required Textbook(s) ( maximum two ).

1. Sylvia/S.Mader 2012, Human Biology, 1<sup>st</sup> Edition (McGraw-Hill) N.Y.USA.
2. E.Solomon, L.Berg, D.Martin 2008 Biology 8<sup>th</sup> edition (Thomson Brooks Cole, Belmont.U.S.A College Publishing)

2- Recommended Books and Reference Materials.

1. Bruce Albert, Alexander Johnson, Peter Walter (2008), Molecular biology of the cell, Fifth edition, (Garland Science), New York. U.S.A.
2. Cecie Starr (1997), Basic concept in biology Third edition, (International Thomson Publishing Company), Belmont, U.S.A.
3. Shuaa Al-Yousufy (1994), Cell structure and function, (Qatar Publishing Library), Qatar.
4. Aish Zaytoon (1996), Human biology, (National Publishing Library), Jordan.

3- Electronic Materials and Web Sites *etc.*

1. Power Point Lectures for Biology, concepts and connections 6<sup>th</sup> edition by Campbell, Reece, Taylor, Simon and Dickey 2012.

X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>



6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Third year: first semester

### Course Specification of Pharmaceutics III

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Pharmaceutics III				
2	Course Number and Code:	B11355				
3	Credit hours: 3 hrs.	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	First semester/ Third year				
5	Pre –requisite :	Pharmaceutics I				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Mohammed Addoais & Dr. Abdulkarim Alzomor				
10	Approved By:					

II. Course Description:	
<p>This course will provide students with a detailed knowledge and understanding of design and formulation of a different pharmaceutical dosage forms .Students will be given thorough knowledge on pharmaceutical aerosols, suppositories, parenteral, ophthalmic and semisolid dosage forms like ointments, creams, paste and gel.</p>	

III. ILOs: at end of the course students will be to:	
<ol style="list-style-type: none"> <li>1. Enumerate the methods of sterilization</li> <li>2. Mention the components of aerosol system.</li> <li>3. Explain the factors affecting percutaneous drug absorption process.</li> <li>4. List the types of water for injection</li> <li>5. Differentiate between physical and chemical methods of sterilization</li> <li>6. Classify ointment bases and creams</li> <li>7. Categorize suppository bases</li> </ol>	



8. Design sterile parenteral and ophthalmic preparation.
9. Formulate good and stable parenteral and ophthalmic dosage form.
10. Prepare good semisolid dosage forms
11. Perform quality control for different pharmaceutical dosage form.
12. Make presentation about selective topics

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Enumerate the methods of sterilization	Lectures using data show Video animation and seminars	Written exam Presentation
a2-Mention the components of aerosol system.		
a3- Explain the factors affecting percutaneous drug absorption process.		
a4- List types of water for injection		

#### (B)Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b1-Differentiate between physical and chemical methods of sterilization	Seminars Directed reading Independent study Group discussion	Presentation Quiz Written exam
b2-Classify ointment bases and creams.		
b3-Categorize suppository bases		
b4- Design sterile parenteral and ophthalmic preparation.		

#### (C)Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
<i>At end of the course students will be able to:</i>		
c1-Formulate good and stable parenteral and ophthalmic dosage form.	Direct reading Assignments Lab work	Presentation Practical work
c2- Prepare good semisolid dosage forms.		
c3- Perform quality control for different pharmaceutical dosage form.		

#### (D)General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
d1-Make presentation about selective topics.	Directed reading Independent study Group discussion	Report based on discussion

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Parenteral preparation	<ul style="list-style-type: none"> <li>Route of administration of injection</li> <li>Types of Water for injection</li> <li>Pyrogenicity</li> <li>Non-aqueous vehicles</li> <li>Isotonicity and methods of adjustment</li> <li>Formulation of injection ( the vehicles, osmotic pressure, pH, specific gravity, suspension for injection, emulsion for injection)</li> <li>Containers and closures selection</li> <li>Methods of Sterilization</li> </ul>	3	6	a1, a2, b1, b2, b4, c1, c2, c3, d1
2	Ophthalmic preparation	<ul style="list-style-type: none"> <li>Principles of ocular drug absorption.</li> <li>Ophthalmic solution.</li> <li>Ophthalmic suspension.</li> <li>Ophthalmic ointments.</li> <li>Ocuserts (ophthalmic inserts)</li> <li>Examples of drugs used to treat certain eye diseases.</li> </ul>	1	2	a1, a3, b1, b2, b4, c1, c2, c3, d1,
3	Therapeutic aerosols	<ul style="list-style-type: none"> <li>Definition and uses of therapeutic aerosols.</li> <li>Instability of aerosols</li> <li>Deposition of aerosols in the human respiratory tract.</li> <li>Formulation and generation of aerosols</li> <li>Pressurized packages</li> <li>Type of propellants</li> <li>Containers</li> <li>Formulation aspects</li> </ul>	2	4	a4, c1, c2, c3, d1

		<ul style="list-style-type: none"> <li>• Performance of pressurized packages as inhalation aerosol generators</li> <li>• Air-blast nebulizers</li> <li>• Dry powder generators</li> <li>• Methods of preparation</li> <li>• Evaluation methods <ul style="list-style-type: none"> <li>○ Leaking and pressure testing of containers.</li> <li>○ Output, drug concentration and dose delivered and particle Size analysis</li> </ul> </li> </ul>			
4		Midterm exam	1	2	a1, a2, a3, b1
5	Semisolid dosage forms	<ul style="list-style-type: none"> <li>• Skin anatomy and physiology</li> <li>• Percutaneous absorption and factors affecting it.</li> <li>• Ointments</li> <li>• Classification of ointment bases</li> <li>• Additives included in ointment bases</li> <li>• Methods of Preparation of ointments and packaging.</li> <li>• Some examples of medicated ointments</li> <li>• Creams</li> <li>• definition</li> <li>• Classification of creams</li> <li>• Some examples of medicated creams</li> <li>• Pastes</li> <li>• Definition</li> <li>• Composition</li> <li>• Examples of medicated pastes</li> <li>• Gels</li> <li>• Composition and uses</li> <li>• Evaluation of drug release from ointment and cream bases.</li> </ul>	4	8	c2, c3, d1
6	Suppositories	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Advantages and disadvantages</li> <li>• Anatomy and physiology of rectum</li> <li>• Factors affecting rectal drug absorption.</li> <li>• Shapes and size of suppositories.</li> <li>• Types of suppository bases.</li> <li>• Methods of Preparation of suppositories.</li> <li>• Displacement value</li> <li>• Calibration of suppository mold with bases .</li> </ul>	2	4	b3, c3, d1



7		Final exam	1	2	a1, a2, a3, a4, b1, b2b3, b4
Number of Weeks/and Units Per Semester			14	28	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Yellow Simple ointment (ointment base)	1	2	c1, c2, c3, d1
2	Preparation of emulsifying ointment	1	2	c1, c2, c3, d1
3	Preparation of white field/cetrimide ointment	1	2	c1, c2, c3, d1
4	Preparation of atropine sulfate eye ointment 1%	1	2	c1, c2, c3, d1
5	Preparation of Absorption ointment Base	1	2	c1, c2, c3, d1
6	Preparation of W/O Emulsion ointment Base (Cold Cream type base)	1	2	c1, c2, c3, d1
7	Preparation of O/W Emulsion Base (Hydrophilic Ointment)	1	2	c1, c2, c3, d1
8	Preparation of Water Soluble Base (PEG)	1	2	c1, c2, c3, d1
9	Aqueous cream/ Sulfur and salicylic acid cream.	1	2	c1, c2, c3, d1
10	Zinc gelatin paste (Unna's paste).	1	2	c1, c2, c3, d1
11	Calibration of suppository mold using different bases Calculation of displacement value	1	2	c1, c2, c3, d1
12	Preparation of acetaminophen suppositories	1	2	c1, c2, c3, d1
13	Final exam	1	2	c1, c2, c3, d1
Number of Weeks/and Units Per First semester3			26	

VI. Teaching Strategies:
<ul style="list-style-type: none"> <li>Lectures using data show</li> <li>Video animation and seminars</li> <li>Laboratory work</li> <li>Directed reading</li> <li>Independent study</li> <li>Group discussion</li> </ul>

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark



1	Assignment	b1, b2, b3, b4, d1	9	5
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#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	9	5	5%	b1, b2, b3, b4, d1
2	Practical Reports	1-12	10	10%	b1, b2, b4, c1, c2, c3, d1
3	Quizzes	2, 5, 12	5	10%	a1, a2, a3, a4, b1, b2, b4, d1
4	Written Test (midterm exam )	8	10	10%	a1, a2, a3, a4, b1, b2, b4, d1
5	Final Exam (practical)	14	20	20%	b1, b2, b3, b4, c1, c2, c3, d1
6	Final Exam (theoretical)	16	50	50%	a1, a2, a3, a4, b1, b2, b4, d1
Total			100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK.
2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.

##### 2-Recommended Books and Reference Materials.

1. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup>edition., Williams and Wilkins. Maryland, USA.

##### 3-Electronic Materials and Web Sites *etc.*

- 1-www.go.jblearning.com/basicphysicalpharmacy
- 2-
- 3-

#### X.Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li></ul>



	<ul style="list-style-type: none"><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Biochemistry I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Biochemistry I			
2	Course Number and Code:	<b>B11316</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		3	1		4
4	Study level/year at which this course is offered:	<i>First semester/Third year</i>			
5	Pre –requisite :	General Biology			
6	Co –requisite :				
7	Program (s) in which the course is offered:	Medical Laboratory			
8	Language of teaching the course:	Arabic/English			
9	Prepared By:	Dr Anwar Masoud			
10	Approved By:				

II. Course Description:	
To study the molecules which support life, this course has been designed. The course will focus on studying the biomolecules and macromolecules in living systems with a practical sessions offer a vital hands-on experience, learning key techniques and how to apply them.	

III. ILOs:	
Upon completion of this course, the students should be able to	
<ol style="list-style-type: none"> <li>1. Recognize the biomolecules found in living systems</li> <li>2. Describe the structure and functions of prokaryotic and eukaryotic cell.</li> <li>3. Explain the structure and properties of biomolecules including carbohydrates, lipids, proteins, vitamins, nucleic acids and enzymes.</li> <li>4. Analyze biochemical data with a critical understanding of the appropriate contexts for their use</li> <li>5. Interpret the relationship between chemical structure and biological function</li> <li>6. Perform different biochemical analyses of biomolecules.</li> </ol>	



7. Carry out experimental work using different biochemical techniques.
8. Use the appropriate instrumentations to perform the biomolecules qualitative and quantitative analyses.
9. Demonstrate life-long learning, critical thinking and value the time-management
10. Articulate biochemical information through oral and written communication.
11. Work effectively both individually and in a team.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	Assessment Methods.
Upon completion of this course, the students should be able to	Lectures using data show, video animation, Cooperative learning and seminars	Quizzes, Written exam, short answers and homework.
a1 Recognize the biomolecules found in living systems		
a2 Describe the structure and functions of prokaryotic and eukaryotic cell.		
a3 Explain the structure and properties of biomolecules including carbohydrates, lipids, proteins, vitamins, nucleic acids and enzymes.		

##### (B)Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	Teaching strategies to be used	Assessment Methods
Upon completion of this course, the students should be able to	Brain storming, Group discussion and problem based learning.	Oral presentation and verbal argument skills and discussions.
b1 Analyze biochemical data with a critical understanding of the appropriate contexts for their use.		
b2 Interpret the relationship between chemical structure and biological function.		

##### (C)Professional and Practical Skills.

##### Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment

Upon completion of this course, the students should be able to c1 Perform different biochemical analyses of biomolecules.	Laboratory work, directed reading and independent study.	Practical works, practical reports and presentations based on their experimental work.
c2 Carry out experimental work using different biochemical techniques.		
c3 Use the appropriate instrumentations to perform the biomolecules qualitative and quantitative analyses.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<b>Course Intended Learning Outcomes (CILOs) in General and Transferable Skills</b>	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
Upon completion of this course, the students should be able to d1 Demonstrate life-long learning, critical thinking and value the time-management.	Leading assignment group, cooperative learning, group discussion and seminars.	Home report, evaluation group discussion and effective communication with the lecturer and his colleagues.
d2 Articulate biochemical information through oral and written communication.		
d3 Work effectively both individually and in a team.		

<b>V. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to Biochemistry	1. Definition and importance of biochemistry 2. Cell types and structure	1	3	a2, b2, d1
2	Carbohydrate biochemistry	1. Definition, classification and properties 2. Isomerism 3. Monosaccharides 4. Oligosaccharides 5. Polysaccharides	3	9	a1, a3, b1, b2, c1, c2, c3, d1, d2, d3
3	Protein biochemistry and Midterm exam (1)	1. Definition, importance, classification and properties 2. Amino acids 3. Peptides 4. Proteins (simple, conjugated, derived)	3	9	a1, a3, b1, b2, c1, c2, c3, d1, d2, d3

		5. Protein structure and denaturation			
4	Lipid biochemistry	1. Definition, importance, classification and properties 2. Fatty acids 3. Waxes 4. Compound lipids (phospholipids, glycolipids, 5. Derived lipids (cholesterol, steroids and bile acids)	3	9	a1, a3, b1, b2, c1, c2, c3, d1, d2, d3
5	nucleic acid biochemistry	1. Definition, importance, classification and properties 2. Purines and pyrimidines 3. Nucleotides and nucleosides 4. DNA structure, properties and types 5. RNA structure, properties and types	2	6	a1, a3, b1, b2, c1, c2, c3, d1, d2, d3
6	vitamins biochemistry	1. Definition, importance, classification and properties 2. Fat soluble vitamins (sources, roles, deficiencies and RDA) 3. Water soluble vitamins (sources, roles, deficiencies and RDA)	1	3	a1, a3, b1, c1, d2, d3
7	Enzymes	1. Definition, importance, classification and properties 2. Enzyme inhibition	1	3	a1, a3, b1, b2, c1, c2, c3, d1, d2, d3
8	Final exam		1	3	a1, a2, a3, c1, c2, c3
Number of Weeks/and Units Per Semester			15	54	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Introduction to lab safety and Qualitative analyses of carbohydrate	3	9	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3



2	Qualitative analyses of lipids	3	9	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
3	Qualitative analyses of proteins	3	9	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
4	Qualitative analyses of nucleic acids	1	3	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
5	Qualitative analyses of vitamins	1	3	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
6	Final exam	1	3	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
Number of Weeks/and Units Per First Second semester			36	

VI. Teaching Strategies:					
Lectures using data show, video animation, Cooperative learning and seminars. Leading assignment group, cooperative learning, group discussion and seminars. Laboratory work, directed reading and independent study. Brain storming and problem based learning.					
VII. Assignments and projects:					
No	Assignment	CILOs	Week Due	Mark	
1	Assignment on modern biochemistry topic	a1, b1, b2, d1, d2, d3	10	5	

VIII. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment ( single\group)	10	5	5%	a1, b1, b2, d1, d2, d3
2	Quizzes	3, 5, 9, 11	5	5%	a1, a2, a3, b1, b2
3	Written Test	7	10	10%	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
4	Practical reports	All	10	10%	b1, b2, c1, c2, c3, d1, d2, d3

5	Final Exam (practical)	12	20	20%	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
6	Final Exam (theoretical)	14	50	50%	a1, a2, a3, b1, b2, c1, c2, c3, d1, d2, d3
			100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>1. MALLIKARJUNA RAO, (2008). Medical Biochemistry. Second edition, New Age International Limited Publisher, New Delhi, India.</li> <li>2. John Baynes and Marek Dominiczak, 2014. Medical Biochemistry With STUDENT CONSULT Online Access. Fourth edition, Elsevier limited, China.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>1. Chatterjea MN and Shinde R, (2007). Textbook of Medical Biochemistry, 7th edition, JAYPEE BROTHERS, New Delhi, India.</li> <li>2. Champe PC, Harvey RA, Ferrier DR (2008). Lippincott's Reviews of Biochemistry, Fourth edition, Lippincott William and Wilkins, London, UK.</li> </ol>
3-Electronic Materials and Web Sites etc.	
	<ol style="list-style-type: none"> <li>1- <a href="http://bcs.whfreeman.com/biochem5/default.asp">http://bcs.whfreeman.com/biochem5/default.asp</a></li> <li>2- <a href="http://www.biochemistry.org/">http://www.biochemistry.org/</a></li> <li>3- <a href="http://www.wiley.com/college/boyer/0470003790/animations/animations.htm">http://www.wiley.com/college/boyer/0470003790/animations/animations.htm</a></li> <li>4- <a href="http://www.wiley.com/college/fob/anim/">http://www.wiley.com/college/fob/anim/</a></li> </ol>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> </ul>

	<ul style="list-style-type: none"><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmaceutical Microbiology I

University: AL-Naseer University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy ProgramProgram

I. General Information:					
1	Course Title:	Pharmaceutical Microbiology I			
2	Course Number and Code:	B11245			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		3	1		
4	Study level/year at which this course is offered:	Second semester/Second Year			
5	Pre –requisite :	General biology			
6	Co –requisite :				
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Dr. Ebtisam Almoayad			
10	Approved By:				

II. Course Description:	
<p>This course is designed to provide the students with knowledge about microbial agents of infection, bacteria and fungi. It describes the classification, morphology, transmission routes, virulence factors, pathogenicity, clinical manifestation, control of the disease, and antibiotics sensitivity. Also this course describes the modes of action of types of antimicrobial agents and mechanisms of antibiotics resistance. The practical part will be concerned with the laboratory diagnosis of bacteria and fungi (microscopically, microbiologically), and antimicrobial susceptibility test.</p>	

### III. Intended Learning Outcomes (ILOs):

At the end of this course the students will be able to:

1. Define medical terms that relate to microbiology.
2. Identify the characteristics of bacteria and fungi.
3. Describe the classification, pathogenesis, control, diagnosis, and treatment of bacteria and fungi.
4. Recognize techniques and procedures used for laboratory diagnosis of bacteria and fungi.
5. List the modes of action of antimicrobial agents and mechanisms of antibiotics resistance.
6. Design suitable methods/protocols.
7. Apply advanced level knowledge and skills to identify the bacteria.
8. Operate different equipment's and instruments and use emerging technologies in medical laboratory practice.
9. Perform antimicrobial susceptibility test.
10. Practice the principle of infection control, biosafety measures and aseptic precautions.
11. Manage a lab which employs a team of specialists and administrative aspects of that lab.
12. Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.
13. Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Define medical terms that relate to microbiology.	Lectures using data show, video animation and seminars	Quizzes, Written exam, short answers and homework. Participation.
a2- Identify the characteristics of bacteria and fungi.		
a3- Describe the classification, pathogenesis, control, diagnosis, and treatment of bacteria and fungi.		
a4- Recognize techniques and procedures used for laboratory diagnosis of bacteria and fungi.		
a5- List the modes of action of antimicrobial agents and mechanisms of antibiotics resistance.		

(B) Intellectual Skills:



Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Intellectual Skills.	Teaching strategies to be used	Assessment Methods
b1- Design suitable methods/protocols.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills	Teaching strategies to be used	Methods of assessment
c1- Apply advanced level knowledge and skills to identify the bacteria.	Lectures, Laboratory work, directed reading, independent study and Group assignments	Practical works, practical reports and presentations based on their experimental work
c2- Operate different equipment's and instruments and use emerging technologies in medical laboratory practice.		
c3- Perform antimicrobial susceptibility test.		
c4- Practice the principle of infection control, biosafety measures and aseptic precautions.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills	Teaching strategies to be used	Methods of assessment
d1-Manage a lab which employs a team of specialists and administrative aspects of that lab.	1.Small group discussions 2.Tutorials 3.Practical classes 5. Micro assignments	Reports, presentations and communication with the lecturer and his colleagues.
d2- Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.		
d3- Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	<i>Introduction in microbiology</i>	- <i>Importance of microorganisms</i> <i>Medical terms in microbiology</i>	1	3	a1, a2, b1, c1, d3
2	<i>Prokaryotes and Eukaryotes</i>	- <i>Comparison</i>	1	3	a1, a2, b1, c1, d3
3	<i>Bacterial structure</i>	- <i>Components</i> - <i>Function</i>	1	3	a1, a2, a3, b1, c1, d3
4	<i>Classification of bacteria</i> <i>Morphology of bacteria</i>		1	3	a1, a2, a3, b1, c1, d3
5	<i>Bacterial metabolism</i>	<i>Growth requirements</i>	1	3	a1, a2, a3, b1, c1, d3
6	<i>Bacterial Pathogenicity</i>	<i>The virulence factors</i> <i>Transmission routes of bacterial infection</i>	1	3	a1, a2, a3, b1, c1, d3
7	<i>Middle exam</i>		1	3	a1, a2, a3, b1, d3
8	<i>Bacterial infections</i>	- <i>Common bacterial diseases</i> - <i>Stages of infection</i>	1	3	a1, a2, a3, b1, c1, d3
9	<i>Normal bacterial flora</i>	- <i>Types</i> - <i>Function</i>	1	3	a1, a2, a3, b1, c1, d3
10	<i>Antimicrobial agents</i>	- <i>Sources of antibacterial agents</i> - <i>Types of antibiotics</i>	1	3	a1, a2, a3, a5, b1, c1, d3
11	<i>Antimicrobial agents</i>	- <i>Mechanisms of action of antibiotics</i>	1	3	a1, a2, a3, a5, b1, c1, d3

		- Resistance of bacteria to antibiotics			
12	Antimicrobial agents	MIC, MBC	1	3	a1, a2, a3, a5, b1, c1, d3
13	Fungi	- General Characteristics and - Importance	1	3	a1, a2, a3, b1, c1, d3
14	Fungi	-Morphology of fungi		3	a1, a2, a3, b1, c1, d3
15	Mycoses	-Classification - Pathology, - Clinical significance, - Treatment	1	3	a1, a2, a3, b1, c1, d3
16	Final exam		1	3	a1-a5, b1-b2, d3
Number of Weeks/and Units Per Semester				48	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Infection control policies in microbiology lab	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
2	Preparation and sterilization of culture media	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
3	Inoculation and incubation of culture media	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
4	Examination of culture Preparation of smear	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
5	Gram staining	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
6	Microscopic examination of isolates	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
7	Biochemical tests	1	2	a1, b1, c1, c2, c4, d1, d2, d3
8	Antimicrobial susceptibility test	1	2	a1, b1, c1, c2, c4, d2, d3
9	Antimicrobial susceptibility test	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3

10	Determination of the minimal inhibitory concentration (MIC) and minimum bactericidal concentration (MBC)	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
11	<i>Media, techniques, and incubation used for culturing fungi</i>	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
12	<i>Microscopic examination of fungi</i>	1	2	a1, b1, c1, c2, c3, c4, d1, d2, d3
13	<i>Collection of specimens and diagnosis of dermatophytoses</i>	1	2	a1, b1, c1, c2, c3, c4, d2, d3
14	<i>Final exam</i>	1	2	a1, a2, a3, b1, c1-c4, d1-d3
Number of Weeks/and Units Per Semester			28	

#### VI. Teaching Strategies:

- Lectures using data show, video animation and seminars
- Solving Problem method, Laboratory work, directed reading, independent study, discussion, and report.

#### VII. Assignments and projects:

No	Assignment	CIOs	Week Due	Mark
1	Antibiotics resistance	a2, a5, b1, c1, d2, d3	4	5

#### VIII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises and Home works, Quizzes	2	5	5%	a1, a2, b1, c1, d2, d3
2	Project	4	5	5%	a2, a5, b1, c1, d2, d3
3	Practical Reports	All	10	10%	a1, b1, c1, c2, c4, d2, d3
4	Written Test	6	10	10%	a1, a2, b1, c1, d2, d3
5	Final Exam (theoretical)	16	50	50%	a1- a5, b1, c1, d2, d3
6	Final Exam (practical)	15	20	20%	a1, a2, a3, b1-b2, c1-c4, d2, d3
7			100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>1. Harvey RA, Champe PA, Strol WA, Rouse h, Fisher BD. Lippincott's Illustrated Reviews Microbiology (2001). Lippincott Williams and Wilkins. Philadelphia.</li> <li>2. Kar A. Pharmaceutical Microbiology. (2008). New age international publisher. New Delhi.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ul style="list-style-type: none"> <li>• Winn W, Allen S, Janda W, Koneman E, Procop G, Schreckenberger P, and Woods G. Koneman's Color Atlas and Textbook of Diagnostic Microbiology. (2006)6th edition.Lippincott Williams and Wilkins.</li> <li>• Cheesbrough M. Medical laboratory manual for tropical countries. ELBS with Butterworth-Heinemann, University press, Cambridge, UK. Vol. II. Microbiology.</li> </ul>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p> <a href="http://www.ncbi.nlm.nih.gov/books/NBK7627/">www.ncbi.nlm.nih.gov/books/NBK7627/</a>  <a href="http://www.cdc.gov/">www.cdc.gov/</a>  <a href="http://www.textbookofbacteriology.net/">www.textbookofbacteriology.net/</a>  <a href="http://www.wsmicrobiology.com">www.wsmicrobiology.com</a>  <a href="http://www.microbiologyonline.org.uk">www.microbiologyonline.org.uk</a>  <a href="http://www.asm.org">www.asm.org</a> </p>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> </ul>

	<ul style="list-style-type: none"><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmacognosy I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:						
1	Course Title:	Pharmacognosy I				
2	Course Number and Code:	B11272				
3	Credit hours:	C.H			Total	
		Th.	Pr.	Tut.		Tr.
		3	1			4
4	Study level/year at which this course is offered:	Second semester/ Second year				
5	Pre –requisite :	Botany and Pharmaceutical Organic Chemistry II				
6	Co –requisite :	None				
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Wedad Mansour and Bushra Moharam				
10	Approved By:					

II.Course Description:	
<p>The course is concerns about medicinal plants classification, geographical distribution, cultivation, collection and preparation, drying, processing and storage, standardization, adulteration of crude drugs. Detection of the major active constituents and use of medicinal plants. Also includes the macro- and micro-morphological characteristics of different plant organs (morphological and histological examination, and chemical identification, leaves, barks, subterranean organs and herbs).</p>	

III.ILOs:	
<p>At the end of the course student must be able to:</p> <ol style="list-style-type: none"> <li>1. Rrecognize the principles of pharmaceutical sciences in the field of pharmacognosy.</li> <li>2. Illustrate the botanical aspects, nomenclature, and classification of crude drugs.</li> </ol>	

3. Describe the different ways of natural products cultivation, collection, drying, storage and different adulteration ways of phytomedicinals.
4. Identify morphological and histological features of entire and the powdered plants.
5. List different active constituents and medicinal uses of leaves, barks, subterranean organs and herbs.
6. Compare between the different methods for natural drug products preparation; i.e. cultivation, collection, drying and storage.
7. Categorize the main plant organs under consideration for the production of high quality herbal product.
8. Differentiate between drugs in entire and powdered form.
9. Investigate active constituents of different drugs.
10. Handle and dispose chemicals and broken glasses safely and effectively.
11. Examine drugs of plant origin in entire and powdered form.
12. Perform experiments to identify unknown phytomedicinal cell contents either in an entire organ or in powdered form using different physical and chemical ways.
13. Complete a full scheme for identification of plant leaves, barks, subterranean organs and herbs based on morphological and microscopical examination.
14. Implement writing and presentation skills.
15. Work effectively in team and manage his/her time.
16. Use information technology skills including word processing and knowing how to retrieve information from a variety of sources.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of the course student must be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Recognize the principles of pharmaceutical sciences in the field of pharmacognosy.	Lectures using boards and markers, data show, video animation and seminars	Quizzes, Written exam, homework and participation.
a2- Illustrate the botanical aspects, nomenclature, and classification of crude drugs.		



a3- Describe the different ways of natural products cultivation, collection, drying, storage and different adulteration ways of phytomedicinals.		
a4- Identify and explain morphological and histological features of entire and the powdered plants.		
a5- List different active constituents and medicinal uses of leaves, barks, subterranean organs and herbs.		
<b>(B)Intellectual Skills:</b>		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At the end of the course student must be able to:	Teaching strategies to be used	Assessment Methods
b1- Compare between the different methods for natural drug products preparation; i.e. cultivation, collection, drying and storage.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2- Categorize the main plant organs under consideration for the production of high quality herbal product.		
b3- Differentiate between drugs in entire and powdered form.		
b4- Investigate active constituents of different drugs.		
<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i> At the end of the course student must be able to:	Teaching strategies to be used	Methods of assessment
c1- Handle and dispose chemicals and broken glasses safely and effectively.	Lectures, Laboratory work, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c2- Examine drugs of plant origin in entire and powdered form.		
c3- Perform experiments to identify unknown phytomedicinal cell contents either in an entire organ or in powdered form using different physical and chemical ways.		
c4- Complete a full scheme for identification of plant leaves, barks, subterranean organs and herbs based on morphological and microscopical examination.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills At the end of the course student must be able to:	Teaching strategies to be used	Methods of assessment
d1- Implement writing and presentation skills.	Small group discussions, practical classes and micro assignments	-Activity and Interaction. -Reports, presentations and communication with the lecturer and his colleagues.
d2- Work effectively in team and manage his/her time.		
d3- Use information technology skills including word processing and knowing how to retrieve information from a variety of sources.		

V.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to pharmacognosy	-Definition and importance of pharmacognosy. - Nomenclature and classification of crude drugs. - Cultivation and collection of Medicinal drugs.	1	3	a1, a2, a3, b1, b2, d1, d3
2	Production of drugs:	- Drying, preservation and protection of crude drugs. - Adultration of drugs.	1	3	a3, b1, b2, d1, d3
3	Chemistry of crude drugs	- The food storage products and the products of metabolism.	1	3	b2, b4, c3, d1, d3
4	Leaves	- Introduction to morphological and anatomical description of the leaves - Study of Digitalis, Senna, Guava, Eucalptus leaves	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
		- Study of Stramonium, Belladonna, Egyptian henbane, Buchu and Boldo leaves	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
		- Study of Coca, Jaborandi, Uva-Ursi, Ivy, Tea and Henna leaves.	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3



5		Mid exam	1	3	a1, a2, a3, a4, a5, b1, b2, b3, c4, d1
6	Barks	- Introduction to morphological and anatomical description of the barks - Study of Cinchona, Cinnamon, Cassia, Cascara barks.	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
7		- Study of Frangula, Quillaia, Pomegranate, Hamamelis baks and Galls	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
8	Subterranean organs	- Introduction to subterranean organs (roots, rhizomes, bulbs, corms, tubers) - study of Rauwolfia, Liquorice, Ipecacuanha and Senega	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
		- Study of Ginger, Valerian, Filix-mas, Jalap and Aconite	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
		- Study of Colchicum, Rhubarb, Squill, Curcuma and Podophylum.	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
9	Herbs	- Introduction herbs. - Study of Ergot, Indian hemp, Catharanthus, Lobelia, peppermint and thyme herbs	1	3	a4, a5, b3, b4, c2, c3, c4, d1, d3
10		Final exam	1	3	a3, a4, a5, b2, c4, d1
Number of Weeks/and Units Per First semester4				30	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
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1	Introduction, Laboratory safety measures - The use of light microscope and study types of stomata	1	2	c1, d2
2	Microscopical identification of starch (Potato, Maiz and Wheat)	1	2	a4, b3, b4, c1, c2, c3, d2
3	Morphology - microscopical identification of Senna, Stramonium and Egyptian henbane leaves	1	2	a4, b3, b4, c2, c3, d2
4	Morphology - microscopical identification of Henna, Ivy and Guava leaves	1	2	a4, b3, b4, c2, c3, d2
5	Morphology - microscopical identification of Eucalyptus and Tea leaves	1	2	a4, b3, b4, c2, c3, d2
6	Morphology - microscopical identification of Cassia and Cinnamon.	1	2	a4, b3, b4, c2, c3, d2
7	Morphology - microscopical identification of Pomegranate and Galls	1	2	a4, b3, b4, c2, c3, d2
8	Morphology - microscopical identification of Liquorice and Rhubarb	1	2	a4, b3, b4, c2, c3, d2
9	Morphology - microscopical identification of Ginger and Curcuma	1	2	a4, b3, b4, c2, c3, d2
10	Morphology - microscopical examination of medicinal herbs;Peppermint and Thyme herbs Indian hemp herbs	1	2	a4, b3, b4, c2, c3, d2
11	Final Exam	1	2	b1-b4, c1-c4, d1- d3
Number of Weeks/and Units Per First semester1			22	

#### VI. Teaching Strategies:

- Lectures using board and makers, data show, video animation and seminars
- Solving Problem method, Laboratory work, independent study and discussion

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
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1	Seminar	a3, a4, a5, b4, d1, d2, d3	5	5
2	Projects	a3, a4, a5, b2, b4, c4, d1, d2, d3	9, 11	

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Seminar and project	5, 9, 11	5	5%	a4, a5, b4, c3, c4, d1
2	Practical Reports	1-10	10	10%	a4, a5, b3, b4, c2, d2
3	Quizzes	4, 6, 10	5	5%	a1, a2, a3, a5, b1, b2, d3
4	Written Test (1)	7	10	10%	a1, a2, a3, a4, a5, b1, b2, b3, c4, d1
5	Final Exam (practical)	11	20	20%	a4, a5, b3, b4, c2,
6	Final Exam (theoretical)	14	50	50%	a3, a4, a5, b2, c4, d1

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York
- 2- Singh, G.K and Bhandari, A. "Textbook of Pharmacognosy" (2000); first ed., reprint (2008). CBS publisher and Distributers, New Delhi, India.

##### 2-Recommended Books and Reference Materials.

- 1- Sharma, V.D. and Pandey, S.K. "Pharmacognosy Practical Notebook" (2007); first ed. CBS publisher and Distributers, New Delhi, Bangalore, India.
- 2- Raje, V.N. "Pharmacognosy" (2010); first ed. CBS publisher and Distributers Pvt Ltd., New Delhi, Bangalore, Pune, Kochi, Chennai.

##### 3-Electronic Materials and Web Sites *etc.*

- 1-<http://pages.intnet.mu/webpam/Pharmacognosy.htm>
- 2- <http://www.phcog.org/>
- 3- <http://www.botanical.com>

#### X.Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmacology I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:					
1	Course Title:	Pharmacology I			
2	Course Number and Code:	B11361			
3	Credit hours:	C.H			
		Th.	Pr.	Tut.	Tr.
		3			
				Total	
				3	
4	Study level/year at which this course is offered:	First Semester/Third year			
5	Pre –requisite :				
6	Co –requisite :	Physiology			
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English – Arabic			
9	Prepared By:	Dr/ Mohammad Abobakr Al-Ghazali			
10	Approved By:				

### II. Course Description:

The course will provide the student with the pharmacological knowledge and skills in the basics of pharmacological aspects in kinetics and dynamics of drugs and the role of Autonomic Nervous System in the action of drugs.

### III. ILOs: After participation in this course students must be able to:

- 1- Define the different scientific names in Pharmacological aspects.
- 2- Describe the vital process and mechanisms in Pharmacokinetics and Pharmacodynamics.
- 3- Classify the actions of drugs according to the Autonomic Nervous System.
- 4- Recognize the different mechanism between Sympathetic and Parasympathetic systems.
- 5- Investigate the kinetics and dynamics of drugs.
- 6- Discriminate the action of drugs in different groups.
- 7- Distinguish the accurate selection of drugs on different disorders.
- 8- Perform confident skills in oral and written knowledge gained from this course.
- 9- Sketch the groups of each drugs covered in this course.
- 10- Choose professional in selecting the suitable therapy for different disorders covered in this course.



- 11- Work effectively in a team and demonstrate creativity and time management abilities.  
12- Demonstrate critical thinking and decision making abilities.  
13- Communicate professional with patients and other health care specialist by verbal and written means.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. After participating in this course student must be able to</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Define the different scientific names in Pharmacological aspects	-Lectures using Animations -Student oral and written presentation -	- written exam - Quizzes - Presentation
a2- Describe the vital process and mechanisms in Pharmacokinetics and Pharmacodynamics		
a3- Classify the actions of drugs according to the Autonomic Nervous System		
a4- Recognize the different mechanism between Sympathetic and Parasympathetic systems		

#### (B)Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.After participating in this course student must be able to</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1- Investigate the kinetics and dynamics of drugs	-case discussion -group presentation	- written exam - Quizzes - Presentation
b2- Discriminate the action of drugs in different groups		
b3- Distinguish the accurate selection of drugs on different disorders.		

#### (C)Professional and Practical Skills.

##### Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills. After participating in this course student must be able to</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
c1-Perform confident skills in oral and written knowledge gained from this course.	-group presentation	- performance of Presentation
c2- Sketch the groups of each drugs covered in this course	-research activities	

c3- Choose professional selecting of the suitable therapy for different disorders covered in this course		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<b>Course Intended Learning Outcomes (CILOs) in General and Transferable Skills.</b> <i>After participating in this course student must be able to</i>	<b>Teaching strategies to be used</b>	<b>Methods of assessment used</b>
d1- Work effectively in a team and demonstrate creativity and time management abilities	-Group discussion - presentation	- Written exam - Quizzes - Presentation
d2- Demonstrate critical thinking and decision making abilities.		
d3- Communicate professionally with patients and other health care specialist by verbal and written means		

<b>V. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	General Introduction of Pharmacology	Introduction to Pharmacology	3	9	a1-a2- b1- c1- d1- d2
		Pharmacokinetics			
		Pharmacodynamics			
2	Autonomic Nervous System first part	Introduction	5	15	a3-a4- b2- b3- c1- c2- c3- d1- d2
		Sympathomimetic Drugs			
		Sympatholytic Drugs			
		Para-sympathomimetic Drugs			
		Para-sympatholytic Drugs			
Autonomic Ganglia					
3	Midterm Exam		1	2	a1-a2-a3-a4- b2- b3- c1- c2-c3- d1- d2



4	Anti-inflammatory Drugs	Introduction	2	6	a2- b2- b3- c1- c2- c3- d1- d2- d3
		Non-Steroidal Anti-inflammatory Drugs			
5	Autacoids	Histamine and its antagonists	1	3	a2- b2-b3- c1- c2- c3- d1- d2- d3
		Serotonin and its antagonists			
6	Final Exam		1	3	a1-a2-a3-a4- b2- b3- c1- c2-c3- d1- d2-d3
Number of Weeks/and Units Per First semester5				45	

#### VI. Teaching Strategies:

- Lectures
- Student oral and written presentation

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Presentation	a1-a2-a3-a4- b2- b3- c1- c2-c3- d1- d2-d3	6	5%

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment/ Presentation	6	5	5%	a1-a2-a3-a4- b2- b3- c1- c2- c3- d1- d2-d3
2	Quizzes	4 - 8	5	5%	a1-a2-a3-a4- b2- b3- c1- c2- c3- d1- d2-d3
3	Written Test (1)	7	30	30%	a1-a2-a3-a4- b2- b3- c1- c2- c3- d1- d2-d3
4	Final Exam (theoretical)	15	60	60%	a1-a2-a3-a4- b2- b3- c1- c2- c3- d1- d2-d3
	Total		100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009)Lippincott’s Illustrated Reviews of Pharmacology, <i>11th edition</i> , Lippincott’s Williams and Wilkins, Philadelphia. 2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012)Basic and Clinical Pharmacology, <i>Fifth edition</i> , Mc Graw Hill Lange, U.S.A.
2-Recommended Books and Reference Materials.	
	1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale’s Pharmacology, <i>6th edition</i> , Churchill Livingstone Elsevier, Philadelphia. 2- Lectures notes.
3-Electronic Materials and Web Sites etc.	
	1- <a href="http://www.who.int">www.who.int</a> 2- <a href="http://www.drugs.com">www.drugs.com</a>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student’s regulations handbook	
1	<b>Class Attendance:</b> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<b>(Tardy):</b> Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.
3	<b>(Exam Attendance/Punctuality):</b> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> </ul>



	<ul style="list-style-type: none"><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Instrumental Analysis

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Instrumental Analysis			
2	Course Number and Code:	B11326			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		3			
4	Study level/year at which this course is offered:	First semester/Third year			
5	Pre –requisite :	Analytical Chemistry II			
6	Co –requisite :				
7	Program (s) in which the course is offered:	NONE			
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Dr. Tawfeek Alobaidy			
10	Approved By:				

II. Course Description:	
<p>This course deal with the study of introduction to instrumental analysis, Physical methods, Spectrochemical methods, Nuclear Magnetic Resonance (NMR), X-ray crystallography, Chromatography. Also it covers some experiments for quantitative and qualitative determination of some pharmaceutical substances.</p>	

III. ILOs:	
<p>At the end of this course the student should be able:</p>	
<ol style="list-style-type: none"> <li>1. Recognize the basic principles of instrumental analysis</li> <li>2. Explain physical, spectroscopic and chromatographic method of analysis.</li> <li>3. Illustrate instrumentation and interpretation of spectra obtained from different method.</li> <li>4. Discuss the advantages and disadvantages of all types of analysis.</li> <li>5. Identify the pharmaceutical application of different method of analysis.</li> <li>6. Predict the qualitative and quantitative approach of each method of analysis.</li> </ol>	

7. Practice some quantitative determination of pharmaceutical substances.
8. Perform some qualitative determination of pharmaceutical substances.
9. Operate different equipment and instruments.
10. Manage and organize the time.
11. Use properly and safely the organic compounds and new tools in the laboratories.
12. Work independently or as a team.
13. Acquire an ethical attitude and approach.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course the student should be able: a1- Recognize the basic principles of instrumental analysis	Lectures using data show video animation	MCQ Oral Exam, Quizzes, exam, short answers , Homework and Participation.
a2-Explain physical, spectroscopic and chromatographic method of analysis.		
a3-Illustrate instrumentation and interpretation of spectra obtained from different method.		

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
At the end of this course the student should be able: b1- Discuss the advantages and disadvantages of all types of analysis.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-Identify the pharmaceutical application of different method of analysis.		
b3-Predict the qualitative and quantitative approach of each method of analysis		

#### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able: c1-Practice some quantitative determination of pharmaceutical substances.	Lectures and Group assignments.	Practical works, And practical reports.
c2-Perform some qualitative determination of pharmaceutical substances.		
c3-Operate different equipment and instruments.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able: d1-Manage and organize the time.	Small group discussions Practical classes	Reports, presentations and communication with the lecturer and his colleagues.
d2-Use properly and safely the organic compounds and new tools in the laboratories.		
d3-Work independently or as a team.		
d4-Acquire an ethical attitude and approach.		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction	Instrumental methods of analysis, advantages and comparison with classical methods of analysis	1	3	a1, d1, d2, d4
2	Physical methods	<u>Polarimetry</u> : optical and specific rotation, instrumentation and applications.	1	3	a1, a2, a3, b1, b2,



		<u>Refractometry</u> : refractive index, molar refraction, instrumentation and applications..			
3	Spectrochemical methods:	Electromagnetic radiation: nature of electromagnetic radiation, the interaction between energy and matter, electromagnetic spectrum, absorption and emission of radiant energy by atoms and molecules.	1	3	a1, a2, a3, a3, b1, b2, d1, d2
4	UV-Visible spectroscopy:	Absorption spectrophotometry, Beer-Lambert's law, methods of color development. Instrumentation, single-beam and double-beam spectrophotometers, single component analysis. Simultaneous spectrophotometry, derivative spectrophotometry and applications in pharmaceutical analysis.	2	6	a1, a2, a3, d3, d4
5	<b>Fluorescence Spectroscopy</b>	Fluorescence and phosphorescence, excitation and emission spectra, factors affecting the fluorescence intensity, instrumentation and applications.	1	2	a1, a3, a3, b1, b2,
6	Midterm		1	2	a1, a2, b1, b2, d1,
7	<b>Flame Photometry and Atomic Absorption Spectroscopy</b>	<u>Flame photometry</u> : Introduction, theory, instrumentation and applications.  <u>Atomic absorption spectroscopy</u> : Introduction,	1	3	a1-a3, b1-b3

		theory, instrumentation and applications.			
8	<b>Electroanalytical Methods</b>	Introduction <u>Potentiometric methods</u> : theory, instrumentation and applications. <u>Voltammetry</u> : introduction, theory, instrumentation, polarography and applications.	2	6	a1, a2, a3, a3, b1, b2
9	<b>Separation Methods</b>	Introduction <u>Solvent extraction</u> : distribution law, the distribution ratio, calculations of the percent extracted. <u>Chromatography</u> : principles of chromatographic separations, classification of chromatographic techniques, theory of column efficiency in chromatography and resolution in chromatography	2	6	a1, a3, b1, b2, d1
13	Final Exam		1	2	a1-a3, b1-b3
	Total		13	37	

VI. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions and Practical classes.

VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-3, d1-d3	5	5

VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning
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					Outcomes
1	Project	2, 8	5	5%	a1-4, b1-3, d1-d3
2	Oral Tests and homework	5, 9	5	5%	, a1-a3, b1-b3
3	Written Test (1)	7	20	20%	a1-4, b1-3
4	Final Exam (theoretical)	14	70	70%	a1-4, b1-3
5			100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Lena Ohannesian, Anthony J Streeter, handbook of pharmaceutical analysis. 2002, V.117, Marcel Dekker, Inc. New York. 2- B.D. Mistry., A Handbook of Spectroscopic Data CHEMISTRY (UV, JR, PMR, JJCNMR and Mass Spectroscopy), 2009, Oxford Book Company, Jaipur.
2-Recommended Books and Reference Materials.	
	1- Francis Rouessac and AnnickRouessac, Chemical Analysis; Modern Instrumentation Methods and Techniques, 2007, 2NDEdition, John Wiley andSons Ltd, Chichester, West Sussex, England. 2- S Ahuja, N Jespersen, modern instrumental analysis, 2006, first edition, Elsevier B.V. Oxford, UK.
3-Electronic Materials and Web Sites <i>etc.</i>	

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<b>Class Attendance:</b> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<b>(Tardy):</b> Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.
3	<b>(Exam Attendance/Punctuality):</b> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> </ul>

	<ul style="list-style-type: none"><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	(Assignments and Projects): <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	(Cheating): <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	(Plagiarism): <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	(Other policies): <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

### Course Specification of Pharmaceutical Organic Chemistry III

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Pharmaceutical Organic Chemistry III			
2	Course Number and Code:	B11333			
3	Credit hours: 3	C.H			Total
		Th.	Pr.	Tut.	
		2	1		
4	Study level/year at which this course is offered:	First semester/Third year			
5	Pre –requisite :	Pharmaceutical Organic Chemistry II			
6	Co –requisite :				
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy			
10	Approved By:				

I. Course Description:	
<p>The course deals with organic chemistry of Amines, Reaction mechanisms and Stereochemistry. Polynuclear Aromatic Compounds, Heterocyclic Compounds and Reagents used in organic synthesis and Biomolecules. Also it practices the identification and preparation of some organic compounds.</p>	

II. ILOs:	
<p>At the end of this course the student should be able to:</p> <ol style="list-style-type: none"> <li>1. Recognize the IUPAC nomenclature, physical and chemical properties of the compounds in studied classes.</li> <li>2. Explain the aromaticity and stability of polynuclear and heterocyclic compounds.</li> <li>3. Illustrate the mechanism of Electrophilic substitution and reactivity of orientation.</li> <li>4. Describe the pharmaceutical application of the studied topics.</li> <li>5. Suggest the possible method of preparation of polynuclear and heterocyclic compounds.</li> <li>6. Diagram schemes that relate reactivity of polynuclear and heterocyclic compounds.</li> </ol>	

7. Predict the most active of polynuclear and heterocyclic compounds.
8. Interpret the effect of groups on orientation of electrophilic aromatic substitution in polynuclear and heterocyclic compounds.
9. Differentiate between different classes in respect to their properties and reactivity.
10. Practice some example for electrophilic aromatic substitution in polynuclear and heterocyclic compounds.
11. Carry out experiments for identification of some prepared organic compounds.
12. Operate different equipment such as balances, hot plates, rotatory evaporator, melting point apparatus....etc.
13. Use properly and safely the organic compounds and new tools in the laboratories.
14. Work independently or as a team.
15. Manage and organize the time.
16. Implement writing and presentation skills and demonstrate critical thinking
17. Acquire an ethical attitude and approach.
18. Manage and organize the time.

### III. Alignment Learning Outcomes with Teaching and Assessment Methods:

#### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course the student should be able to: a1-Recognize the IUPAC nomenclature, physical and chemical properties of the compounds in studied classes.	Lectures using data show.	MCQ Oral Exam, Quizzes, exam, short answers and Homework
a2-Explain the aromaticity and stability of polynuclear and heterocyclic compounds.		
a3-Illustrate the mechanism of Electrophilic substitution and reactivity of orientation.		
a4-Describe the pharmaceutical application of the studied topics.		

#### (B) Intellectual Skills:

#### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
At the end of this course the student should be able to: b1-Suggest the possible method of preparation of polynuclear and heterocyclic compounds.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-Diagram schemes that relate reactivity of polynuclear and heterocyclic compounds.		



b3-Predict the most active of polynuclear and heterocyclic		
b4-Interpret the effect of groups on orientation of electrophilic aromatic substitution in polynuclear and heterocyclic compounds		
b5-Differentiate between different classes in respect to their properties and reactivity.		

**(C) Professional and Practical Skills.**

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able to:	Lectures, Laboratory work, directed reading, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c1-Practice some example for electrophilic aromatic substitution in polynuclear and heterocyclic compounds.		
c2-Carry out experiments for identification of some prepared organic compounds.		
c3-Operate different equipment such as balances, hot plates, rotatory evaporator, melting point apparatus....etc.		
c4-Use properly and safely the organic compounds and new tools in the laboratories.		

**(D) General/ Transferable Skills:**

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able to:	Small group discussion, and Group assignments.	Practical works, presentation and practical reports.
d1-Work independently or as a team		
d2-Implement writing and presentation skills and demonstrate critical thinking		
d3-Acquire an ethical attitude and approach.		
d4-Manage and organize the time.		

**Course Content:**

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Amines and Related Nitrogen Compounds	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification and Structure of Amines</li> <li>➤ Nomenclature of Amines</li> <li>➤ Physical Properties and Intermolecular Interactions of Amines</li> <li>➤ The Basicity of Amines</li> <li>➤ Comparison of the Basicity and Acidity of Amines and Amides</li> <li>➤ Preparation of Amines</li> <li>➤ Alkylation of Ammonia and Amines</li> <li>➤ Reduction of Nitrogen Compounds</li> <li>➤ Reaction of Amines</li> <li>➤ with Strong Acids; Amine Salts</li> <li>➤ Chiral Amines as Resolving Agents</li> <li>➤ Acylation of Amines with Acid Derivatives</li> <li>➤ Quaternary Ammonium Compounds</li> <li>➤ Aromatic Diazonium Compounds</li> <li>➤ Diazo Coupling; Azo Dyes</li> </ul>	2	4	a1, a2, a3, a4, b4, d3
2	Stereochemistry	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification of Isomers</li> <li>➤ Chirality and Enantiomers</li> <li>➤ Stereogenic Centers; the Stereogenic Carbon Atom</li> <li>➤ Configuration and the R-S Convention</li> <li>➤ The E-Z Convention for Cis–Trans Isomers</li> <li>➤ Polarized Light and Optical Activity</li> <li>➤ Properties of Enantiomers</li> <li>➤ Fischer Projection Formulas</li> <li>➤ Compounds with More Than One Stereogenic Center; Diastereomers</li> <li>➤ Resolution of a Racemic Mixture</li> </ul>	2	4	a1-2, b1, b2, b3, b5 d1-3





		<ul style="list-style-type: none"> <li>➤ Meso Compounds; the Stereoisomers of Tartaric Acid</li> <li>➤ Physical Properties of Stereoisomers</li> <li>➤ Chemical Properties of Enantiomers</li> </ul>			
3	Polynuclear Aromatic Compounds :	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Bonding in Polynuclear Aromatic Compounds</li> <li>➤ Nomenclature and Physical and Chemical Properties</li> <li>➤ Naphthalene</li> <li>➤ Anthracene</li> <li>➤ Phenanthrene</li> <li>➤ Chemical Properties of Naphthalene</li> <li>➤ Substitution reactions</li> <li>➤ Halogenation</li> <li>➤ Nitration</li> <li>➤ Sulphonation</li> <li>➤ Friedel-Craft's Reactions</li> <li>➤ The Mechanism of Substitution in Naphthalene,</li> <li>➤ Addition Reactions,</li> <li>➤ Reduction,</li> <li>➤ Oxidation,</li> <li>➤ Orientation of Substitution in Naphthalene and Its Derivatives</li> <li>➤ Effect of Activating and Deactivating Groups</li> </ul>	2	4	a1-a3, b1-b3, d1-d4
4	Midterm Exam		1	2	a1-a4, d1-d4
5	Heterocyclic Compounds	<ul style="list-style-type: none"> <li>➤ Rules for Nomenclature of three, four, five, six and seven membered heteroatoms.</li> <li>➤ Definition, properties, preparations, reactions, aromaticity</li> <li>➤ Monocyclic five membered Rings Containing One heteroatom</li> <li>➤ Pyrrole</li> <li>➤ Furan</li> <li>➤ Thiophen</li> <li>➤ Monocyclic five membered Rings Containing two heteroatoms</li> </ul>	4	10	a1-a3, b1-b5, d1



		<ul style="list-style-type: none"> <li>➤ Imidazole</li> <li>➤ Oxazole</li> <li>➤ Thiazole</li> <li>➤ Pyrazole</li> <li>➤ Monocyclic six membered Rings Containing One or More Heteroatoms</li> <li>➤ Pyrroline</li> <li>➤ Pyrrolidine</li> <li>➤ Pyridine,</li> <li>➤ Pyrimidine</li> <li>➤ Six-membered Heterocyclic Compounds with One Oxygen as a Heteroatom</li> <li>➤ Pyran,</li> <li>➤ Pyrone and Their Derivatives),</li> <li>➤ Nomenclature of Bicyclic Rings Containing One or More Heteroatoms</li> <li>➤ Purine</li> <li>➤ Quinoline</li> <li>➤ Isoquinoline</li> <li>➤ Indole</li> <li>➤ Acridine</li> <li>➤ Carbazole</li> </ul>			
6	Final Exam		1	2	
Number of Weeks/and Units Per semester				28	

b – Practical Aspect: <b>Organic Chemistry III:</b>			
Order	Practical Experiment	Number of weeks	Contact hours
1	Synthesis of hexamine	1	2
2	Synthesis of aspirin	1	2
3	Preparation of salicylamide	1	2
4	Preparation of acetanilide	1	2
5	Nitration of acetanilide	1	2
6	<b>Preparation of p-nitroaniline</b>	1	2



7	Preparation of p-bromoaniline	1	2
8	Preparation of naphthalene picrate	1	2
9	Preparation of Anthracene picrate	1	2
10	Acylation of $\beta$ -naphthol	1	2
11	Final exam	1	2
Number of Weeks/and Units Per Semester			22

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Synthesis of hexamine	1	2	a1, a4, c1-c4, d1
2	Synthesis of aspirin	1	2	a2, b2, b5, c1-c4, d1
3	Preparation of salicylamide	1	2	a3, b2, b5, c1-c4, d3
4	Preparation of acetanilide	1	2	a2, a3, b2, b5, c1-c4, d1-d3
5	Nitration of acetanilide	1	2	a2, a3, c1-c4, d3
6	Bromination of acetanilide	1	2	a2, b5, c1-c4, d1-d3
7	Preparation of p-nitroaniline	1	2	a2, a3, b2, b5, c1-c4,
8	Preparation of p-bromoaniline	1	2	a2, a3, b2, b5, c1-c4, d3
9	Preparation of sulfanilic acid	1	2	a2, a3, b2, c1-c4, d1-d3
10	Preparation of benzoic acid oxidation of benzyl alcohol	1	2	a2, a3, b2, c1-c4, d1-d3
11	Final exam	1	2	a1-a4, b2, c1-c4, d1-d3
Number of Weeks/and Units Per Semester			22	

## II. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions and Practical classes.

## III. Assignments and projects:



no	Assignment	CILOs	Week Due	Mark
1	- Project	a1, a3, b2, b3, b4, b5	5	5

#### IV. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project	2, 8	5	5%	a1, a3, b2, b3, b4, b5
2	Practical reports	1-10	10	10%	a1, a2, 3, c1-3
3	Oral Tests	5, 9	5	5%	a1, a3, b1, b2, b4, b5
4	Written Test (1)	7	10	10%	a1, a3, b2, b3, b4, b5
5	Final Exam (theoretical)	14	50	50%	a1-4, b1-5, d1- d3
6	Final Exam (practical)	11	20	20%	a1-4, c1-3, d1-3
			100	100%	

#### V. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6<sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.
- 2- Dohn D Hepworth, David R Waringand Micheal J Waring. "Aromatic Compounds "2002, The Royal Society of Chemistry, Cambridge.

##### 2-Recommended Books and Reference Materials.

1. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.
2. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6<sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey
3. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.

##### 3-Electronic Materials and Web Sites *etc.*

- 1-www.orgsyn.org

#### XI.Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li></ul>



	<ul style="list-style-type: none"><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Third year: second semester

## Course Specification of Pharmaceutics IV

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Pharmaceutics IV				
2	Course Number and Code:	<b>B11356</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	<i>Second semester/ Third year</i>				
5	Pre –requisite :	Pharmaceutics II				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Mohammed Addoais & Dr. Abdulkarim Alzomor				
10	Approved By:					

II. Course Description:	
<p>This course will provide students with a detailed knowledge and understanding of design and formulation of a different pharmaceutical solid dosage forms. Students will be given thorough knowledge on pharmaceutical powders, granules, capsule and tablet dosage forms.</p>	

III. ILOs: at end of the course students will be to:	
<ol style="list-style-type: none"> <li>1. Mention the types of powders .</li> <li>2. Enumerate the main components of effervescent granules.</li> <li>3. Name the types and manufacturing methods of tablets</li> <li>4. List the types of capsules .</li> </ol>	





5. Differentiate between divided and bulk powders.
6. Distinguish between the different tablet types.
7. Categorize tablet excipients
8. Design a good solid dosage form.
9. Prepare good and stable solid dosage form.
10. Formulate a good and stable solid dosage form .
11. Perform quality control for different pharmaceutical solid dosage form.
12. Work effectively in a team

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Enumerate the main components of effervescent granules.	Lectures using data show Video animation and seminars	Quiz Written exam
a2-Mention types of powders.		
a3-Name the types of tablets		
a4- List the types of capsules.		

##### (B) Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b1-Differentiate between divided and bulk powders.	Seminars Directed reading Independent study Group discussion	Presentation Report Written exam
b2-Distinguish between the different tablet types.		
b3-Categorize tablet excipients		
b4- Design a good solid dosage form.		

(C)Professional and Practical Skills.		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills <i>At end of the course students will be ableto:</i>	Teaching strategies to be used	Methods of assessment
c1-Prepare good and stable solid dosage form.	Laboratory work Directed reading Independent study	Practical work and exam
c2- Formulate a good and stable solid dosage form		
c3- Perform quality control for different pharmaceutical solid dosage form.		
(D)General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills <i>At end of the course students will be ableto:</i>	Teaching strategies to be used	Methods of assessment
d1-Work effectively in a team	Directed reading Independent study Group discussion	Presentation based assessment

V.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
	Powder	<ul style="list-style-type: none"> <li>Types of powders</li> <li>Advantages and disadvantages of powders,</li> <li>Cachets and Tablet triturates .</li> <li>Preparation of different types of powders encountered in prescriptions .</li> <li>Weighing methods, possible errors in weighing</li> <li>Minimum weighable amounts and weighing of material below the minimum weighable amount</li> <li>Powder Problems</li> </ul>	2	4	a1, b1, b4c1, c2, c3, d1

		<ul style="list-style-type: none"> <li>Geometric dilution and proper usage and care of dispensing balance.</li> </ul>			
1	Granules	<ul style="list-style-type: none"> <li>Definition and importance</li> <li>Methods of granulation</li> <li>Effervescent granules                             <ul style="list-style-type: none"> <li>Formulation</li> <li>preparation</li> </ul> </li> </ul>	1	2	a2, a3, b4, c1, c2, c3, d1
2	Capsule	<ul style="list-style-type: none"> <li>Introduction</li> <li>Types of capsules</li> <li>Hard gelatin capsules                             <ul style="list-style-type: none"> <li>Advantages and disadvantages</li> <li>Composition of capsule shell</li> <li>Selection of capsule size.</li> <li>Excipients used in hard gelatin capsule formulation.</li> <li>Enteric coating of capsules.</li> <li>Capsule filling process.</li> <li>Storage of hard gelatin capsules.</li> </ul> </li> <li>Soft gelatin capsules                             <ul style="list-style-type: none"> <li>Advantage and disadvantages.</li> <li>Capsule shell composition.</li> <li>Shapes and sizes.</li> <li>Soft gelatin capsule formulation.</li> <li>Soft gelatin capsule filling process.release from ointment and cream bases.</li> </ul> </li> </ul>	3	6	a4, b2, b3, b4, c1, c2, c3, d1
3		Midterm exam	1	2	a1, a2, b1, b2
4	Tablet	<ul style="list-style-type: none"> <li>Introduction</li> <li>Advantages and disadvantages.</li> <li>Types of tablets.</li> <li>Tableting methods                             <ul style="list-style-type: none"> <li>Direct compression</li> <li>Dry granulation</li> <li>Wet granulation</li> </ul> </li> <li>Tablet excipients</li> <li>Tablet press machines</li> <li>Problems encountered during tablet formulation.</li> <li>Standards quality control tests for tablets.</li> <li>Tablet coating                             <ul style="list-style-type: none"> <li>Types of coating</li> <li>Film forming materials</li> </ul> </li> <li>Common polymers used for tablet coating.</li> </ul>	6	12	b4, c1, c2, c3, d1



		<ul style="list-style-type: none"> <li>○ Formulation of coating solution</li> <li>○ Equipments for coating</li> <li>○ Coating process evaluation of coated tablets.</li> <li>○ QC test for tablet</li> </ul>			
5		Final exam	1	2	a1, a2, a3, a4, b1, b2, b3, b4
Number of Weeks/and Units Per Semester			14	28	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Study of physical properties of powder ( flow, size, density)	1	2	c1, c2, c3, d1
2	Preparation of Magnesium trisilicate powder.	1	2	c1, c2, c3, d1
3	Preparation of Oral rehydration powder.	1	2	c1, c2, c3, d1
4	Preparation of Dusting powder.	1	2	c1, c2, c3, d1
5	Preparation of Effervescent granule base by wet method	1	2	c1, c2, c3, d1
6	Preparation of Effervescent granule base by dry method	1	2	c1, c2, c3, d1
7	Preparation of tablets by Direct compression for (dry method)	1	2	c1, c2, c3, d1
8	Preparation of tablets by Dry granulation method (slugging method)	1	2	c1, c2, c3, d1
9	Preparation of tablets by Wet granulation method	1	2	c1, c2, c3, d1
10	Determination of capsule size	1	2	c1, c2, c3, d1
11	Filling of hard gelatin capsules (punch method) & (capsule machine)..	1	2	c1, c2, c3, d1
12	Final exam	1	2	c1, c2, c3, d1
Number of Weeks/and Units Per Semester			24	

VI. Teaching Strategies:
<ul style="list-style-type: none"> <li>• Lectures using data show</li> <li>• Video animation and seminars</li> <li>• Laboratory work</li> <li>• Directed reading</li> <li>• Independent study</li> <li>• Group discussion</li> </ul>
VII. Assignments and projects:



no	Assignment	CILOs	Week Due	Mark
1	Assignment	b1, b2, b2, b4, d1	9	5

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	9	5	5%	b1, b2, b2, b4, d1
2	Practical Reports	1-12	10	10%	b1, b2, b2, c1, c2, c3, d1
3	Quizzes	2, 5, 12	5	5%	a1, a2, a3, a4, b1, b2, b2, b4, d1
4	Written Test (midterm exam )	8	10	10%	a1, a2, a3, a4, b1, b2, b2, b4, d1
5	Final Exam (practical)	14	20	20%	b1, b2, b2, b4, d1
6	Final Exam (theoretical)	16	50	50%	a1, a2, a3, a4, b1, b2, b2, b4, d1
Total			100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK.
2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.

##### 2-Recommended Books and Reference Materials.

1. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup>edition., Williams and Wilkins. Maryland, USA.

##### 3-Electronic Materials and Web Sites *etc.*

- 1-www.go.jblearning.com/basicphysicalpharmacy

#### X.Course Policies: (including plagiarism, academic honesty, attendance etc)

<p>The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook</p>	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Biochemistry II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:						
1	Course Title:	Biochemistry II				
2	Course Number and Code:	<b>B11317</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3	1			4
4	Study level/year at which this course is offered:	<i>Second semester/Third year</i>				
5	Pre –requisite :	Biochemistry I				
6	Co –requisite :					
7	Program (s) in which the course is offered:	Medical Laboratory				
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Dr Anwar Masoud				
10	Approved By:					

II.Course Description:	
<p>The importance of studying chemical processes which support life guided designation of this course to focus on studying the chemical reactions involved in digestion and absorption of biomolecules; carbohydrate, proteins, lipids and nucleic acids with more detail to their metabolism, diseases and regulation theoretically and practically.</p>	



III. ILOs:
<p>Upon completion of this course, the students should be able to</p> <ol style="list-style-type: none"> <li>1. Illustrate basis of catabolism and anabolism.</li> <li>2. Recognize how cells get energy from the oxidation of biomolecules.</li> <li>3. Identify the digestion, absorption and metabolism of food stuff.</li> <li>4. Think creatively and critically in solving problems related to the nature of energy in the living cells.</li> <li>5. Incorporate knowledge and skills learned to solve problems associated with metabolic diseases</li> <li>6. Analyze different values of biomolecules metabolites.</li> <li>7. Plan and conduct experiments related to biomolecules metabolism</li> <li>8. Estimate serum levels of glucose, metabolic enzymes, protein, cholesterol and triglyceride by spectroscopic methods.</li> <li>9. Use the appropriate instrumentations to prepare serum or plasma and to measure the levels of different metabolic parameters</li> <li>10. Appreciate the importance of using of information technology e.g. web and internet to learn more about modern topics in metabolism.</li> <li>11. Identify personal strengths and weaknesses in data presentation and discussion</li> <li>12. Work effectively both individually and in a team.</li> </ol>

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	Assessment Methods.
<p>Upon completion of this course, the students should be able to</p> <p>a1- Illustrate basis of catabolism and anabolism.</p>	<p>Lectures using data show, video animation, Cooperative learning and seminars</p>	<p>Quizzes, Written exam, short answers and homework.</p>
a2- Recognize how cells get energy from the oxidation of biomolecules.		
a3- Identify the digestion, absorption and metabolism of food stuff.		
(B) Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	Assessment Methods
<p>Upon completion of this course, the students should be able to</p> <p>b1- Think creatively and critically in solving problems related to the nature of energy in the living cells.</p>	<p>Brain storming, Group discussion and problem based learning.</p>	<p>Oral presentation and verbal argument skills and discussions.</p>

b2-Incorporate knowledge and skills learned to solve problems associated with metabolic diseases		
b3- Analyze different values of biomolecules metabolites.		
<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
<b>Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills</b>	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
Upon completion of this course, the students should be able to c1- Plan and conduct experiments related to biomolecules metabolism.	Laboratory work, directed reading and independent study.	Practical works, practical reports and presentations based on their experimental work.
c2- Estimate serum levels of glucose, metabolic enzymes, protein, cholesterol and triglyceride by spectroscopic methods.		
c3- Use the appropriate instrumentations to prepare serum or plasma and to measure the levels of different metabolic parameters.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<b>Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills</b>	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
Upon completion of this course, the students should be able to d1- Appreciate the importance of using of information technology e.g. web and internet to learn more about modern topics in metabolism.	Leading assignment group, cooperative learning, discussion group and seminars.	Home report, evaluation group discussion and effective communication with the lecturer and his colleagues.
d2-Identify personal strengths and weaknesses in data presentation and discussion.		
d3 Work effectively both individually and in a team.		

V.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to Bioenergetics	3. Free energy concept 4. Biologic oxidation 5. Introduction to metabolism	1	3	a1, a2, b1, d1
2	Carbohydrate metabolism	6. Digestion and absorption 7. Glycolysis and citric acid cycle 8. Hexose monophosphate shunt 9. Gluconeogenesis 10. Glycogen metabolism 11.Hexoses metabolism	3	9	a2, a3, b1, b2, b3. c1, c2, c3, d1, d2, d3
3	Proteinmetabolism and midterm exam	1.Digestion and absorption 2.Catabolism of amino acids 3.Urea formation 4.Metabolic disturbances of amino acids 5.Protein biosynthesis	3	9	a2, a3, b1, b2, b3. c1, c2, c3, d1, d2, d3
4	Lipid metabolism	1.Digestion and absorption 2.Fatty acid oxidation and biosynthesis 3.Lipogenesis 4.Phospholipids metabolism 5.Cholesterol metabolism 6.Ketone bodies metabolism 7.Lipoprotein metabolism	4	12	a2, a3, b1, b2, b3. c1, c2, c3, d1, d2, d3
5	Nucleic acids metabolism	1. Digestion and absorption 2. Formation and metabolism of Purines and metabolic disturbances 3. Formation and metabolism of Pyrimidins and metabolic disturbances	2	6	a3, b2, b3. c1, c2, c3, d2, d3
6	Final Exam		1	2	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
Number of Weeks/and Units Per Semester			15	45	
b - Practical Aspect:					



Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Estimation of glucose (random and fasting)	1	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
2	Estimation of amylase and Estimation of lactate dehydrogenase	2	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
3	Lipid profile	2	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
4	Estimation of total protein and Estimation of albumin	2	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
5	Estimation of creatinine	1	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
6	Estimation of uric acid and urea	1	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
7	Estimation of iron	1	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
8	Estimation of ALT and AST	1	3	a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
9	Final Exam	1	3	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
Number of Weeks/and Units Per First Second semester			36	

#### VI. Teaching Strategies:

Lectures using data show, video animation, Cooperative learning and seminars. Leading assignment group, cooperative learning, group discussion and seminars. Laboratory work, directed reading and independent study. Brain storming and problem based learning.

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	Assignment on Drug used for metabolic diseases	a1, b1, b2, d1, d2, d3	10	5

#### VIII. Assessment Tasks:



No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	10	5	5%	a1, a2, a3, b1, b2, d1, d2, d3
2	Quizzes and homework	3, 5, 9, 11	5	5%	a1, a2, a3, b1, b2, b3, d1, d2, d3
3	Written Test	7	10	10%	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
4	Practical reports	All	10	10%	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
5	Final Exam (practical)	12	20	20%	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
6	Final Exam (theoretical)	14	50	50%	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2, d3
			100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. MALLIKARJUNA RAO, (2008). Medical Biochemistry. Second edition, New Age International Limited Publisher, New Delhi, India.
2. John Baynes and Marek Dominiczak, 2014. Medical Biochemistry With STUDENT CONSULT Online Access. Fourth edition, Elsevier limited, China.

##### 2-Recommended Books and Reference Materials.

1. Chatterjea MN and Shinde R, (2007). Textbook of Medical Biochemistry, 7th edition, JAYPEE BROTHERS, New Delhi, India.
2. Champe PC, Harvey RA, Ferrier DR (2008). Lippincott's Reviews of Biochemistry, Fourth edition, Lippincott William and Wilkins, London, UK.

##### 3-Electronic Materials and Web Sites *etc.*

- 1- <http://bcs.whfreeman.com/biochem5/default.asp>
- 2- <http://www.biochemistry.org/>
- 3- <http://www.wiley.com/college/boyer/0470003790/animations/animations.htm>
- 4- <http://www.wiley.com/college/fob/anim/>

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmaceutical Microbiology II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy ProgramProgram

I. General Information:					
1	Course Title:	Pharmaceutical Microbiology II			
2	Course Number and Code:	B11346			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		3	1		
4	Study level/year at which this course is offered:	First semester/Third year			
5	Pre –requisite :	Pharmaceutical Microbiology I			
6	Co –requisite :				
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Dr. Ebtisam Almoayad			
10	Approved By:				

## II. Course Description:

This course provides the students with knowledge about viruses (structure, replication, diseases, clinical manifestation, prevention, diagnosis and treatment). Also it focuses on immunity, host defenses mechanisms, and immune system disorders. During this course the students will study the relevance of microbiology and infection control to the manufacture and handling of pharmaceutical agents, sterilization, and disinfection. Moreover, how to prevent pharmaceutical product from microbial contamination. The practical part will be concerned with the laboratory diagnosis of viruses. In addition, the students will be able to perform the serological tests for the diagnosis of infectious diseases.



### III.Intended Learning Outcomes (ILOs):

At the end of this course the students will be able to:

1. Describe the structure, replication, diseases, clinical manifestation, control of the disease, diagnosis and treatment of viruses.
2. Recognize the host defenses mechanisms, and immune system disorders.
3. List the sources of microbial contamination of pharmaceuticals products.
4. Explain the different sterilization and disinfection techniques.
5. Correlate laboratory findings with disease processes/pathophysiology and physiological factors affecting the results.
6. Apply the laboratory diagnostic test of viruses.
7. Perform the serological tests for the diagnosis of infectious diseases.
8. Operate different equipment's and instruments and use emerging technologies in medical laboratory practice.
9. Practice the principle of infection control, biosafety measures and aseptic precautions.
10. Manage a lab which employs a team of specialists and administrative aspects of that lab.
11. Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.
12. Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning.

### IV.Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1-Describe the structure, replication, diseases, clinical manifestation, control of the disease, diagnosis and treatment of viruses.	Lectures using data show, video animation and seminars	Quizzes, Written exam, short answers and homework. Participation.
a2-Recognize the host defenses mechanisms, and immune system disorders.		
a3-List the sources of microbial contamination of pharmaceuticals products.		
a4-Explain the different sterilization and disinfection techniques.		

### (B)Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Intellectual Skills.	Teaching strategies to be used	Assessment Methods
b1-Correlate laboratory findings with disease processes/pathophysiology and physiological factors affecting the results.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.

**(C)Professional and Practical Skills.**

Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills	Teaching strategies to be used	Methods of assessment
c1-Apply the laboratory diagnostic test of viruses.	Lectures, Laboratory work, directed reading, independent study and Group assignments	Practical works, practical reports and presentations based on their experimental work
c2- Perform the serological tests for the diagnosis of infectious diseases.		
c3-Operate different equipment's and instruments and use emerging technologies in medical laboratory practice.		
c4-Practice the principle of infection control, biosafety measures and aseptic precautions.		

**(D)General/ Transferable Skills:**

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills	Teaching strategies to be used	Methods of assessment
d1-Manage a lab which employs a team of specialists and administrative aspects of that lab.	Small group discussions Tutorials Practical classes Micro assignments	Reports, presentations and communication with the lecturer and his colleagues.
d2- Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.		
d3- Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning		

**V.Course Content:**

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Viruses	Structure, viral replication	1	3	a1, a2, b1, c1, d2, d3
2	Viruses	Viral diseases, clinical manifestation, transmission routes,	1	3	a1, a2, b1, c1, d2, d3
3	Viruses	Control of the disease, diagnosis and treatment	1	3	a1, a2, b1, c1, d2, d3
4	Immunity	Innate immunity	1	3	a1, a2, b1, c1, d2, d3
5	Immunity	Adaptive immunity	1	3	a1, a2, b1, c1, d2, d3
6	Immunity	Immune system disorders	1	3	a1, a2, b1, c1, d2, d3
7	Introduction to pharmaceutical microbiology		1	3	a3, a4, b1, c1, d2, d3
8	Middle exam		1	3	a1-a3, b1, d2, d3
9	Sterilization and Disinfection		1	3	a3, a4, b1, c1, d2, d3
10	Sterilization and Disinfection		1	3	a3, a4, b1, c1, d2, d3
11	Microbiological aspects of pharmaceutical processing		1	3	a3, a4, b1, c1, d2, d3
12	Microbial spoilage and preservation of pharmaceutical products		1	3	a3, a4, b1, c1, d2, d3
13	Contamination of non-sterile pharmaceutical in hospital	Nosocomial infection	1	3	a3, a4, b1, c1, d2, d3
14	Factory and hospital hygiene and good manufacturing practice		1	3	a3, a4, b1, c1, d2, d3
15	Factory and hospital hygiene and good manufacturing practice		1	3	a3, a4, b1, c1, d2, d3
16	Final exam		1	2	a1-a4, b1, d1-d3
Number of Weeks/and Units Per Semester				47	

b - Practical Aspect:



Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	<i>Infection control polices in microbiology lab</i>	1	2	a4, b1, c1, d2, d3
2	<i>Laboratory diagnosis of viruses</i>	1	2	a1, b1, c1, c2, c3, c4, d2, d3
3	<i>Laboratory diagnosis of viruses</i>	1	2	a1, b1, c1, c2, c3, c4, d2, d3
4	Serological techniques for the diagnosis of infectious diseases.	1	2	a2, b1, c1, c2, c3, c4, d2, d3
5	Serological techniques for the diagnosis of infectious diseases.	1	2	a2, b1, c1, c2, c3, c4, d2, d3
6	Sterilization and disinfection techniques	1	2	a4, b1, d2, d3
7	Sterilization and disinfection techniques	1	2	a4, b1, d2, d3
8	Sources of microbial contamination	1	2	a3, a4, b1, d2, d3
9	Sterility testing of pharmaceutical products	1	2	a3, a4, b1, d2, d3
10	Sterility testing of pharmaceutical products	1	2	a3, a4, b1, d2, d3
11	Final exam	1	2	a1, a2, b1, c1-c4, d2, d3
Number of Weeks/and Units Per Semester			22	

#### VI. Teaching Strategies:

- Lectures using data show, video animation and seminars
- Solving Problem method, Laboratory work, directed reading, independent study, discussion, and report.

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	Sources of pharmaceutical products contamination	a3, a4, b1, c1, d2, d3	4	5

### VIII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises and Home works Quizzes	2	5	5%	a1, a2, a3, a4, c1, d2, d3
2	Project	4	5	5%	a3, a4, b1, c1, d2, d3
3	Practical Reports	5	10	10%	c1, c2, c3, c4, d2, d3
4	Written Test	6	10	10%	a1-a3, b1, d2, d3
5	Final Exam (theoretical)	16	50	50%	a1-a4, b1, d1-d3
6	Final Exam (practical)	15	20	20%	a1, a2, b1, c1-c4, d2, d3
7			100	100%	

### IX. Learning Resources:

#### 1-Required Textbook(s) ( maximum two ).

1. Harvey RA, Champe PA, Strol WA, Rouse H, Fisher BD. Lippincott's Illustrated Reviews Microbiology (2001). Lippincott Williams and Wilkins. Philadelphia.
2. Kar A. Pharmaceutical Microbiology. (2008). New age international publisher. New Delhi.

#### 2-Recommended Books and Reference Materials.

- Winn W, Allen S, Janda W, Koneman E, Procop G, Schreckenberger P, and Woods G. Koneman's Color Atlas and Textbook of Diagnostic Microbiology (2006). 6th edition. Lippincott Williams and Wilkins.
- Cheesbrough M. Medical laboratory manual for tropical countries. ELBS with Butterworth-Heinemann, University press, Cambridge, UK. Vol. II. Microbiology.

#### 3-Electronic Materials and Web Sites *etc.*

[www.ncbi.nlm.nih.gov/books/NBK7627/](http://www.ncbi.nlm.nih.gov/books/NBK7627/)  
[www.cdc.gov/](http://www.cdc.gov/)  
[www.textbookofbacteriology.net/](http://www.textbookofbacteriology.net/)  
[www.wsmicrobiology.com](http://www.wsmicrobiology.com)  
[www.microbiologyonline.org.uk](http://www.microbiologyonline.org.uk)  
[www.asm.org](http://www.asm.org)

X.Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmacognosy II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Pharmacognosy II				
2	Course Number and Code:	B11373				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3	1			4
4	Study level/year at which this course is offered:	First semester/ Third year				
5	Pre –requisite :	Pharmacognocoy I				
6	Co –requisite :	None				
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Wedad Mansour andBushra Moharam				
10	Approved By:					

II. Course Description:	
<p>This course is designed to underline the basic areas of the pharmacognostical studies for some natural medicinal agent. It concern about the different methods of natural medicinal preparation i.e., cultivation, collection, drying, storage as well as the different adulteration ways of the phytomedicinals. Detection of the major active constituents and use of medicinal plants. and includes the macro- and micro-morphological characteristics of different plant organs (morphological and histological examination, and chemical identification, flowers, fruits, seeds and unorganized drugs).</p>	

III. ILOs:	
<p>At the end of the course student must be able to:</p> <ol style="list-style-type: none"> <li>Describe the different ways of natural products cultivation, collection, drying, storage and different adulteration ways of phytomedicinals.</li> <li>Identify and explain morphological and histological features of entire and the powdered plants.</li> </ol>	



3. List different active constituents and medicinal uses of flowers, fruits, seeds and unorganized drugs
4. Categorize the main plant organs under consideration for the production of high quality herbal product.
5. Differentiate between drugs in entire and powdered form.
6. Investigate active constituents of different drugs.
7. Handle and dispose chemicals and broken glasses safely and effectively.
8. Examine drugs of plant origin in entire and powdered form.
9. Perform experiments to identify unknown phytochemical cell contents either in an entire organ or in powdered form using different physical and chemical ways.
10. Complete a full scheme for identification of plant flowers, fruits, seeds and unorganized drugs on morphological and microscopical examination.
11. Implement writing and presentation skills.
12. Work effectively in team and manage his/her time.
13. Use information technology skills including word processing and knowing how to retrieve information from a variety of sources.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of the course student must be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Describe the different ways of natural products cultivation, collection, drying, storage and different adulteration ways of phytochemicals.	Lectures using boards and markers, data show, video animation and seminars	Quizzes, Written exam, homework and participation.
a2- Identify and explain morphological and histological features of entire and the powdered plants.		
a3- List different active constituents and medicinal uses of flowers, fruits, seeds and unorganized drugs		

##### (B) Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
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At the end of the course student must be able to:		
b1- Categorize the main plant organs under consideration for the production of high quality herbal product.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2- Differentiate between drugs in entire and powdered form.		
b3- Investigate active constituents of different drugs.		

### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills At the end of the course student must be able to:	Teaching strategies to be used	Methods of assessment
c1- Handle and dispose chemicals and broken glasses safely and effectively.	Lectures, Laboratory work, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c2- Examine drugs of plant origin in entire and powdered form.		
c3- Perform experiments to identify unknown phytomedicinal cell contents either in an entire organ or in powdered form using different physical and chemical ways.		
c4- Complete a full scheme for identification of plant flowers, fruits, seeds and unorganized drugs based on morphological and microscopical examination.		

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills At the end of the course student must be able to:	Teaching strategies to be used	Methods of assessment
d1- Implement writing and presentation skills	Small group discussions, practical classes and micro assignments	-Activity and Interaction. -Reports, presentations and communication with the lecturer and his colleagues.
d2- Work effectively in team and manage his/her time		
d3- Use information technology skills including word processing and knowing how to retrieve information from a variety of sources.		

### V. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Flowers	- Introduction, morphology and anatomy characters, inflorescence and placentation of flowers	1	3	a1, a2, a3, b1, b3, c4, d1, d3
		- Study of Clove, Chamomile, Pyrethrum and Arnica flowers	1	3	a1, a2, a3, b1, b3, c4, d1, d3
		- Study of Tilia, Santonica, Lavender and Saffron flowers	1	3	a1, a2, a3, b1, b3, c4, d1, d3
2	Fruits	- Introduction, classification microscopical examination, macroscopical characters of fruits - Study of Ammi visnaga and Ammi majus	1	3	a1, a2, a3, b1, b3, c4, d1, d3
		- Study of Anise, Fennel caraway, Cumin and Capsicum fruits	1	3	a1, a2, a3, b1, b3, c4, d1, d3
		- Study of Star-anise, Coriander, vanilla pods and Senna pods fruits	1	3	a1, a2, a3, b1, b3, c4, d1, d3
3		Mid exam	1	3	a1, a2, a3, b1, b3, c4, d1
4	Seeds	- Introduction microscopical examination, macroscopical characters of seeds - Study of Cardamom and Colchicum seeds.	1	3	a1, a2, a3, b1, b3, c4, d1, d3
		- Study of Nux-vomica, Linseed, and (black and white) seeds.	1	3	a1, a2, a3, b1, b3, c4, d1, d3
		- Study of Nutmeg, Fenugreek, Calabar and Nigella seeds	1	3	a1, a2, a3, b1, b3, c4, d1, d3
5	Unorganized drugs	- Definition, classification, chemical and physical properties - Study of resin and resin combination (Colophony,	1	3	a1, a2, a3, b1, b3, c4, d1, d3

		Myrrh, Olibaum and Dragon's blood)			
		- Study of medicinal gums (Gum Arabic and Tragacanth) - Study of Medicinal latex (Opium)	1	3	a1, a2, a3, b1, b3, c4, d1, d3
		- Study of Medicinal juice (Aloe and Kino). - Study of medicinal extracts (Agar and Gelatin).	1	3	a1, a2, a3, b1, b3, c4, d1, d3
6		Final exam	1	3	a1, a2, a3, b1, b3, c4, d1
Number of Weeks/and Units Per First semester				4	42

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Morphology - microscopical identification of Clove and Chamomile flowers	1	2	a2, b2, c1, c2, c3, d2
2	Morphology - microscopical identification of Pyrethrum and Arnica flowers	1	2	a2, b2, c2, c3, d2
3	Morphology - microscopical identification of Ammi visnaga, Anise, Fennel caraway and Cumin fruits	1	2	a2, b2, c2, c3, d2
4	Morphology - microscopical identification of Capsicum Coriander, and Senna pods fruits	1	2	a2, b2, c2, c3, d2
5	Morphology - microscopical identification of Cardamom, Nux-vomica and Linseed seeds.	1	2	a2, b2, c2, c3, d2
6	Morphology - microscopical identification of (black and white) and Nigella seeds.	1	2	a2, b2, c2, c3, d2
7	Morphology - microscopical identification of Myrrh, Olibaum and Dragon's blood	1	2	a2, b2, c2, c3, d2
8	Morphology - microscopical identification of Gum Arabic and Tragacanth	1	2	a2, b2, c2, c3, d2

9	Morphology - microscopical identification of Opium and others	1	2	a2, b2, c2, c3, d2
10	Morphology - microscopical identification of Aloe and others	1	2	a2, b2, c2, c3, d2
11	Final Exam	1	2	b1-b3, c1-c4, d1-d3
Number of Weeks/and Units Per Semester				

#### VI. Teaching Strategies:

- Lectures using board and makers, data show, video animation and seminars
- Solving Problem method, Laboratory work, independent study and discussion

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Seminar	a2, a3, b1, c4, d1-d3	5	5
2	Projects	a2, a3, b1, c4, d1-d3	9, 11	

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Seminar and project	5, 9, 11	5	5%	a2, a3, b1, c4, d1-d3
2	Practical Reports	1-10	10	10%	a4, a5, b3, b4, c2, d2
3	Quizzes	4, 6, 10	5	5%	a1, a3, b1, b2, d3
4	Written Test (1)	7	10	10%	a1, a2, a3, b1, b2, b3, c4, d1
5	Final Exam (practical)	11	20	20%	a2, a3, b2, b3, c2,
6	Final Exam (theoretical)	14	50	50%	a3, a2, a3, b1, b2, b3, c4, d1

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York
- 2- Singh, G.K and Bhandari, A. "Textbook of Pharmacognosy" (2000); first ed., reprint (2008).CBS publisher and Distributers, New Delhi, India.

##### 2-Recommended Books and Reference Materials.

	<p>1- Sharma, V.D. and Pandey, S.K. "Pharmacognosy Practical Notebook" (2007); first ed. CBS publisher and Distributers, New Delhi, Bangalore, India.</p> <p>2- Raje, V.N. "Pharmacognosy" (2010); first ed. CBS publisher and Distributers Pvt Ltd., New Delhi, Bangalore, Pune, Kochi, Chennai.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1-<a href="http://pages.intnet.mu/webpam/Pharmacognosy.htm">http://pages.intnet.mu/webpam/Pharmacognosy.htm</a></p> <p>2- <a href="http://www.phcog.org/">http://www.phcog.org/</a></p> <p>3- <a href="http://www.botanical.com">http://www.botanical.com</a></p>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> </ul>



	<ul style="list-style-type: none"><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Pharmaceutical Organic Chemistry IV

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

IV. General Information:						
1	Course Title:	Pharmaceutical Organic Chemistry IV				
2	Course Number and Code:	<b>B11334</b>				
3	Credit hour:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	<i>Second semester/Third year</i>				
5	Pre –requisite :	Pharmaceutical Organic Chemistry III				
6	Co –requisite :					
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy				
10	Approved By:					

### I. Course Description:

This course deal with the study of introduction to, Spectrochemical methods, Nuclear Magnetic Resonance (NMR), Chromatography. Also it covers some experiments for quantitative and qualitative determination of some pharmaceutical substances.

### XI. ILOs:

At the end of this course the student should be able:

1. Recognize the basic principles of instrumental
2. Explain physical, spectroscopic and chromatographic method of analysis.
3. Illustrate instrumentation and interpretation of spectra obtained from different method.
4. Discuss the advantages and disadvantages of all types of analysis.
5. Identify the pharmaceutical application of different method of analysis.
6. Predict the qualitative and quantitative approach of each method of analysis.



7. Practice some quantitative determination of pharmaceutical substances.
8. Perform some qualitative determination of pharmaceutical substances.
9. Operate different equipment and instruments.
10. Manage and organize the time.
11. Use properly and safely the organic compounds and new tools in the laboratories.
12. Work independently or as a team.
13. Acquire an ethical attitude and approach.

**XII. Alignment Learning Outcomes with Teaching and Assessment Methods:**

**Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:**

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course the student should be able: a1- Recognize the basic principles of instrumental	Lectures using data show video animation	MCQ Oral Exam, Quizzes, exam, short answers , Homework and Participation.
a2-Explain physical, spectroscopic and chromatographic method of analysis.		
a3-Illustrate instrumentation and interpretation of spectra obtained from different method.		

**Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:**

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
At the end of this course the student should be able: b1- Discuss the advantages and disadvantages of all types of analysis.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-Identify the pharmaceutical application of different method of analysis.		
b3-Predict the qualitative and quantitative approach of each method of analysis		

**(C) Professional and Practical Skills.**

**Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:**

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able: c1-Practice some quantitative determination of pharmaceutical substances.	Lectures and Group assignments.	Practical works, And practical reports.
c2-Perform some qualitative determination of pharmaceutical substances.		
c3-Operate different equipment and instruments.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able: d1-Manage and organize the time.	Small group discussions Practical classes	Reports, presentations and communication with the lecturer and his colleagues.
d2-Use properly and safely the organic compounds and new tools in the laboratories.		
d3-Work independently or as a team.		
d4-Acquire an ethical attitude and approach.		

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Principles of Spectroscopy	<ul style="list-style-type: none"> <li>➤ Spectroscopy and Electromagnetic Radiations</li> <li>➤ Characteristics of Electromagnetic Radiations</li> <li>➤ Electromagnetic Spectrum</li> <li>➤ Absorption and Emission Spectra</li> <li>➤ Hydrogen index deficiency</li> </ul>	1	2	a1-a3,b1-b3,c1-3, d1-d4
2	Infrared Spectroscopy	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Instrumentation</li> <li>➤ Sample Handling</li> <li>➤ Theory (Origin) of Infrared Spectroscopy</li> <li>➤ Number of Fundamental Vibrations</li> <li>➤ Factors Affecting Vibrational Frequencies</li> <li>➤ Characteristic Absorptions in Common Classes of Compounds</li> <li>➤ Fingerprint Region</li> </ul>	3	4	a1-a3,b1-b3,c1-3, d1-d4



		<ul style="list-style-type: none"> <li>➤ Applications of Infrared Spectroscopy</li> <li>➤ Interpretation of Infrared Spectra</li> <li>➤ Some Solved Problems</li> </ul>			
3	<sup>1</sup> H NMR Spectroscopy	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Theory</li> <li>➤ Instrumentation</li> <li>➤ Sample Handling</li> <li>➤ Shielding, Deshielding and Chemical Shift</li> <li>➤ Measurement of Chemical Shift: NMR Scale</li> <li>➤ Factors Affecting chemical Shift</li> <li>➤ Number of PMR Signals: Equivalent and Nonequivalent Protons</li> <li>➤ Peak Area and Proton counting</li> <li>➤ Spin-Spin Splitting: Spin-Spin coupling</li> <li>➤ coupling constant (J)</li> <li>➤ Analysis (Interpretation) of NMR Spectra</li> <li>➤ Nomenclature of Spin Systems</li> <li>➤ Magnetic Equivalence</li> <li>➤ Spin-Spin coupling of Protons with Other Nuclei</li> <li>➤ Protons on Heteroatoms: Proton Exchange Reactions</li> <li>➤ Simplification of complex NMR Spectra</li> <li>➤ Applications of PMR Spectroscopy</li> <li>➤ continuous Wave (eW) and Fourier Transform (FT) NMR Spectroscopy</li> <li>➤ Some Solved NMR Problems</li> <li>➤ Some Solved NMR + IR Problems</li> </ul>	3	6	a1-a3,b1-b3,c1-3, d1-d4
4	Midterm Exam		1	2	a1-a3,b1-b3,c1-3, d1-d4
5	<sup>13</sup> C NMR Spectroscopy	<ul style="list-style-type: none"> <li>➤ Introduction and Theory</li> <li>➤ Sample Handling</li> <li>➤ Common Modes of Recording Be Spectra</li> <li>➤ Chemical Shift Equivalence</li> <li>➤ Be ehemical Shifts</li> <li>➤ Factors Affecting <sup>13</sup>C ehemical Shifts</li> <li>➤ Be ehemical Shifts (ppm from TMS) of Some compounds</li> <li>➤ Spin-Spin eoupling</li> <li>➤ Effect of Deuterium Substitutionon CMR Signals</li> <li>➤ Use of Shift Reagents</li> <li>➤ Applications of CMR Spectroscopy</li> <li>➤ Some Solved Problems</li> </ul>	1	2	a1-a3,b1-b3,d1-d4



6	Visible and Ultraviolet Spectroscopy	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Absorption Laws and Molar Absorptivity</li> <li>➤ Instrumentation</li> <li>➤ Sample Handling</li> <li>➤ Theory (Origin) of UV- Visible Spectroscopy</li> <li>➤ Electronic Transitions</li> <li>➤ Formation of Absorption Bands</li> <li>➤ Designation of Absorption Bands</li> <li>➤ Transition Probability: Allowed and Forbidden Transitions</li> <li>➤ Certain Terms Used in Electronic Spectroscopy: Definitions</li> <li>➤ Conjugated Systems and Transition Energies</li> <li>➤ Solvent Effects</li> <li>➤ Woodward-Fieser Rules for Calculating <math>\lambda_{max}</math> in</li> <li>➤ Conjugated Dienes and Trienes</li> <li>➤ Polyenes and Poly-ynes</li> <li>➤ Woodward- Fieser Rules for Calculating <math>\lambda_{max}</math> in <math>\alpha,\beta</math>-Unsaturated Carbonyl Compounds</li> <li>➤ Some Solved Problems</li> </ul>	2	4	a1-a3,b1-b3,c1-3, d1-d4
7	Mass Spectrometry	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Ionization Methods</li> <li>➤ Molecular and Fragment Ions</li> <li>➤ Instrumentation</li> <li>➤ Double Focusing Mass Spectrometers</li> <li>➤ Mass Spectrum and the Base Peak</li> <li>➤ Recognition of the Molecular Ion (Parent) Peak and Detection of Isotopes</li> <li>➤ Confirmation of the Recognized Molecular Ion Peak</li> <li>➤ Multiply Charged Ions</li> <li>➤ Metastable Ions or Peaks</li> <li>➤ Applications of Mass Spectroscopy</li> <li>➤ Representation of Fragmentation Processes</li> <li>➤ Factors Governing General Fragmentation Processes</li> <li>➤ Examples of General Fragmentation Modes</li> <li>➤ Fragmentation Modes of Various Classes of Organic Compounds</li> <li>➤ Some Solved Problems</li> </ul>	2	4	a1-a3,b1-b3,c1-3, d1-d4
8	Final exam		1	2	a1-a3,b1-b3,c1-3, d1-d4



Number of Weeks/and Units Per semester	28
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II. Teaching Strategies:
Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions and Practical classes.

III. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-5, d1-d4	5	5

IV. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1-a3, b1-b3, d1-d4
2	Oral Tests	5, 9	5	5%	a1, a2, a3, c1-3
3	Written Test (1)	7	20	20%	a1, a3, b1, b3,
4	Final Exam (theoretical)	14	70	70%	a1-3, b1-3, d1-d4
5	Total		100	100%	

V. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Louis D. Quin, John A. Tyrell, Fundamentals of Heterocyclic Chemistry, 2010, John Wiley and Sons, Inc. Hoboken, New Jersey. 2- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6 <sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.
2-Recommended Books and Reference Materials.	
	1. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont. 2. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6 <sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey

	3. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www.orgsyn.org

VI. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmacology II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Pharmacology II				
2	Course Number and Code:	B11362				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	Second Semester/Third year				
5	Pre –requisite :	Pharmacology I				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English – Arabic				
9	Prepared By:	Dr/ Mohammad Abobakr Al-Ghazali				
10	Approved By:					

I. Course Description:	
<p>This course will provide the student with the essential pharmacological skills and knowledge of the symptoms, mechanism of actions, side effects and treatment of different Cardiovascular diseases, Respiratory disorders, Blood and renal diseases.</p>	

II. ILOs: After participation in this course students must be able to:	
<ol style="list-style-type: none"> <li>1- Classify the groups of drugs in each disease in this course.</li> <li>2- Describe the mechanism of actions of drugs used in different disease discussed in this course.</li> <li>3- Recognize the side effects that can occur with different drugs explained in this course.</li> <li>4- Distinguish the actions, mechanisms and side effects of different drugs included in this course.</li> <li>5- Foretell the pharmacological aspects of individual drugs, once provided with their pharmacological class.</li> <li>6- Merge theory with professional practical.</li> <li>7- Perform confident oral and written knowledge and skills gained from this course.</li> </ol>	



- 8- Demonstrate professional competence in selecting appropriate drugs from different groups that covered in this course.
- 9- Choose professional in selecting the convenient therapy for different diseases covered in this course.
- 10- Implement practical experiments to diagnose and describe the pharmacological aspects of unknown drugs.
- 11- Work effectively in a team and demonstrate creativity and time management abilities
- 12- Demonstrate critical thinking and decision making abilities.
- 13- Communicate professional with patients and other health care specialist by verbal and written means.

### III. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. After participating in this course student must be able to</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Classify the groups of drugs in each disease in this course	-Lectures using Animations -Student oral and written presentation	- written exam - Quizzes - Presentation
a2- Describe the mechanism of actions of drugs used in different disease discussed in this course		
a3- Recognize the side effects that can occur with different drugs explained in this course		

#### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills. After participating in this course student must be able to</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1- Distinguish the actions, mechanisms and side effects of different drugs included in this course	-case discussion -group presentation	- Written exam - Quizzes - Presentation
b2- Foretell the pharmacological aspects of individual drugs, once provided with their pharmacological class.		
b3- Merge theory with professional practical		

#### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:



Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills. <i>After participating in this course student must be able to</i>	Teaching strategies to be used	Methods of assessment
c1- Perform confident oral and written knowledge and skills gained from this course	-group presentation -research activities practical session	- Written exam - Quizzes - Presentation practical reports
c2- Demonstrate professional competence in selecting appropriate drugs from different groups that covered in this course		
c3- Choose professional in selecting the convenient therapy for different diseases covered in this course.		
c4- Implement practical experiments to diagnose and describe the pharmacological aspects of unknown drugs.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills. <i>After participating in this course student must be able to</i>	Teaching strategies to be used	Methods of assessment
d1- Work effectively in a team and demonstrate creativity and time management abilities	-group discussion - presentation	- Written exam - Quizzes - Presentation
d2- Demonstrate critical thinking and decision making abilities.		
d3- Communicate professional with patients and other health care specialist by verbal and written means		

<b>IV. Course Content:</b>
1 – Course Topics/Items:
a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Cardiovascular System	Introduction	5	10	a1- a2- a3 – b1-b2- c3- d1- d2- d3
		Antihypertensive Drugs			
		Antianginal Drugs			
		Anti-arrhythmia			
		Anti- Congestive Heart Failure			
2	Drug Affecting Blood I	Antianaemic Drugs	1	2	a1- a2- a3 – b1-b2-c3- d1- d2- d3
3	Midterm Exam		1	2	a1- a2- a3 – b1-b2- c1- c2- c3- d1- d2- d3
4	Drug Affecting Blood II	Antihyperlipoprotein	2	4	a1- a2- a3 – b1-b2-c3- d1- d2- d3
		Management of Haemostatic Disorders			
5	Respiratory System	Anti-Asthmatic Drugs	2	4	a2- a3 – b1- b2- c2- c3- d1- d2- d3
		Anti-cough			
6	Renal System	Diuretics	2	4	a2- a3 – b1- b2- c2- c3- d1- d2- d3
		Renal disorders			
7	Final Exam		1	2	a1- a2- a3 – b1-b2- c1- c2- c3- d1- d2- d3
Number of Weeks/and Units Per First semester4				28	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Process of organ isolation	2	6	b3-c1-c3-d1-d2



2	In vivo effects of drugs	6	18	a1- a2- a3 – b1- b2-b3- c1- c2- c3- c4- d1- d2- d3
3	In vitro effects of drugs	5	15	a1- a2- a3 – b1- b2-b3- c1- c2- c3- c4- d1- d2- d3
4	Final Exam	1	3	a1- a2- a3 – b1- b2-b3- c1- c2- c3- c4- d1- d2- d3
Number of Weeks/and Units Per First semester4			28	

#### V. Teaching Strategies:

-Lectures  
-Student oral and written presentation  
practical session

#### VI. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Presentation	a1- a2- a3 – b1- b2-b3-d1- d2- d3	6	5%

#### VII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Presentation	6	5	5%	a1- a2- a3 – b1-b2-b3-d1- d2- d3



2	Practical Reports	All	10	10%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
3	Quizzes and Exercises and Home works	4-8	5	5%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
4	Written Test (1)	7	10	10%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
5	Final Exam (theoretical)	15	50	50%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
6	Final Exam (practical)	14	20	20%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
	Total		100	100%	

#### VIII. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009) Lippincott's Illustrated Reviews of Pharmacology, 11th edition, Lippincott's Williams and Wilkins, Philadelphia.
- 2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012) Basic and Clinical Pharmacology, Fifth edition, Mc Graw Hill Lange, U.S.A.

##### 2-Recommended Books and Reference Materials.

- 1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale's Pharmacology, 6th edition, Churchill Livingstone Elsevier, Philadelphia.

##### 3-Electronic Materials and Web Sites etc.

- 1- [www.who.int](http://www.who.int)
- 2- [www.drugs.com](http://www.drugs.com)

#### IX. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1 Class Attendance:

	<ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"> <li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>Midterm Exam cheating results in giving the student a mark of zero</li> <li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li> <li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li> </ul>



6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Fourth year: first semester





## Course Specification of Medicinal Chemistry I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Medicinal Chemistry I				
2	Course Number and Code:	B11435				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	First semester/Fourth year				
5	Pre –requisite :	Analytical Chemistry II and Pharmaceutical Organic Chemistry IV				
6	Co –requisite :	Pharmacology III				
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy				
10	Approved By:					

II. Course Description:	
<p>This course introduces students to chemistry of drugs with special emphasis to the physicochemical properties of the drug structure and its effect on the biological activity. The chemical structure and its effect on drugs-receptor interaction, drug metabolism and the basic principles of drug design and the medicinal chemistry of ANS drugs are demonstrated.</p>	

III. ILOs:
<p>At the completion of this course the student should be able to:</p> <ol style="list-style-type: none"> <li>1- Recognize the basic principles of medicinal chemistry.</li> <li>2- Relate the physicochemical chemical properties of drug to the biological activity.</li> <li>3- Illustrate the drug metabolism and latention.</li> <li>4- Characterize the basic principle of drug design, SAR, biosynthesis, synthesis, metabolism of ANS drugs</li> <li>5- Determine the functional groups and their effect on absorption, distribution and excretion.</li> <li>6- Identify the predicted moieties of drug structure that are metabolized</li> <li>7- Diagram the schemes that describe bonds interaction</li> <li>8- Categorize drug of autonomic nervous system and synthesize some ANS drugs</li> <li>9- Practice the program used in drug design</li> <li>10- Calculate the log p for some drugs</li> <li>11- Determine the impurities limit in pharmaceutical preparation</li> <li>12- Perform assay of some ANS drugs</li> <li>13- Cooperate with his colleagues to prepare a scientific topic.</li> <li>14- Present some examples for drug design.</li> <li>15- Implement writing and presentation skills.</li> </ol>

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> after completing this program, students would be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Recognize the basic principles of medicinal chemistry.	Lectures using data show video animation and computer supported with design program	MCQ Oral Exam, Quizzes, exam, short answers , Homework and Participation.
a2- Relate the physicochemical chemical properties of drug to the biological activity.		
a3- Illustrate the drug metabolism and latention.		
a4- Characterize the basic principle of drug design, SAR, biosynthesis, synthesis, metabolism of ANS drugs.		
(B) Intellectual Skills:		

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Intellectual Skills. after completing this program, students would be able to:	Teaching strategies to be used	Assessment Methods
b1-Determine the functional groups and their effect on absorption, distribution and exertion.	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2- Identify the predicted moieties of drug structure that are metabolized		
b3- Diagram the schemes that describe bonds interaction		
b4- Categorize drug of autonomic nervous system and synthesize some ANS drugs		
<b>(C) Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills after completing this program, students would be able to:	Teaching strategies to be used	Methods of assessment
c1- Practice the programme used in drug design	Lectures, docking program And Group assignments, Practical works.	Practical Reports, And practical reports.
c2- Calculate the log p for some drugs		
c3- Determine the impurities limit in pharmaceutical preparation		
c4- Perform assay of some ANS drugs		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills after completing this program, students would be able to:	Teaching strategies to be used	Methods of assessment
d1- Cooperate student with his colleagues to prepare a scientific topic.	Small group discussions, Practical classes	Reports, presentations And communication with the lecturer and his colleagues.
d2- Present some examples for drug design.		
d3- Implement writing and presentation skills		

V. Course Content:



1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to medicinal chemistry	Terminology related to medicinal chemistry and its orientation	1	2	a1, d1-3
2	Physicochemical properties	Hydrophobicity, electronic effect and steric effect	1	2	a2, b1, c2, d1,
3	Application of QSAR	calculation of pc, Craig plot, topless scheme and Hansch equation	1	2	a1, b1, c2, d1, d2-3
4	Drug-receptor interaction	Types of bond in drug receptor interaction Application of D-R interaction	1	2	a4, a2, d3,
5	Drug design	sources of lead compound, strategies of drug design, introduction to graph theory, applications of quantum mechanics. Computer Aided Drug Designing (CADD), brief introduction to combinatorial chemistry. types of drug design	1	2	a1, a4, b1c1, d2,
6	Prodrug and drug latention	Types of prodrug Objectives of prodrug Examples of prodrug	1	2	a3, b1, d1,
7	Midterm exam		1	2	a1-a4, d1-d3
8	Drug metabolism	Site of drug biotransformation, <u>pathways of drug metabolism</u> : phase I	2	4	a1, b2, d1-3

		(oxidation, reduction and hydrolysis) Phase II (conjugation with glucuronic acid, sulfate, amino acids and glutathione, acylation, methylation )			
9	Sympathomimetic	Classification, SAR, biosynthesis, synthesis metabolism	1	2	a1, b4, d1-3
10	Sympatholytic	Classification, synthesis metabolism	1	2	a3-4, b4, d1-3
11	Parasympathatic	Classification, SAR, biosynthesis, synthesis metabolism	1	2	a1-a4, d1-3
12	parasympatholytic	Classification, SAR, synthesis metabolism	1	2	a4, b4
13	Final exam		1	2	a1-a4, b1-b4
Number of Weeks/and Units Per First semester4				28	

b - PracticalAspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Limit Test For Chloride	1	3	c1, c2, c3, c4, d1,
2	Limit Test For Sulphate	1	3	c1, c2, c3, c4, d3-4
3	Limit Test For iron	1	3	a1, c1, c2, c3, c4, d1
4	limit test for sulphate in sod thiosulphate	1	3	c1, c2, c3, c4, d1, d3-4
5	limit test for chloride in potassium bromide	1	3	a1, c1, c2, c3, c4, d1
6	limit test for chloride in colored compound ( potassium permanganate)	1	3	a1, c2, c3, c4, d3-4
7	limit test in sodium salicylate	1	3	c2, c3, c4, d1
8	Limit test for cl, SO4 and salicylic acid in aspirin	2	3	c1, c2, c3, c4, d1
9	Final exam	1	3	b1-b4, c1-c4, d1-d3
Number of Weeks/and Units Per Semester			30	

<b>VI. Teaching Strategies:</b>
Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions and Practical classes

<b>VII. Assignments and projects:</b>				
no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-4, d1-d3	5	5

<b>VIII. Assessment Tasks:</b>					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project	2, 8	5	5%	a1-4, b1-4, d1-d3
2	Practical reports	1-9	10	10%	a1-4, b1-4, d1-d3
3	Oral Tests	5, 9	5	5%	, a1-a4, b1-b4
4	Written Test (1)	7	10	10%	a1-4, b1-4
5	Final Exam (theoretical)	14	50	50%	a1-4, b1-4
6	Final Exam (practical)	11	20	20%	b1-4, c1-c4, d1-d3
	Total		100	100%	

<b>IX. Learning Resources:</b>	
1-Required Textbook(s) ( maximum two ).	
	<p>1- John M. Beale, Jr. and John H. Block, "Text book of Organic Medicinal and Pharmaceutical Chemistry", 2011, 12th Edition, Wilson and Gisvold, Lippincott Williams and Wilkins, A Wolters Kluwer Company, Philadelphia.</p> <p>2- Graham L. Patrick, "An Introduction to Medicinal Chemistry", 2009, Fourth Edition, Oxford University Press Inc., New York</p>
2-Recommended Books and Reference Materials.	
	1- Thomas Nogrady, Donald F. Weaver. Medicinal Chemistry A Molecular and Biochemical Approach, 2005, Third edition, Oxford University Press, Inc., New York.

	<p>2- Donald J. Abraham, "BURGER'S Medicinal Chemistry and Drug Discovery" 6<sup>th</sup> edition, A John Wiley and Sons, Inc., Virginia.</p> <p>3- Thomas L. Lemke, Victoria F. Roche, David A. Willaiams and S. William Zito "Foye's Principles of Medicinal Chemistry", 2008, 6<sup>th</sup>, Edition, Lippincott Williams and Wilkins, a Wolters Kluwer business, Philadelphia.</p> <p>4- PovlKrogsgaard-Larsen, TommyLiljefors andUlf Madsen, "Textbook of Drug Design andDiscovery".2002, Third edition, Taylor and Francis, London.</p> <p>5- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook"2006, Springer-Verlag Berlin Heidelberg, Berlin.</p>
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### 3-Electronic Materials and Web Sites *etc.*

	<p>1- <a href="http://www.chemaxon/marvin">http://www.chemaxon/marvin</a></p> <p>2-<a href="http://www.webmolecules.com">http://www.webmolecules.com</a></p> <p>3-<a href="http://www.acdlabs.com">http://www.acdlabs.com</a></p> <p>4-PASSPrediction of Activity Spectra for Substance) (<a href="http://www.ibmh.msk.su/PASS">http://www.ibmh.msk.su/PASS</a>).</p>
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<b>X. Course Policies: (including plagiarism, academic honesty, attendance etc)</b>	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p><b>Class Attendance:</b></p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p><b>(Tardy):</b></p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p><b>(Exam Attendance/Punctuality):</b></p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> </ul>

	<ul style="list-style-type: none"><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



### Course Specification of Pharmacology III

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

X. General Information:					
1	Course Title:	Pharmacology III			
2	Course Number and Code:	<b>B11463</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		
4	Study level/year at which this course is offered:	<i>First Semester/ Fourth year</i>			
5	Pre –requisite :	Pharmacology II			
6	Co –requisite :				
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English – Arabic			
9	Prepared By:	Dr/ Mohammad Abobakr Al-Ghazali			
10	Approved By:				

II. Course Description:	
The course will provide the student with the essential pharmacological knowledge including the symptoms, mechanism of actions, side effects and treatment in the different C.N.S diseases, G.I.T disorders and muscle relaxant drugs.	

III. ILOs: After participation in this course students must be able to:	
<ol style="list-style-type: none"> <li>1- Classify the groups of drugs in each disease in this course.</li> <li>2- Describe the mechanism of actions of drugs used in different disease discussed in this course.</li> <li>3- Recognize the side effects that can occur with different drugs explained in this course.</li> <li>4- Distinguish the actions, mechanisms and side effects of different drugs included in this course.</li> <li>5- Foretell the pharmacological aspects of individual drugs, once provided with their pharmacological class.</li> <li>6- Merge theory with professional practical.</li> <li>7- Perform confident oral and written knowledge and skills gained from this course.</li> </ol>	

- 8- Demonstrate professional competence in selecting appropriate drugs from different groups that covered in this course.
- 9- Choose professional in selecting the convenient therapy for different diseases covered in this course.
- 10- Implement practical experiments to diagnose and describe the pharmacological aspects of unknown drugs.
- 11- Communicate professional with patients and other health care specialist by verbal and written means.
- 12- Demonstrate critical thinking and decision making abilities.
- 13- Work effectively in a team and demonstrate creativity and time management abilities.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. After participating in this course student must be able to</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Classify the groups of drugs in each disease in this course	-Lectures using Animations -Student oral and written presentation	- written exam - Quizzes - Presentation
a2- Describe the mechanism of actions of drugs used in different disease discussed in this course		
a3- Recognize the side effects that can occur with different drugs explained in this course		

##### (B) Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills. After participating in this course student must be able to</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1- Distinguish the actions, mechanisms and side effects of different drugs included in this course	-case discussion -group presentation	- Written exam - Quizzes - Presentation
b2- Foretell the pharmacological aspects of individual drugs, once provided with their pharmacological class.		
b3- Merge theory with professional practical		

##### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills. <i>After participating in this course student must be able to</i>	Teaching strategies to be used	Methods of assessment
c1- Perform confident oral and written knowledge and skills gained from this course	-group presentation -research activities Practical session	- Written exam - Quizzes - Presentation practical reports
c2- Demonstrate professional competence in selecting appropriate drugs from different groups that covered in this course		
c3- Choose professional in selecting the convenient therapy for different diseases covered in this course.		
c4- Implement practical experiments to diagnose and describe the pharmacological aspects of unknown drugs.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills. <i>After participating in this course student must be able to</i>	Teaching strategies to be used	Methods of assessment
d1- Communicate professional with patients and other health care specialist by verbal and written means	-group discussion - presentation Practical session	- Written exam - Quizzes - Presentation
d2- Demonstrate critical thinking and decision making abilities.		
d3- Work effectively in a team and demonstrate creativity and time management abilities		

**V. Course Content:**



1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Central Nervous System I (C.N.S)	Introduction	6	12	a1- a2- a3 – b1- b2-b3- c3- c4- d1- d2- d3
		Anesthetics			
		Antidepressant Drugs			
		Sedatives ,Anxiolytics and Hypnotics			
		C.N.S Stimulants			
		Opioid Analgesics			
2	Midterm Exam		1	2	a1- a2- a3 – b1- b2-b3- c1- c2- c3-d1- d2- d3
3	Central Nervous System II(C.N.S)	Anti-Epilepsy	2	4	a1- a2- a3 – b1- b2-c3- c4- d1- d2- d3
		Anti-Parkinson's			
4	Skeletal Muscle Relaxants		1	2	a2- a3 – b1-b2- b3- c3- c4- d1- d2- d3
5	Local Anesthetics		1	2	a2- a3 – b1-b2- b3- c3- c4- d1- d2- d3
6	Gastro-Intestinal Tract	Anti-Peptic Ulcer	3	6	a1- a2- a3 – b1- b2-b3- c3- c4- d1- d2-d3
		Anti-Constipation			
		Anti-Diarrhea			
7	Final Exam		1	2	a1- a2- a3 – b1- b2-b3- c1- c2- c3-d1- d2- d3
Number of Weeks/and Units Per First semester5				30	

b - Practical Aspect:



Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Handling of experimental animals	2	6	b3-c1-c3-d1-d2
2	Process of organ isolation	3	9	b3-c1-c3-d1-d2
3	In vivo effects of drugs	4	12	a1- a2- a3 – b1- b2-b3- c1- c2- c3- c4- d1- d2
4	In vitro effects of drugs	4	12	a1- a2- a3 – b1- b2-b3- c1- c2- c3- c4- d1- d2
5	Final Exam	1	3	a1- a2- a3 – b1- b2-b3- c1- c2- c3- c4- d1- d2
Number of Weeks/and Units Per First semester4			28	

#### VI. Teaching Strategies:

- Lectures
- Student oral and written presentation
- Practical sessions

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	- Presentation	a1- a2- a3 – b1- b2-b3- c1- c2- c3- c4- d1- d2- d3	6	5%

#### VIII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment/ Presentation	6	5	5%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
2	Practical Reports	All	10	10%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
3	Quizzes and Exercises and Home works	4-8	5	5%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
4	Written Test (1)	7	10	10%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
5	Final Exam (theoretical)	15	50	50%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
6	Final Exam (practical)	14	20	20%	a1- a2- a3 – b1-b2-b3- c1- c2- c3- c4- d1- d2- d3
	total		100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009)Lippincott's Illustrated Reviews of Pharmacology, *11th edition*, Lippincott's Williams and Wilkins, Philadelphia.
- 2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012) Basic and Clinical Pharmacology, *Fifth edition*, Mc Graw Hill Lange, U.S.A.

##### 2-Recommended Books and Reference Materials.

- 1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale's Pharmacology, *6th edition*, Churchill Livingstone Elsevier, Philadelphia.

##### 3-Electronic Materials and Web Sites *etc.*

- 1- [www.who.int](http://www.who.int)
- 2- [www.drugs.com](http://www.drugs.com)

<b>X. Course Policies: (including plagiarism, academic honesty, attendance etc)</b>	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p><b>Class Attendance:</b></p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p><b>(Tardy):</b></p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p><b>(Exam Attendance/Punctuality):</b></p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p><b>(Assignments and Projects):</b></p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Biopharmaceutics and Pharmacokinetics I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:					
1	Course Title:	Biopharmaceutics and Pharmacokinetics I			
2	Course Number and Code:	B11457			
3	Credit hours: 2hrs.	C.H			Total
		Th.	Pr.	Tut.	
		2			2
4	Study level/year at which this course is offered:	First semester/Fourth year			
5	Pre –requisite :	Physiology II and Biochemistry II			
6	Co –requisite :				
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Dr. Mohammed Addoais & Dr. Abdulkarim Alzomor			
10	Approved By:				

II. Course Description:	
<p>This course will introduces the students to the concepts of biopharmaceutics, and pharmacokinetics, the processes of absorption, distribution, metabolism, and excretion of drugs are discussed with the purpose of improving the evaluation of drug delivery systems, and the therapeutic management of patients.</p>	

III. ILOs: at end of the course students will be to:	
<ol style="list-style-type: none"> <li>1. Identify all biologic, physiologic, and pathologic factors, which influence drugs' absorption, disposition and response in the body.</li> <li>2. Explain how physical and chemical drugs' properties, dosage form and route of administration can influence drug performance in the body</li> <li>3. Discuss the mechanism of drug transport in the body.</li> <li>4. List the factors affecting drug metabolism, distribution and excretion.</li> </ol>	

5. Distinguish renal and non-renal excretion of drugs
6. Compare bioavailability and bioequivalence..
7. Design of bioavailability and bioequivalence studies.
8. Adjust and optimize the dose and dosage regimen
9. Solve any formulation problems affecting drug bioavailability.
10. Measure bioavailability parameters and choose the right method for drug administration.
11. Work effectively in a team
12. Manage time effectively

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Identify all biologic, physiologic, and pathologic factors, which influence drugs' absorption, disposition and response in the body.	Lectures using data show Video animation and seminars	Quiz and Written exam
a2-Explain how physical and chemical drugs' properties, dosage form and route of administration can influence drug performance in the body		
a3- Discuss the mechanism of drug transport in the body.		
a4- List the factors affecting drug metabolism.		

##### (B)Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b1-Distinguish renal and non-renal excretion of drugs	Lecture and group discussion	Quiz and Written exam
b2-Compare bioavailability and bioequivalence..		
b3- Design of bioavailability and bioequivalence studies.		

##### (C)Professional and Practical Skills.

##### Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
c1-Adjust and optimize the dose and dosage regimen	Direct reading Independent study	Report, Assignment report
c2- Solve any formulation problems affecting drug bioavailability.		
c3- Measure bioavailability parameters and choose the right method for drug administration.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
d1-Work effectively in a team	Group discussion	Presentation
d2-Manage time effectively		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to Biopharmaceutics	<ul style="list-style-type: none"> <li>Definition of some terms used in biopharmaceutics</li> <li>Aims of studying of biopharmaceutics and Pharmacokinetics</li> <li>Plasma –time level curve</li> <li>Routes of Drug Administration, Bioavailability, Advantages and Disadvantages</li> <li>Transport of Drugs Across Biological Membranes</li> </ul>	2	4	a1, a4, b1, c2, d1, d2
2	GIT absorption of drugs	<ul style="list-style-type: none"> <li>Definition</li> <li>Bio-pharmaceutics hurdles in drug development, approaches to overcome them</li> <li>Mechanism of drug absorption</li> <li>Physiological factors affecting oral absorption</li> <li>Physical-Chemical factors affecting oral absorption</li> </ul>	4	8	a2, a3, a4, b1, b2, c1, d1, d2

		<ul style="list-style-type: none"> <li>• Effect of Food on drug Absorption</li> <li>• Formulation factors affecting oral absorption</li> <li>• Techniques for the GIT absorption assessment</li> </ul>			
3		Midterm exam	1	2	a1, a2, a3, a4, b1, b2
4	Biopharmaceutics study of Drug distribution	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Factors affecting drug distribution</li> <li>• Volume of distribution</li> <li>• Binding to plasma proteins</li> <li>• Factors affecting protein binding</li> <li>• Drug distribution to special tissue <ul style="list-style-type: none"> <li>○ Brain</li> <li>○ Placenta</li> </ul> </li> <li>• Drug interaction in protein binding</li> </ul>	2	4	c1, c2, cd1, d2
5	Biopharmaceutics study of Drug metabolism	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Role of drug metabolism</li> <li>• Drug metabolism sites</li> <li>• Metabolic pathway</li> <li>• Metabolism enzymes</li> <li>• Metabolism phases</li> <li>• Factors affecting drug metabolism</li> <li>• Drug interaction in metabolism</li> <li>• Extrahepatic metabolism</li> <li>• Prodrugs</li> </ul>	2	4	c1, c2, d1, d2
6	Biopharmaceutics study of Drug excretion	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Role and pathway of excretion</li> <li>• Types of excretion <ul style="list-style-type: none"> <li>○ Renal excretion</li> <li>○ Non-renal excretion <ul style="list-style-type: none"> <li>▪ Biliary excretion</li> <li>▪ Mammary excretion</li> <li>▪ Salivary excretion</li> <li>▪ Skin excretion</li> <li>▪ Pulmonary excretion</li> <li>▪ GIT excretion</li> <li>▪ Genital excretion</li> </ul> </li> </ul> </li> <li>• Factors Affecting Renal Excretion</li> <li>• Drug interaction</li> </ul>	2	4	b3, c1, c2, d1, d2
7	Bioavailability and bioequivalence	<ul style="list-style-type: none"> <li>• Historical aspects.</li> <li>• Definitions.</li> <li>• Objectives and significance of BA/BE studies.</li> <li>• Factors affecting Bioavailability.</li> </ul>	2	4	c1, c3, d1, d2



		<ul style="list-style-type: none"> <li>• Measurement of Bioavailability.</li> <li>• Methods for enhancing Bioavailability.</li> <li>• Introduction to Bioequivalence.</li> <li>• Limitations of BA/BE studies</li> <li>• Protocol design of bioavailability assessment.</li> <li>• Methods of bioequivalence determination</li> </ul>			
8		Final exam	16	2	a1, a2, a3, a4, b1, b2, b3, d1, d2
Number of Weeks/and Units Per Semester			16	32	

VI. Teaching Strategies:	
<ul style="list-style-type: none"> <li>• Lectures using data show</li> <li>• Video animation and seminars</li> <li>• Directreading</li> <li>• Independent study</li> <li>• Group discussion</li> </ul>	

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	Assignment	a1, b1, b2, b3, c1, c2, c3, d1, d2	9	5

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	9	5	5%	a1, b1, b2, b3, c1, c2, c3, d1, d2

2	Quizzes	2, 5, 12	5	5%	a1, a2, a3, a4, b1, b2, b3, d1, d2
3	Written Test (midterm exam )	8	30	30%	a1, a2, a3, a4, b1, b2, b3, d1, d2
4	Final Exam (theoretical)	15	60	60%	a1, a2, a3, a4, b1, b2, b3, d1, d2
Total			100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. Leon Shargel Andrew (2012). Applied Biopharmaceutics and Pharmacokinetics, Sixth edition, Lippincotts and William, Philadelphia.

##### 2-Recommended Books and Reference Materials.

1. Michel E. Winter (2011). Basic clinical pharmacokinetics, Fifth edition, Lippincotts and William, San Fransisco.

##### 3-Electronic Materials and Web Sites *etc.*

- 1-www.boomer.org

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p><b>Class Attendance:</b></p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p><b>(Tardy):</b></p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p><b>(Exam Attendance/Punctuality):</b></p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> </ul>

	<ul style="list-style-type: none"><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Pathology

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Pathology				
2	Course Number and Code:	<b>B11448</b>				
3	Credit hours:	C.H. م				
		Th.	Pr.	Tut.	Tr.	Total
		٣				٣
4	Study level/year at which this course is offered:	<i>First semester/Fourth year</i>				
5	Pre –requisite :	Histology				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Ammar Saleh Omar				
10	Approved By:					

## II. Course Description:

This course will provide the students with the general concept of Pathophysiology discussed with appropriate reference to the general pathologic process due to cellular stress. An organized system review of the commonest diseases with adequate insight into causes, clinical manifestations, and diagnosis will be covered.



### III. ILOs: مخرجات تعلم المقرر

after participation in this course student must be able to:

1. Describe the mechanism of diseases and their progress
2. Recognize the principles of general pathology.
3. List abnormal pathological laboratory results and their causes
4. Illustrate the fate and complications of different disease processes
5. Interpret a pathology report in an accurate manner.
6. Analyze gross and microscopic pictures aiming at correct diagnosis.
7. Predict the diagnosis of different diseases based on the underlying gross and microscopic pictures.
8. Apply the principles of good experimental design and analysis
9. Use a ranged specialist techniques, for diagnostic procedures.
10. Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors
11. Communicate clearly with patients and other health care professionals by verbal and written means.
12. Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> after participation in this course student must be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1 Describe the mechanism of diseases and their progress	Lectures using data show, video animation and seminars	Exam, short answers and homework.
a2 Recognize the principles of general pathology		
a3 List abnormal pathological laboratory results and their causes		
a4 Illustrate the fate and complications of different disease processes		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> after participation in this course student must be able to:	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1 Interpret a pathology report in an accurate manner.	Lectures, Practice session, Discussions.	Oral presentation, criteria-based performance evaluation
b2 Analyze gross and microscopic pictures aiming at correct diagnosis.		

b3 Predict the diagnosis of different diseases based on the underlying gross and microscopic pictures.		Interpretative exercises.
<b>(C) Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
<b>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills after participation in this course student must be able to:</b>	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
c1 Apply the principles of good experimental design and analysis	Lectures, Laboratory work, directed reading, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c2 Use a ranged specialist techniques, for diagnostic procedures.		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<b>Course Intended Learning Outcomes (CILOs) in General and Transferable Skills after participation in this course student must be able to:</b>	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
d1 Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.	1. Small group discussions 2. Tutorials 3. Practical classes 4. Micro assignments	Reports, presentations and communication with the lecturer and his colleagues
d2 Communicate clearly with patients and other health care professionals by verbal and written means.		
d3 Implement writing and presentation skills and demonstrate critical thinking and decision making abilities and long life learning.		

1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
2	Disease management - Cell and tissue injury, heat injury, degeneration, necrosis, apoptosis		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
3	Acute inflammation	causes, types	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
4	Chronic inflammation	causes and types Granulation tissue	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
5	Tissue repair		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
6	Circulatory disorders	ischemia, congestion, gangrene, edema.	2	6	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
7	Mid Term Exam		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
8	Immune disorders	hypersensitivity reactions, auto-immune diseases	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
9	Genetic disorders		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
10	Growth Disorders Genetic basis and tests for tumors		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
11	Neoplasia	Causes and types of tumors	2	4	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
12	Malignant tumors		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.



13	Final exam		1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2, d3,.
Number of Weeks/and Units Per Semester				45	

#### VI. Teaching Strategies:

Lectures using data show, video animation and seminars  
Solving Problem method, Laboratory work, directed reading, independent study and discussion

#### VII. Assignments and Projects

no	Assignments	CILOS	Week due	Mark
1	Project	a1, a2, b2, b3, c3, d1, d3,	5	5

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Exercises and Home works and Quizzes	All	5	5%	a1, a2, b2, b3, c1, c2, c3
2	Project ( single\group)	4	5	5%	a1, a2, b2, b3, c3, d1, d3,
3	Midterm Exam	7	30	30%	a1, a2, b1, b2,b3
4	Final Exam (theoretical)	14	60	60%	a1, a2, b1, b2,b3
	Total		100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Kumar Abbas and Fausto Mitchel 2007. Robbins basic pathology 8th edition Philadelphia, PA 19103-2899.
- 2- Robin Reid, Fiona Robertand Elaine Macduff 2011. Pathology Illustrated 7th edition ISBN 9780702033766 Churchill Livingston.

##### 2-Recommended Books and Reference Materials.

- 1- Lecture notes on general pathology
- 2-lecture notes on systemic pathology

##### 3-Electronic Materials and Web Sites *etc.*

- 1- [www.google](http://www.google) general pathology
- 2-[www.google](http://www.google) systemic pathology

X.Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Community Health

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Community Health			
2	Course Number and Code:	<b>B11341</b>			
3	Credit hours: ٢ hrs	C.H			Total
		Th.	Pr.	Tut.	
		2			
4	Study level/year at which this course is offered:	Second Semester/Third Year			
5	Pre –requisite :	-			
6	Co –requisite :	-			
7	Program (s) in which the course is offered:	Medical Lab			
8	Language of teaching the course:	English/ Arabic			
9	Prepared By:	Dr. Abdulrakib Al –Hanani			
10	Approved By:				

II. Course Description:
- This course helps students to play a role in measures taken to promote physical, environmental and social of well being of individuals and families in the community.

III. ILOs: By the end of the course the student will be able to
<ol style="list-style-type: none"> <li>1. Define health concepts and prevention of disease</li> <li>2. List settings for community health services</li> <li>3. Mention concepts of basics to epidemiology</li> <li>4. Explain major communicable diseases in Yemen</li> <li>5. Appraise community health services in the health care system in Yemen</li> <li>6. Examine concept of disease and prevention</li> <li>7. Differentiate between different epidemiological rate</li> <li>8. Analyze the type of work hazard in the pharmaceutical industry</li> <li>9. Implement level of prevention of a selected community health problems</li> <li>10. Demonstrate major community health problem</li> <li>11. Apply universal infection control precaution</li> <li>12. Use ethical consideration when dealing with co-workers</li> <li>13. Posses skills of communication and report writing of epidemiological rates</li> </ol>

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> By the end of the course the student will be able to	<i>Teaching strategies to be used.</i>	Assessment Methods.
a1- Define health concepts and prevention of disease	Lecture, discussion	Quiz written exam
a2- List settings for community health services.		
a3- Mention concepts of basics to epidemiology		
a4-Explain major communicable diseases in Yemen.		
(B)Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in IntellectualSkills.</i> By the end of the course the student will be able to	Teaching strategies to be used	Assessment Methods
b1- Appraise community health services in the health care system in Yemen.	Lecture, Seminar	Presentation Quiz
b2-Examine concept of disease and prevention		
b3-Differentiate between different epidemiological rates		
b4-Analyze the type of work hazardin the pharmaceutical industry		



<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skills to teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills By the end of the course the student will be able to	Teaching strategies to be used	Methods of assessment
c1- Implement level of prevention of a selected community health problems.	Seminar, Discussion	Quiz written exam
c2-Demonstrate major community health problem.		
c3-.Apply universal infection controlprecaution.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills	Teaching strategies to be used	Methods of assessment
d1-Use ethical consideration when dealing with co-workers.	Group Discussion Independent study	Report presentation
d2-Posses skills of communication and report writing of epidemiological rates		

<b>V. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	c-ilos
1.	Introduction to community health	- Definitionsand concepts	1	2	a1, c1, b1, d1
		- Level of prevention			
2.	assessment community health problems	- Factors affecting community health	1	2	a4, b3, d1
3.	community health services	- Structure andFunction	2	4	a2, b1, c2, d2
		- Environmental health			
		- Ruralhealth			
		- Occupational health			
4.	Epidemiology in community health care	- Concepts basic to epidemiology	3	6	a3, b3, c2, d2



		- Epidemiological rates			
5.	Communicable disease	- Concepts - chain of infection - Control	2	4	a2, b2, c3, d2
6.	Populations with development needs	- Maternal and child - School health	2	4	a3, b4, c2, d2
7	Communities in crises	- Disaster, violence	1	2	a2, b1, c1, d1
8	Med -term exam		1	2	a2, a3, c1, c2,
9	Theoretical exam		1	2	b1, b2, b4, d1, d2
Number of Weeks/and Units Per First semester				28	

VI. Teaching Strategies:	
<ul style="list-style-type: none"> <li>• Lecture</li> <li>• Seminar</li> <li>• Group Discussion</li> <li>• Independent study</li> </ul>	

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	- Micro- assignment	a2, a3 4, b2, b4 c2, c3, d1, d2	9	5

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Micro- assignment	9	5	5%	a2, a3, c1, c2, b1, b2, b4, d1, d2
2	Quizzes	5, 10	5	5%	a2, a3, b1, b2, b4, d1, d2
3	Written Test (midterm exam)	7	30	30%	a2, a3, c1, c2, b1, b2, b4, d1, d2
4	Final Exam (theoretical)	14	60	60%	a2, a3, c1, c2, b1, b2, b4
			100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	

	1-Mc kenzei, James, RebertR.Pinger and Jerome ketecki (2008).An introduction to community health.6 <sup>th</sup> edition.Jones andBartlett publishing USA
2-Recommended Books and Reference Materials.	
	2. Cassens B, (1992). Preventive medicine and public health.Secondeditionvania pennsyHarwal publishing Co. USA.
3-Electronic Materials and Web Sites <i>etc.</i>	

XI. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Phytochemistry I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Phytochemistry I			
2	Course Number and Code:	B11374			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		3	1		4
4	Study level/year at which this course is offered:	Second semester/Third year			
5	Pre –requisite :	Botany & pharmacognosyII			
6	Co –requisite :				
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	Arabic/English			
9	Prepared By:	Bushra Moharam and Wedad Mansour			
10	Approved By:				

### II. Course Description:

The course provides information on different types of chromatography and its applications; and on the importance of naturally occurring products from their chemical, pharmaceutical and therapeutic applications. It also deals with their isolation and identification using chromatographic methods.

### III. ILOs:

Upon completion of this course, the students should be able to:

- 1- Illustrate the principles of different chromatographic techniques.
- 2- Identify the different classes of biologically active compounds of natural origin alkaloids, terpenoids and steroids, their distribution in nature and classification.
- 3- Explain physico-chemical properties of natural origin substances of alkaloids, terpenoids and steroids.

- 4- Recognize the methods of extraction, separation and purification of the constituents of natural products such as alkaloids, terpenoids and steroids.
- 5- Describe the chemical structure of alkaloids, terpenoids, and steroids, their pharmacological properties (biological activities) and contraindications of them.
- 6- Apply the chromatographic techniques in phytochemical analysis of natural products (alkaloids, terpenoids).
- 7- Correlate the chemical structure of natural products (alkaloids, terpenoids, steroids) with their pharmacological activity and predict of structural changes that modify the biological activity.
- 8- Research about suitable methods for extraction; isolation of different compounds from natural origin
- 9- Perform suitable methods for extraction; isolation of alkaloids and terpenoids.
- 10- Carry out different assay procedures for quantitative determination of alkaloids and terpenoids in their origin or preparations.
- 11- Construct a research study about different chromatographic techniques.
- 12- Write reports about the chemistry natural products such as alkaloids, terpenoids, steroids and their isolation and present them.
- 13- Cooperate effectively with other people and to wok in teamwork and team planning.
- 14- Evaluate information from different sources, demonstrate critical thinking, problem solving and decision making abilities

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	Assessment Methods.
Upon completion of this course, the students should be able to: a1- Illustrate the principles of different chromatographic techniques. a2- Identify the different classes of biologically active compounds of natural origin alkaloids, terpenoids and steroids, their distribution in nature and classification.	Lectures using boards and markers, data show, video animation and seminars	Quizzes, Written exam, homework and participation.

a3- Explain physico-chemical properties of natural origin substances of alkaloids, terpenoids and steroids.		
a4- Recognize the methods of extraction, separation and purification of the constituents of natural products such as alkaloids, terpenoids and steroids		
a5- Describe the chemical structure of alkaloids, terpenoids, and steroids, their pharmacological properties (biological activities) and contraindications of them.		
<b>(B)Intellectual Skills:</b>		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	Teaching strategies to be used	Assessment Methods
Upon completion of this course, the students should be able to:		
b1- Apply the chromatographic techniques in phytochemical analysis of natural products (alkaloids, terpenoids).	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2- Correlate the chemical structure of natural products (alkaloids, terpenoids, steroids) with their pharmacological activity and predict of structural changes that modify the biological activity		
b3- Research about suitable methods for extraction; isolation of different compounds from natural origin		
<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills</i>	Teaching strategies to be used	Methods of assessment
Upon completion of this course, the students should be able to:		
c1- Perform suitable methods for extraction; isolation of alkaloids and terpenoids	Lectures, Laboratory work, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c2- Carry out different assay procedures for quantitative determination of alkaloids and terpenoids in their origin or preparations		
c3- Construct a research study about different chromatographic techniques.		
<b>(D)General/ Transferable Skills:</b>		

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.					
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills			Teaching strategies to be used	Methods of assessment	
Upon completion of this course, the students should be able to:			Small group discussions, practical classes and micro assignments	Reports, presentations and communication with the lecturer and his colleagues.	
d1- Write reports about the chemistry natural products such as alkaloids, terpenoids, steroids and their isolation and present them.					
d2- Cooperate effectively with other people, work in teamwork, team planning and manage times					
d3 Evaluate information from different sources, demonstrate critical thinking, problem solving and decision making abilities.					
V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Chromatography	- Introduction, classification, and general concepts (adsorption and partition chromatography) - Separation techniques	1	3	a1, b3, c3, d2, d3
2		Types of chromatographic methods: Column chromatography (CC), Paper chromatography, Thin layer chromatography (TLC).	1	3	a1, b3, c3, d2, d3
3		Types of chromatographic methods: Gas chromatography (GC), High performance liquid chromatography (HPLC), Ion exchange chromatography and Gel chromatography.	1	3	a1, b3, c3, d2, d3
4	Alkaloids	Definition, classification, distribution, functions, function in plant, properties, extraction, uses. Phenylalkylamine alk.; Ephedra, khat. Capsicum.	1	3	a2, a3, a4, a5, b1, b2, b3, c1, c2, d1, d2, d3



5		Tropolone alk.; Colchicum, Pyridine and piperidine; tobacco, Pepper, Pomegranate Tropane alk.; Belladonna, Coca, Quinoline alk; cinchona alk	1	3	a2, a4, a5, b1, b2, b3, c1, c2, d1, d2, d3
6		Isoquinoline alk; opium alk, (Phenanthrene): morphine, Codeine, thebaine; benzylisoquinoline alk: papaverine; phthalidisoquinoline; ipecacuanha alk.	1	3	a2, a4, a5, b1, b2, b3, c1, c2, d1, d2, d3
7		Mid exam	1	3	a1, a2, a3, a4, a5, b2, d3
8	Alkaloids	Indol alk; phystostigma, ergot, Nux vomica, Vinca, Rauwolfia Purine alk.; caffeine, theophylline, theobromine imidazol alk; pilocarpus alk, Terpenoid alk; aconitine, taxol alk	1	3	a2, a4, a5, b1, b2, b3, c1, c2, d1, d2, d3
9		Definition, classification, distribution, extraction, functions Monoterpenes; Classification, extraction and characterization, plant containing regular monoterpene, valerian, olea europae, Irregular monoterpene, pyrethrum.	1	٣	a2, a3, a4, a5, b1, b2, b3, c1, c2, d1, d2, d3
10	Terpenoids	Sesquiterpene; Structure, chemical and biological properties; gossypol compound, sesquiterpene lactones; arnica, sweet wormwood Diterpene Structure, chemical and biological properties; yews, coleus.	1	٣	a2, a3, a4, a5, b1, b2, b3, c1, c2, d1, d2, d3
11		Triterpenes ;Classification, structures, cucurbitacines Tetraterpenoids: Biological origin, distribution, uses, drug containing tetraterpenoids	1	٣	a2, a4, a5, b1, b2, b3, c1, c2, d1, d2, d3
12	Steroids	Definition, Classification, Structures, Sterols, Vitamin D, Bile acids: Sources, structure, action, clinical uses.	1	٣	a2, a3, a4, a5, b2, d1, d2, d3



13		Steroid hormones: (sex hormones and adrenocortical hormones)	1	3	a2, a4, a5, b2, d1, d2, d
14		Final exam	1	3	a1, a2, a3, a4, a5, b1, b2, d1, d2, d3
Number of Weeks/and Units Per First semester4				42	

b - PracticalAspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Adsorption chromatography; column chromatography (column packaging)	1	2	a1, b1, b3, c3, d2, d3
2	Separation of plant pigments (Extraction by column chromatography)	1	2	a1, a4, b1, b3, c1, c3, d2, d3
3	Partition chromatography; paper chromatography	1	2	a1, b1, b3, c3, d2, d3
4	Partition chromatography; Thin layer chromatography	1	2	a1, b1, b3, c3, d2, d3
5	Extraction and identification of alkaloids derived from Phenylalkylamine (khat, capsicum)	1	2	a2, a3, a4, b1, c1, c2, d2, d3
6	Extraction and identification of alkaloids derived from piperidine (Pomegranate)	1	2	a2, a3, a4, b1, c1, c2, d2, d3
7	Extraction and identification of alkaloids derived from tropane (Stramonium)	1	2	a2, a3, a4, b1, c1, c2, d2, d3
8	Extraction and identification of alkaloids derived from purine (caffeine)	1	2	a2, a3, a4, b1, c1, c2, d2, d3
9	Extraction and identification of alkaloid derived from phthalidisoquinoline (ipecacuanha)	1	2	a2, a3, a4, b1, c1, c2, d2, d3
10	Extraction and identification of terpenoids (Colocynth)	1	2	a2, a3, a4, b1, c1, c2, d2, d3
	Final Exam	1	2	a2, a3, a4, b1, c1, c2, d2, d3
Number of Weeks/and Units Per First semester1			22	

#### VI. Teaching Strategies:

- Lectures using board and makers, data show, video animation and seminars
- Solving Problem method, Laboratory work, independent study and discussion

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Seminar	a2, a3, a4, a5, b2, b3, d1, d2, d3	3, 5, 9	5
2	Projects	a2, a4, a5, b2, b3, c3, d1, d2, d3	11, 12, 13	

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Seminar and project	3, 5, 9, 11-13	5	5%	a2, a4, a5, b2, b3, c3, d1, d2, d3
2	Practical Reports	1-10	10	10%	a3, a4, b1, b2, c1, c2, d1
3	Quizzes	4, 6, 8, 10	5	5%	a1, a2, a3, a5, b2, d3
4	Written Test (1)	7	10	10%	a1, a2, a3, a5, b2, d3
5	Final Exam (practical)	12	20	20%	a3, a4, b1, b2, c1, c2, d1
6	Final Exam (theoretical)	14	50	50%	a1, a2, a3, a4, a5, b2, d3
	Total		100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York
- 2- Jarald E.E. and Jarald S. E., "Textbook of Pharmacognosy and Phytochemistry" (2009); CBS Publishers and Distributors, New Delhi

##### 2-Recommended Books and Reference Materials.

- 1- Steven M. Colegate and Russell J. Molyneux. "Bioactive natural products : detection, isolation, and structural determination" (2008); Seconded, editor.
- 2- Cordell G.A. "The alkaloids: Chemistry and Biology" (2002); Volume 59, Elsevier, New York

##### 3-Electronic Materials and Web Sites *etc.*

- 1- <http://www.Phytomania.org>.
- 2- <http://www.medicalbotanyintroduction.html>.

3- <http://www.botanical.com>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Fourth year: second semester

## Course Specification of Medicinal Chemistry II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I.General Information:						
1	Course Title:	Medicinal Chemistry II				
2	Course Number and Code:	B11436				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	Second semester/Fourthyear				
5	Pre –requisite :	Medicinal chemistry I				
6	Co –requisite :	Pharmacology IV				
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy				
10	Approved By:					

II.Course Description:	
The course covers the medicinal chemistry of cardiovascular agents, central nervous system drugs, diuretics, anti-inflammatory and antihistamines. The course also practices the qualitative and quantitative analysis of some drugs.	

III. ILOs:	
At the end of this course the students should be able to:	
<ol style="list-style-type: none"> <li>1. Describe the mechanism of action of studied classes of drugs</li> <li>2. Recognize the synthesis of some studied classes of drugs</li> <li>3. Illustrate the SAR of studied categories</li> <li>4. Explain the metabolism of studied classes of drugs.</li> <li>5. Suggest possible metabolites of different classes of drugs</li> <li>6. Identify the SAR of studied categories of drugs</li> <li>7. Analyze the result of assay of some studied drugs</li> <li>8. Design and evaluate qualitative and quantitative analysis of some drugs</li> <li>9. Handle and dispose the chemical and pharmaceutical preparations safely and effectively.</li> <li>10. Operate different equipment used in the lab</li> </ol>	

11. Determine the quantitative assay of some drugs
12. Carry out the qualitative analysis of some drugs
13. Cooperate with his colleagues to prepare a scientific topic.
14. Implement writing and presentation skills
15. Work effectively in a team.
16. Demonstrate creativity and time management

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> After completing this program, students would be able to:	<i>Teaching strategies to be used.</i>	Assessment Methods.
a1-Describe the mechanism of action of studied classes of drugs	Lectures using data show video.	MCQ Oral Exam, Quizzes, exam, short answers Homework and Participation.
a2-Recognize the synthesis of some studied classes of drugs		
a3- Illustrate the SAR of studied categories		
a4- Explain the metabolism of studied classes of drugs.		

##### (B) Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> After completing this program, students would be able to:	Teaching strategies to be used	Assessment Methods
b1-Suggest possible metabolites of different classes of drugs	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-Identify the SAR of studied categories of drugs		
b3-Analyze the result of assay of some studied drugs.		
b4-Design and evaluate qualitative and quantitative analysis of some drugs.		

##### (C) Professional and Practical Skills.

##### Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
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After completing this program, students would be able to:		
c1-Handle and dispose the chemical and pharmaceutical preparations safely and effectively.	Lectures, Practical works, And Group assignments.	Practical reports, And practical reports.
c2-Operate different equipment used in the lab		
c3-Determine the quantitative assay of some drugs		
c4-Carry out the qualitative analysis of some drugs		
<b>(D) General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills After completing this program, students would be able to:	Teaching strategies to be used	Methods of assessment
d1- Cooperate with his colleagues to prepare a scientific topic.	Small group discussions Practical classes	reports, presentations and communication with the lecturer and his colleagues.
d2- Implement writing and presentation skills		
d3- Work effectively in a team.		
d4- Demonstrate creativity and time management		

<b>V. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Cardiovascular drug I	Antihypertensive agents	1	2	a1, a2, a3, a4, b1, b2, d1, d2, d4
2	Cardiovascular drug II	Antiarrhythmic drugs	1	2	a2, a3, a4, b1, b2, d1, d2, d3, d4



3	Cardiovascular drug III	Antiarrhythmic drugs and Antihyperlipidemic agents.	1	2	a1, a3, a4, b1, d1, d2, d3
4	Cardiovascular drug IV	Anti-coagulant, Haemostatics and Cardiotonics.	1	2	a2, a3, a4, b1, d1, d2
5	Diuretics	CAI, Thiazides, Osmotics, Loop and K-Sparing Diuretics.	1	2	a1, a2, a4, b1, b2, d1, d3, d4
6	CNS Drugs I	Sedatives and hypnotics	1	2	a2, a3, a4, b1 d1, d4
7	Midterm Exam		1	2	a1-a4, b1-b4
8	CNS Drugs II	Skeletal Muscle Relaxants and anticonvulsants	1	2	a1, a2, b1, b2, d3, d4
9	CNS Drugs III	Anti-psychotic drugs [Neuroleptics] [Major tranquilizer]	1	2	a2, a3, a4, b1, b2, d1, d3, d4
10	CNS Drugs IV	Antidepressants agents and antiparkinsonism	1	2	a1, a4, b1, b2, d1, d2
11	Anti-inflammatory agents	Salicylates, anthranilates arylacetic acid, arylpropionic acid pyrazolidiones, oxicames, cox-II inhibitor, analgesics antipyretics and antigout	2	4	a1, a2, a3, b2, d3, d4
12	Opioids and local anesthetics	<u>Opioids</u> classification, opioid receptor SAR, <u>local anesthetics</u> ester local anesthetic, amide local anesthetic, synthesis, SAR	1	2	a1, a2, b1, b2, d1, d2, d4



13	antihistamines	<u>H1- antihistamines</u> <u>SAR</u> first generation, Secondgeneration <u>H2- antihistamines</u>	2	4	a1, a3, b1, b2, d2, d3,
14	Final Exam		1	2	a1-a4, b1-b4
Number of Weeks/and Units Per Semester				32	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Identification of aspirin	1	3	a1, b3, b4, c1, c2, c4, d1, d2, d3, d4
2	Assay of aspirin	1	3	b4, c1, c2, c3
3	Qualitative and quantitative analysis of chloral hydrate	1	3	a1, b4, c1, c2, c3, d3, d4
4	Synthesis of aspirin	2	6	c1, c2, c3, d1, d2
5	Assay of naproxen	1	3	a1, c1, c2, c3, d1, d2, d3
6	Assay of ibuprofen tab	1	3	b3, c1, c2, c3, d3, d4
7	Identification of ranitidine	1	3	a1, b3, c1, c2, c4, d1, d2
8	Assay of ranitidine	1	3	a1, b3, b4, c1, c2, c3, d1, d2, d3, d4
9	Identification of Propranolol	1	3	b3, b4, c1, c2, c4, d1, d2, d3, d4
10	Assay of Propranolol	1	3	a1, b4, c1, c2, c3, d1, d2, d3
11	Final Exam	1	3	a1, b4, c1-c4, d1, d2, d3
Number of Weeks/and Units Per Semester			36	

VI. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions, Tutorials and Practical classes

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-4, d1-d3	5	5

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1-4, b1-4, d1-d3
2	Practical reports	1-9	10	10%	a1-4, b1-4, d1-d3
3	Oral Tests	5, 9	5	5%	, a1-a4, b1-b4
4	Written Test (1)	7	10	10%	a1-4, b1-4
5	Final Exam (theoretical)	14	50	50%	a1-4, b1-4
6	Final Exam (practical)	11	20	20%	b1-4, c1-c4, d1-d3
7			100	100%	

IX. Learning Resources:	
<b>1-Required Textbook(s) ( maximum two ).</b>	
	<p>1- John M. Beale, Jr. and John H. Block, "Text book of Organic Medicinal and Pharmaceutical Chemistry", 2011, 12th Edition, Wilson and Gisvold, Lippincott Williams and Wilkins, A Wolters Kluwer Company, Philadelphia.</p> <p>2- Graham L. Patrick, "An Introduction to Medicinal Chemistry", 2009, Fourth Edition, Oxford University Press Inc., New York</p>
<b>2-Recommended Books and Reference Materials.</b>	
	<p>1- Thomas Nogrady, Donald F. Weaver. Medicinal Chemistry A Molecular and Biochem Approach, 2005, Third edition, Oxford University Press, Inc., New York.</p> <p>2- Donald J. Abraham, " BURGER'S Medicinal Chemistry and Drug Discovery" 6<sup>th</sup> edition, A John Wiley and Sons, Inc., Virginia.</p>



	<p>3- Thomas L. Lemke, Victoria F. Roche, David A. Williams and S. William Zito "Foye's Principles of Medicinal Chemistry", 2008, 6<sup>th</sup>, Edition, Lippincott Williams and Wilkins, a Wolters Kluwer business, Philadelphia.</p> <p>4- PovlKrogsgaard-Larsen, TommyLiljefors andUlf Madsen, "Textbook of Drug Design andDiscovery".2002, Third edition, Taylor and Francis, London.</p> <p>5- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook"2006, Springer-Verlag Berlin Heidelberg, Berlin.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1- <a href="http://www.chemaxon/marvin">http://www.chemaxon/marvin</a></p> <p>2-<a href="http://www.webmolecules.com">http://www.webmolecules.com</a></p> <p>3-<a href="http://www.acdlabs.com">http://www.acdlabs.com</a></p> <p>4-PASSPrediction of Activity Spectra for Substance) (<a href="http://www.ibmh.msk.su/PASS">http://www.ibmh.msk.su/PASS</a>).</p>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> </ul>

	<ul style="list-style-type: none"><li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>The students have to submit the assignment or project on time.</li><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Biopharmaceutics and Pharmacokinetics II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Biopharmaceutics and Pharmacokinetics II				
2	Course Number and Code:	<b>B11459</b>				
3	Credit hours: 3 hrs.	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2				2
4	Study level/year at which this course is offered:	<i>Second semester/Fourth year</i>				
5	Pre –requisite :	Biopharmaceutics and pharmacokinetics I				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Mohammed Addoais				
10	Approved By:					

II. Course Description:	
<p>The course will introduce the student to the changes in the drug's absorption, distribution and elimination with time following one compartment I.V bolus, oral absorption and I.V infusion. It provides students with principle of the linear and non-linear pharmacokinetic models and their application. The principles of clinical pharmacokinetics are also introduced in order to be able to formulate or modify drug dose-regimens according to the need of patients.</p>	

III. ILOs: at end of the course students will be to:	
<ol style="list-style-type: none"> <li>1. Define pharmacokinetics terms</li> <li>2. Explain kinetics orders</li> <li>3. Describe the pharmacokinetic models.</li> <li>4. Differentiate between first order and zero order kinetics</li> <li>5. Categorize factors affecting drug plasma level .</li> <li>6. Distinguish between oral and intravenous infusion kinetics .</li> </ol>	

7. Design of bioavailability and bioequivalence studies
8. Calculate the pharmacokinetic parameters
9. Measures of bioavailability, Cmax, tmax and Area Under Curve (AUC)
10. Draw pharmacokinetic plasma-time level curve
11. Estimate the dose and dosing interval
12. Judge experimental data and write scientific conclusions

IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Define pharmacokinetics terms	Lectures using data show Video animation and seminars	Quiz Written exam
a2-Explain kinetics orders		
a3-Describe the pharmacokinetic models.		
(B)Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b1-Differentiate between first order and zero order kinetics	Group discussion Lecture	Oral exam Presentation Quiz
b2-Categorize factors affecting drug plasma level.		
b3-Distinguish between oral and intravenous infusion kinetics.		
b4-Design of bioavailability and bioequivalence studies		
(C)Professional and Practical Skills.		
Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
<i>At end of the course students will be able to:</i>		
c1- Calculate the pharmacokinetic parameters	Practical work	Practical reports, Written exam
c2-Measure of bioavailability, Cmax, tmax and Area Under Curve (AUC).		
c3- Draw pharmacokinetic plasma-time level curve		



c4- Estimate dose and dosing interval		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<b>Course Intended Learning Outcomes (CILOs) in General and Transferable Skills</b> <i>At end of the course students will be able to:</i>	<b>Teaching strategies to be used</b>	<b>Methods of assessment</b>
d1-Judge experimental data and write scientific conclusions	Practical classes	Report

<b>V. Course Content:</b>					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to pharmacokinetics	<ul style="list-style-type: none"> <li>• Terminology and definitions</li> <li>• Rates and orders</li> <li>• Kinetic of drug absorption</li> <li>• Compartment models                             <ul style="list-style-type: none"> <li>○ Definition</li> <li>○ Basis of Classification</li> <li>○ Model selection criteria</li> </ul> </li> </ul>	2	4	a1, a2, a3, b1, b2, c3, d1
2	One compartment open model	<ul style="list-style-type: none"> <li>• Calculation of the following parameters ( for each model)                             <ul style="list-style-type: none"> <li>○ Volume of Distribution</li> <li>○ Elimination Rate Constant</li> <li>○ Clearance</li> <li>○ Elimination half life</li> <li>○ AUC</li> <li>○ Concentration at zero time.</li> </ul> </li> <li>• One Compartment I.V Bolus                             <ul style="list-style-type: none"> <li>○ Assumptions</li> <li>○ First-order kinetics</li> <li>○ Plasma data</li> <li>○ Area under the Curve</li> <li>○ Half-life</li> </ul> </li> <li>• Pharmacokinetics of Oral Administration                             <ul style="list-style-type: none"> <li>○ Differential Equation</li> <li>○ Integrated Equation</li> <li>○ Absorption Rate Constant (K)</li> </ul> </li> </ul>	4	8	a3, b2, b3, c2, c3, d1

		<ul style="list-style-type: none"> <li>▪ Wagner nelson</li> <li>▪ Method of residual               <ul style="list-style-type: none"> <li>○ Extent of Absorption</li> </ul> </li> <li>• Calculation of Bioavailability Parameters:               <ul style="list-style-type: none"> <li>○ Calculation of <math>K_a</math></li> <li>○ Calculation of <math>F</math></li> </ul> </li> <li>• Intravenous Infusion:               <ul style="list-style-type: none"> <li>○ Continuous infusion – steady state</li> <li>○ Combined infusion and bolus administration</li> <li>○ Combined slow and fast infusion</li> <li>○ Post infusion</li> </ul> </li> </ul>			
3	Midterm exam		1	2	a1, a2, a3, b1, b2, d1
4	Two compartment open model with first order elimination kinetics	<ul style="list-style-type: none"> <li>• Pharmacokinetics of single dose as oral and intravenous (rapid/bolus.)</li> <li>• Intravenous infusion</li> <li>• Multiple oral and intravenous administrations.</li> <li>• Pharmacokinetic of sustained releases formulation</li> </ul>	2	4	c4, c1, c2, c4, d1
5	Non-linear pharmacokinetics(dose dependent kinetics)	<ul style="list-style-type: none"> <li>• Michaels- Menten's kinetics</li> <li>• Pharmacokinetic characteristics.</li> <li>• In-vivo estimation of <math>K_m</math> and <math>V_m</math></li> </ul>	2	4	c1, c2, c4, d1
6	Multiple Administration:	<ul style="list-style-type: none"> <li>• Multiple I.V Bolus Dose               <ul style="list-style-type: none"> <li>○ Independent doses</li> <li>○ Accumulating doses</li> <li>○ Development of general equation</li> <li>○ <math>C_{pmax}</math> and <math>C_{pmin}</math> equations</li> </ul> </li> <li>• Multiple Oral Dose Administration:               <ul style="list-style-type: none"> <li>○ <math>C_{pmin}</math> equation</li> <li>○ Average <math>C_p</math> equation</li> </ul> </li> </ul>	2	4	c4, c1, c2, c4, d1
7	Dosage regimen design	<ul style="list-style-type: none"> <li>• Calculation the dose</li> <li>• Calculation dosing interval</li> <li>• Average concentration</li> </ul>	2	4	b3, c1, d1



8		Final exam	1	2	a1, a2, a3, b1, b2, b3, b4, c3, d1
Number of Weeks/and Units Per Semester			16	32	

#### VI. Teaching Strategies:

- Lectures using data show
- Video animation and seminars
- Laboratory work
- Directed reading
- Group discussion

#### VII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Practical Reports	6	10	10%	b1, b2, b3, b4, c1, c2, c3, c4, d1
2	Oral Tests	12	5	5%	a1, a2, a3, b1, b2, b3, b4, c3, d1
3	Quizzes	2, 5, 12	5	5%	a1, a2, a3, b1, b2, b3, b4, c3, d1
4	Written Test (midterm exam )	8	10	10%	a1, a2, a3, b1, b2, b3, b4, c3, d1
5	Final Exam (practical)	14	20	20%	b1, b2, b3, b4, c1, c2, c3, c4, d1
6	Final Exam (theoretical)	16	50	50%	a1, a2, a3, b1, b2, b3, b4, c3, d1
Total			100	100%	

#### VIII. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- |    |   |
|----|---|
| 1. | 1. Leon Shargel Andrew (2012). Applied Biopharmaceutics and Pharmacokinetics, Sixth edition, lippincotts and William, Philadelphia. |
|----|---|

1.	
	1. Michel E. Winter ( 2011). Basic clinical pharmacokinetics, Fifth edition, lippincotts and William, San Fransisco.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.boomer.org">www.boomer.org</a>

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> </ul>



	<ul style="list-style-type: none"><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Phytochemistry II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Phytochemistry II				
2	Course Number and Code:	B11475				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3	1			4
4	Study level/year at which this course is offered:	First semester/Fourth year				
5	Pre –requisite :	Phytochemistry I				
6	Co –requisite :					
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Bushra Moharam and Wedad Mansour				
10	Approved By:					

II. Course Description:	
<p>The course provides information on the importance of naturally occurring products from their chemical, pharmaceutical to therapeutic applications. It also deals with their isolation and identification using chromatographic methods.</p>	

III. ILOs:	
<p>Upon completion of this course, the students should be able to</p> <ol style="list-style-type: none"> <li>1- Identify the different classes of biologically active compounds of natural origin glycosides, volatile oils, tannins and phenylpropanoids their distribution in nature and classification.</li> <li>2- Explain physico-chemical properties of substances of glycosides, volatile oils, tannins and phenylpropanoids</li> </ol>	



- 3- Recognize the methods of extraction, separation and purification of the constituents of natural products such as glycosides, volatile oils, tannins and phenylpropanoids
- 4- Describe the chemical structure of glycosides, volatile oils, tannins and phenylpropanoids, their pharmacological properties (biological activities) and contraindications of them.
- 5- Apply the chromatographic techniques in phytochemical analysis of natural products (glycosides, volatile oils, tannins and phenylpropanoids).
- 6- Correlate the chemical structure of natural products (glycosides, volatile oils, tannins and phenylpropanoids) with their pharmacological activity and predict of structural changes that modify the biological activity.
- 7- Research about suitable methods for extraction; isolation of different compounds from natural origin
- 8- Perform suitable methods for extraction; isolation of glycosides, volatile oils, tannins and phenylpropanoids
- 9- Carry out different assay procedures for quantitative determination of glycosides, volatile oils, tannins and phenylpropanoids in their origin or preparations
- 10- Write reports about the chemistry natural products such as glycosides, volatile oils, tannins and phenylpropanoids and their isolation and present them.
- 11- Cooperate effectively with other people, work in teamwork, team planning and manage times

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
Upon completion of this course, the students should be able to	Lectures using boards and markers, data show, video animation and seminars	Quizzes, Written exam, homework and participation.
a1- Identify the different classes of biologically active compounds of natural origin glycosides, volatile oils, tannins and phenylpropanoids their distribution in nature and classification.		
a2- Explain physico-chemical properties of substances of glycosides, volatile oils, tannins and phenylpropanoids		
a3- Recognize the methods of extraction, separation and purification of the constituents of natural products		

such as glycosides, volatile oils, tannins and phenylpropanoids		
a4- Describe the chemical structure of glycosides, volatile oils, tannins and phenylpropanoids, their pharmacological properties (biological activities) and contraindications of them.		
<b>(B)Intellectual Skills:</b>		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	Teaching strategies to be used	Assessment Methods
Upon completion of this course, the students should be able to		
b1- Apply the chromatographic techniques in phytochemical analysis of natural products (glycosides, volatile oils, tannins and phenylpropanoids).	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2- Correlate the chemical structure of natural products (glycosides, volatile oils, tannins and phenylpropanoids) with their pharmacological activity and predict of structural changes that modify the biological activity		
b3- Research about suitable methods for extraction; isolation of different compounds from natural origin		
<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) inProfessional and Practical Skills</i>	Teaching strategies to be used	Methods of assessment
Upon completion of this course, the students should be able to		
c1- Perform suitable methods for extraction; isolation of glycosides, volatile oils, tannins and phenylpropanoids	Lectures, Laboratory work, independent study and Group assignments.	Practical works, practical reports and presentations based on their experimental work.
c2- Carry out different assay procedures for quantitative determination of glycosides, volatile oils, tannins and phenylpropanoids in their origin or preparations		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<i>Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills</i>	Teaching strategies to be used	Methods of assessment
Upon completion of this course, the students should be able to		Reports, presentations and



d1- Write reports about the chemistry natural products such as glycosides, volatile oils, tannins and phenylpropanoids and their isolation and present them.	Small group discussions, practical classes and micro assignments	communication with the lecturer and his colleagues.
d2- Cooperate effectively with other people, work in teamwork, team planning and manage times		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Glycosides	Definition, distribution, properties, classification and nomenclature, Cardiac glycosides; definition, structures, cardenolides, bufadienolids, structure of sugar moiety, structure activity relationship, Biogenesis of card. Gly.,	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
2		Cardiac gly; physicochemical properties, hydrolysis of card. Gly., isolation, pharmacological properties, mechanism of action Chemical test of card. Gly., drug containing card. Gly.; digitalis purpurea, digitalis lanata. Bufadienolids,	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
3		Saponin gly.; ; definition, classification, distribution, extraction, chemical and physical properties, characterization biological and pharmacological properties, drugs as expectorant and antitusive, anti-exudative, adaptogens and diuretic.	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2

4		Anthracen gly; definition, classification, distribution, extraction, chemical and physical properties, characterization biological and pharmacological properties, drugs as Senna, Rhabarub, Aloe.	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
5		Flavonoid gly; classification, chemical structure, physico-chemical properties, extraction, characterization, biological properties, rutin, hesperidin, flavonoid containing drugs.	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
6		Cyanogenic gly; cyanogenesis, distribution, structure, properties, detection, extraction, pharmacological activities, cyanogenetic plants. Glucosinolates; definition, distribution, structure, biogenesis, hydrolysis, toxicity and drug containing glucosinolates	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
7		Mid exam	1	3	a1, a2, a3, a4, b2
8		Definition, distribution, physical properties, method of isolation, chemical composition, Pharmacological properties,	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
9	Volatile oils	Drugs containing v.o. used as counter irritant agents, drug containing v.o. used as expectorants,	1	3	a1, a3, a4, b1, b2, b3, c1, c2, d1, d2
10		Drugs containing v.o. used as diuretic, drug containing v.o. used as stomachic and carminative.	1	3	a1, a3, a4, b1, b2, b3, c1, c2, d1, d2

11	Tannins	Definition, classification, structure, hydrolysable- and condensed-, complex and pseudo-tannins, distribution, biosynthesis, physico-chemical properties, extraction, characterization, biological properties, drug containing tannin	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
12	Phenylpropanoids	Definition, classification, biosynthesis, phenols and phenolic acids:, structure, physico-chemical properties, characterization, extraction, biological properties, drug containing phenols and phenolic acids. cumarins; definition, structure classification, biosynthesis, physico-chemical properties, characterization, extraction, biological properties, uses,	1	3	a1, a2, a3, a4, b1, b2, b3, c1, c2, d1, d2
13		Drug containing cumarins, furocoumarin, pyranocoumarines. Lignans; definition, classification, biological properties, uses, drug containing lignans. Lignin: definition, structure, biological and pharmacological properties of some lignins	1	3	a1, a3, a4, b1, b2, b3, c1, c2, d1, d2
14		Final exam	1	3	a1, a2, a3, a4, b2,
Number of Weeks/and Units Per Semester			14	42	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Extraction and identification of cardiac gly. (Oleander)	1	2	a1, a2, a3, b1, c1, c2, d2
2	Extraction and identification of saponin gly. (Christ's thorn, Fenugreek)	1	2	a1, a2, a3, b1, c1, c2, d2
3	Extraction and identification of anthracene gly. (Senna, Aloe)	1	2	a1, a2, a3, b1, c1, c2, d2

4	Extraction and identification of flavonids (Orange, Ruta)	1	2	a1, a2, a3, b1, c1, c2, d2
5	Extraction and identification of cyanogenic gly (Linseed)	1	2	a1, a2, a3, b1, c1, c2, d2
6	Extraction and identification of glucosinolates gly (Mustard seeds)	1	2	a1, a2, a3, b1, c1, c2, d2
7	Extraction and identification of volatile oils (1)(Thyme)	1	2	a1, a2, a3, b1, c1, c2, d2
8	Extraction and identification of volatile oils (2) (Cinnamon)	1	2	a1, a2, a3, b1, c1, c2, d2
9	Extraction and identification of tannins (Tea, Galls)	1	2	a1, a2, a3, b1, c1, c2, d2
10	Extraction and identification of phenylpropanoids (Ammi visnaga)	1	2	a1, a2, a3, b1, c1, c2, d2
11	Final exam	1	2	a1, a2, a3, b1, c1, c2, d2
Number of Weeks/and Units Per First semester1			22	

#### VI. Teaching Strategies:

- Lectures using board and makers, data show, video animation and seminars
- Solving Problem method, Laboratory work, independent study and discussion

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	Seminar	a1, a3, a4, b2, b3, d1, d2	3, 5, 9	5
2	Projects	a1, a3, a4, b2, b3, d1, d2	11, 12, 13	

#### VIII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Seminar and project	3, 5, 9, 11-13	5	5%	a1, a3, a4, b2, b3, d1, d2
2	Practical Reports	1-10	10	10%	a2, a3, b1, b2, c1, c2, d1
3	Quizzes	4, 6, 8, 10	5	5%	a1, a2, a3, a4, b2

4	Written Test (1)	7	10	10%	a1, a2, a3, a4, b2
5	Final Exam (practical)	12	20	20%	a2, a3, b1, b2, c1, c2, d1
6	Final Exam (theoretical)	14	50	50%	a1, a2, a3, a4, b2
	Total		100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York
- 2- Jarald E.E. and Jarald S. E., "Textbook of Pharmacognosy and Phytochemistry" (2009); CBS Publishers and Distributors, New Delhi

##### 2-Recommended Books and Reference Materials.

- 1- Steven M. Colegate and Russell J. Molyneux. "Bioactive natural products : detection, isolation, and structural determination" (2008); Seconded, editor.
- 2- Cordell G.A. "The alkaloids: Chemistry and Biology" (2002); Volume 59, Elsevier, New York

##### 3-Electronic Materials and Web Sites *etc.*

- 1- <http://www.Phytomania.org>.
- 2- <http://www.medicalbotanyintroduction.html>.
- 3- <http://www.botanical.com>

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	Class Attendance: <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	(Tardy): Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.
3	(Exam Attendance/Punctuality): <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> </ul>

	<ul style="list-style-type: none"> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"> <li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>• Midterm Exam cheating results in giving the student a mark of zero</li> <li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li> <li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li> </ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"> <li>• Plagiarism will results in losing the marks of the assignments.</li> <li>• If the students personates other at examination time both will be suspended for a full academic year</li> </ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"> <li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li> <li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li> <li>• Eating or drinking is strictly prohibited.</li> </ul>



## Course Specification of Toxicology

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Toxicology				
2	Course Number and Code:	<b>B11465</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1	-	-	3
4	Study level/year at which this course is offered:	<i>Second Semester/Fourth year</i>				
5	Pre –requisite :					
6	Co –requisite :	Pharmacology IV				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Ali Al-Mehdar				
10	Approved By:					

II. Course Description:	
<p>The course designed to provide the student with the general principles of toxicology, prevention and management of poisoning, the mechanism(s) of toxicity of the drugs commonly used, different chemicals, radiation and radioactive materials and drugs affecting maternal, foetal and neonatal health. Also, signs and symptoms of toxicity and management of the cases are stressed. The different methods for identification of toxic substances are performed practically by the student.</p>	

### III. ILOs: At the end of this course student must be able to:

- 1- Recognize the general principles of poisoning management, actions, interactions, uses and toxicity of certain medications and chemicals.
- 2- Illustrate toxic profile of various drugs and other chemicals including sources, identification, symptoms, management, control and first aid measures.
- 3- Explain an overview of protocols for managing various toxic ingestions, the antidotes, and treatments associated with their pathology and appropriate medical intervention in emergency situations.
- 4- Identify clinical features of diseases regarding genetic abnormalities and toxicology of addiction.
- 5- Classify the consequences of ingesting prescription medicines, of exposure of non-therapeutic compounds and of the risk from environmental and biological threats to public safety.
- 6- Analyze the serious consequences of ingestion of toxic drugs and exposure to different chemicals.
- 7- Differentiate between different toxic agents regarding their clinical symptoms, as well as their main lines of toxicity management.
- 8- Evaluate the different methods for the management of poisoning in individual cases of toxicity.
- 9- Design a therapeutic plan for management of poisoning patient.
- 10- Observe, record and analyze the toxic effects of different drugs and chemical substances.
- 11- Handle safely with corrosive substances and other toxic compounds.
- 12- Determine the toxicity profiles of different chemicals and detect poisons in biological specimens.
- 13- Perform the different techniques for identification of toxic substances.
- 14- Plan and implement efficient and effective modes of working to manage patient toxicity through group discussions and participation in laboratory sessions.
- 15- Communicate effectively with other healthcare professionals in selection the suitable treatment of toxic cases.
- 16- Present information related to the patient's therapy clearly in written, electronic and verbal forms.
- 17- Adopt the principles of lifelong learning needed for continuous professional development and use computer effectively in reaching up to date information.



IV. Alignment Learning Outcomes with Teaching and Assessment Methods:		
Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of this course student must be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Recognize the general principles of poisoning management, actions, interactions, uses and toxicity of certain medications and chemicals.	Lectures – Group discussion	Written exams
a2- Illustrate toxic profile of various drugs and other chemicals including sources, identification, symptoms, management, control and first aid measures.		
a3- Explain an overview of protocols for managing various toxic ingestions, the antidotes, and treatments associated with their pathology and appropriate medical intervention in emergency situations.		
a4- Identify clinical features of diseases regarding genetic abnormalities and toxicology of addiction.		
a5- Classify the consequences of ingesting prescription medicines, of exposure of non-therapeutic compounds and of the risk from environmental and biological threats to public safety.		
(B) Intellectual Skills:		
Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At the end of this course student must be able to:	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1- Analyze the serious consequences of ingestion of toxic drugs and exposure to different chemicals.	Lectures – Group discussion	Written exams.
b2- Differentiate between different toxic agents regarding their clinical symptoms, as well as their main lines of toxicity management.		
b3- Evaluate the different methods for the management of poisoning in individual cases of toxicity.		
b4- Design a therapeutic plan for management of poisoning patient.		
(C) Professional and Practical Skills.		



Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills At the end of this course student must be able to:	Teaching strategies to be used	Methods of assessment
c1- Observe, record and analyze the toxic effects of different drugs and chemical substances.	Practical training in lab.	Practical exam
c2- Handle safely with corrosive substances and other toxic compounds.		
c3- Determine the toxicity profiles of different chemicals and detect poisons in biological specimens.		
c4- Perform the different techniques for identification of toxic substances.		
(D) General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills At the end of this course student must be able to:	Teaching strategies to be used	Methods of assessment
d1- Plan and implement efficient and effective modes of working to manage patient toxicity through group discussions and participation in laboratory sessions.	Group discussion – Role play. Seminars	Group discussion – Practical exam. Seminars
d2- Communicate effectively with other healthcare professionals in selection the suitable treatment of toxic cases.		
d3- Present information related to the patient`s therapy clearly in written, electronic and verbal forms.		
d4- Adopt the principles of lifelong learning needed for continuous professional development and use computer effectively in reaching up to date information.		

V. Course Content:

1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	General principles of toxicology:	- Toxicity, hazard, risk. - Branches of toxicology: Occupational, Environmental, Ecotoxicology, Analytical and Clinical.	1	2	a1-a2
2	Poisons:	- Types of exposure and toxic responses. - Spectrum of toxicity. - Evaluation of safety of chemicals and drugs.	1	2	a1-a3, b1
3	Prevention and management of poisoning:	- Poisoning episodes: Accidental, Suicidal, Homicidal, Non-accidental, Maintenance of vital functions	1	2	a1-a3, b1-b3
		- Antidotes: non-specific and specific Prevention of absorption of poisons, Enhanced elimination of poisons, Supportive management	1	2	
4	Poisoning with common drugs:	- Selected OTC Products: Aspirin, Paracetamol, Iron.	2	4	a3-a5, b1-b4
		- CNS Depressants: Barbiturates and Benzodiazepines.			
		- CNS Stimulants: Amphetamine and Cocaine.			
5	Corrosive acids:	- Sulphuric acid, hydrochloric acid, nitric acid (Characters, fatal dose and fatal period, mode of poisoning and picture of poisoning).	1	2	a3-a5, b1-b4



6	Irritant poisons & Corrosive alkalis:	- Arsenic, lead, mercury and iron (Characters, sources, fatal dose and fatal period, mode of poisoning and picture of poisoning). Mode of poisoning - Picture of poisoning - Fatal dose and fatal period	1	2	a3-a5, b1-b4
7	Midterm exam		1	2	a3-a5, b1-b4
8	Pesticides & Plant poisons:	Halogenated and cholinesterase inhibitor insecticides Rodenticides, Herbicides, Fungicides Atropine, opium, nicotine, cannabis, and cocaine (Source, fatal dose and fatal period, mode of poisoning and picture of poisoning).	1	2	a3-a5, b1-b4
9	Gas and volatile poisons: Animal poison:	- Cyanide, ethyl alcohol and methyl alcohol (Characters, fatal dose and fatal period, mode of poisoning and picture of poisoning). - Carbon monoxide (CO-Hb) (detection, and Met-Hb – detection) - Snake bite and scorpion sting. (Fatal dose and fatal period, mode of poisoning and picture of poisoning).	1	2	a3-a5, b1-b4
10	Teratogenic and toxic effects of drugs and chemicals on reproduction:	- Possible site of action of teratogens: Effects on father, mother, fetal-placental unit and fetus. Principles of teratology as applied to man: Stages of pregnancy, drug dosage, placental transfer, use of drugs during pregnancy.	1	2	a5, b1



11	Final Exam	1	2	A1-a5, b1-b4
Number of Weeks/and Units Per Semester			24	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Introduction to the different ways and techniques for identification of different toxic substances (extraction and detection) Supportive measures in poisoned patients (Gastric lavage, induction of emesis, ....etc)	1	2	c1, d1-d2
2	Detection of corrosive acids Detection of corrosive alkalis	1	2	c1, d1-d2
3	Detection of carbolic acid (phenols) Detection of heavy metals	1	2	c1-c4, d1-d2
4	Detection of some analgesic drugs (aspirin and paracetamol) Detection of sedatives and hypnotics (barbiturates and benzodiazepines)	1	2	c1-c4, d1-d2
5	Detection of CNS depressants (opioids) Detection of CNS stimulants (amphetamine)	1	2	c1-c4, d1-d2
6	Detection of pesticides Detection of volatile poisons	1	2	c1-c4, d1-d2
7	Final Exam	1	2	c1-c4, d1-d2
Number of Weeks/and Units Per Semester			14	

VI. Teaching Strategies:
1- Lectures using PowerPoint and data show
2- Laboratory sessions (Practical training).
4- Group discussion.
5- Seminars.



VII. Assignments and projects:				
No	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-4, d1-d3	12	5

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Practical reports	1-12	10	10%	c1-c4, d1-d2
2	Written Med-term Test	8	15	15%	a1-a5, b1-b4
3	Final Exam (practical)	14	20	20%	c1-c4, d1-d2
4	Project	12	5	5%	a1-4, b1-4, d1-d3
5	Final Exam (theoretical)	16	50	50%	a1-a5, b1-b4
6	Total		100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Curtis Klaassen (2013), Casarett and Doull's Toxicology: Basic Science of Poisons. 8 <sup>th</sup> Edition, McGraw Hill, New York.
2-Recommended Books and Reference Materials.	
	1- Ernest Hodgson (2010), A Textbook of Modern Toxicology, Fourth Edition. WILEY interscience.
	2- Kent Olson (2011), Poisoning and Drug Overdose, Sixth Edition McGraw Hill Professional
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://toxnet.nlm.nih.gov/">http://toxnet.nlm.nih.gov/</a> 2- <a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi</a> 3- <a href="http://www.PubMed.com">http://www.PubMed.com</a>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"> <li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>Midterm Exam cheating results in giving the student a mark of zero</li> <li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li> <li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li> </ul>



6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>





## Course Specification of Parasitology

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Parasitology				
2	Course Number and Code:	B11347				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	Second semester/ Third year				
5	Pre –requisite :	General biology				
6	Co –requisite :					
7	Program (s) in which the course is offered:	None				
8	Language of teaching the course:	English –Arabic				
9	Prepared By:	Dr. Jamil Salim Mubarak				
10	Approved By:					

II. Course Description:	
<p>The course deals with parasites that live inside the human body (host) and outside (the vector). It includes the parasites classification, geographical distribution, habitat, morphology, life cycle, treatment, diagnosis, epidemiology, prevention and control.</p>	

III. ILOs:	
<p>At the end of this course students should be able to:</p> <ol style="list-style-type: none"> <li>1. Define the medical terms and classification of the parasites and vectors that are involved in human diseases infection.</li> <li>2. Illustrate the geographical distribution and habitat internally and externally of the parasite.</li> <li>3. Identify the different stages of the parasite and its vector microscopically.</li> <li>4. Analyze the morphology and stages of the parasite inside the host and vector.</li> </ol>	

5. Distinguish the life cycle of the parasite in the host and vector.
6. Implement the methods of diagnosis that will lead to the identification of the parasites and vectors.
7. Administer the treatment, epidemiology, prevention and control of the parasite and vector.
8. Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.
9. Demonstrate critical thinking and decision making abilities and long life learning.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

At the end of this course students should be able to:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>		<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1	Define the medical terms and classification of the parasites and vectors that are involved in human diseases infection.	Lectures using data show and seminars	Quizzes, written exam, and participation
a 2	Illustrate the geographical distribution and habitat internally and externally of the parasite.		
a3	Identify the different stages of the parasite and its vector microscopically.		

#### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:  
At the end of this course students should be able to:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>		<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1	Analyze the morphology and stages of the parasite inside the host and vector.	Lectures, practice session, Discussion, solving problem methods	Oral presentation, evaluation, interpretative exercises
b2	Distinguish the life cycle of the parasite in the host and vector.		

#### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:			
At the end of this course students should be able to:			
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills		Teaching strategies to be used	Methods of assessment
c1	Implement the methods of diagnosis that will lead to the identification of the parasites and vectors.	Lectures, laboratory work, directed reading, and Group assignments	Practical works, practical reports and presentation based on experimental work
c2	Administer the treatment, epidemiology, prevention and control of the parasite and vector.		
(D) General/ Transferable Skills:			
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.			
At the end of this course students should be able to:			
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills		Teaching strategies to be used	Methods of assessment
d1	Show the appropriate responsibility, self-confidence, and ethical attitudes and behaviors.	Small group discussions, Practical classes	Reports, presentation and communication with the lecturer and students
d2	Demonstrate critical thinking and decision making abilities and long life learning.		

Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Schistosomiasis	S. mansoni S. haematobium S. japonicum	1	2	a1, a2, b1, b2
2	Fascioliasis	F. hepatica F. gigantica	1	2	a1, a3, b2, d2
3	Taeniasis	T. saginata T. solium Cysticercosis	1	2	a2, a3, b1, b2, d1-2
4	Hymenolepis and Diphyllbothriasis	H. nana H. diminuta	1	2	a1, a2, a3, b1, b2, d1, d2
5	Ascaris lumbricoides, Enterobius		1	2	a1, a2, a3, b1, b2, d1, d2

	vermicularis & Trichuris				
6	Hook worm & Filariasi	1. Wuchereria bancrofti 2. W. malayi 3. Onchocerca volvulus 4. Loa loa 5. Mansonella ozzardi 6. M. perstans 7. Dracunculus medinensis	1	2	a1, a2, a3, b1, b2, d1, d2
7	Mid Exam		1	2	
8	Amebasi	Entamoeba histolytica	1	2	a1, a2, a3, b1, b2, d1, d2
9	Gardia & Trichomonads	1. T. vaginalis 2. T. homonis	1	2	a1, a2, a3, b1, b2, d1, d2
10	Trypanosomiasis	1. T. rhodiensi 2. T. gambiensi 3. T. cruzi	1	2	a1, a2, a3, b1, b2, d1, d2
11	Leishmaniasis	1. L. tropica 2. L. barziliensis 3. L. donovani	1	2	a1, a2, a3, b1, b2, d1, d2
12	Malaria		1	2	a1, a2, a3, b1, b2, d1, d2
13	Final Exam		1	2	a1, a2, a3, b1, b2, d1, d2
Number of Weeks/and Units Per First semester5				26	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Schistosomiasis	2	4	a1, a2, a3, b1, b2, c1, c2, d1, d2
2	Fascioliasis	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
3	Taeniasis	2	4	a1, a2, a3, b1, b2, c1, c2, d1, d2
4	Hymenolepisis	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
5	Diphyllobothrium latum	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
6	Diphyllobothrium mansoni	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
7	Echinococcus granulosus	2	4	a1, a2, a3, b1, b2, c1, c2, d1, d2



8	Dipylidium caninum	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
9	Laboratory diagnosis	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
10	Prevention and control	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
11	Final Exam	1	2	a1, a2, a3, b1, b2, c1, c2, d1, d2
Number of Weeks /and Units Per Semester 15			28	

I. Teaching Strategies:				
<p>Lectures using data show. Video animation. Seminars. Solving problem method. Laboratory work. Directed reading. Independent study. Discussion.</p>				

II. Assignments and projects:				
No	Assignment	CILOs	Week Due	Mark
1	- Project	a1-3, b1-2, d1-d2	5	5

III. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single or group)	2,8	2.5	2.5%	a1-3,b1-2,d1-d2
2	Practical reports	1-10	10	10%	a1-3,b1-2,c1-c2, d1-d2
3	Oral Tests	5,9	2.5	2.5%	a1-3,b1-2,d1-d2
4	Written Test (1)	7	15	15%	a1-3,b1-2,d1-d2
5	Final Exam (theoretical)	14	50	50%	a1-3,b1-2,d1-d2
6	Final Exam (practical)	11	20	20%	a1-3,b1-2,c1-c2, d1-d2
7			100	100%	

IV. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-David T, William P Marell and Voges. Medical Parasitology 9 <sup>th</sup> edition, 2006 Saunders Eieevier, PA, USA 2. Monica Cheesbrough, Medical Laboratory Manual For tropical countries, vol I 2004Butter worth, Heinemann Ltd Oxford Britain
2-Recommended Books and Reference Materials.	
	1-RamnikSood, Medical laboratory technology 6 <sup>th</sup> Edition 2009, Jaypee Brothers Medical Publisher New Delhi - India.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www. Wiley short course Parasitology.com 2- www. Jaypeebrothers Parasitology.com

V. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	Class Attendance: <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	(Tardy): Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.
3	(Exam Attendance/Punctuality): <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> </ul>

	<ul style="list-style-type: none"><li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>The students have to submit the assignment or project on time.</li><li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>Midterm Exam cheating results in giving the student a mark of zero</li><li>Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>Plagiarism will results in losing the marks of the assignments.</li><li>If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Research Methodology

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Research Methodology				
2	Course Number and Code:	B11518 (Part A)				
3	Credit hours:	C.H			Total	
		Th.	Pr.	Tut.		Tr.
		2	-	-	-	2
4	Study level/year at which this course is offered:	First semester/Fifth year				
5	Pre –requisite :					
6	Co –requisite :	Biostatistics				
7	Program (s) in which the course is offered:	Medical Lab				
8	Language of teaching the course:	Arabic/English				
9	Prepared By:	Nawal Ali AL-Zandani Dr. Nagwa Ahmed Noman Othman				
10	Approved By:					

II. Course Description:
The course mainly focuses on the method of conducting medical research. Throughout the course the students will be guided by the lecturers to prepare research proposal. The main topics in research methodology i.e. hypothesis generation, research design, proposal writing and plan of analysis will be discussed.

III. ILOs: At end of the course students will be to
<ol style="list-style-type: none"> <li>1. Recognize the process and steps in medical research.</li> <li>2. Describe the process and steps in medical research</li> <li>3. Plan a research proposal.</li> <li>4. Select the study design</li> <li>5. Analyze the environmental factors that may influence medical research</li> <li>6. Practice Writing a research proposal.</li> </ol>



7. Present and defend the research proposal at the department and faculty level.
8. Work effectively in a team and demonstrate creativity.
9. Implement writing and presentation skills.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> At the end of this course, student must be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Recognize the principles of basics Medical research.	Lectures and seminars	Quizzes, Written exam, short answers and homework. Participation
a2-Describe the process and steps in medical research		

#### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> At the end of this course, student must be able to:	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1- Plan a research proposal	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative Exercises
b2- Select the study design.		
b3-Analyze the environmental factors that may influence medical research		

#### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i> At the end of this course, student must be able to:	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
c1-Practice Writing a research proposal.	Lectures and Group assignments	Reports and presentations based on their managerial skills

#### (D) General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills At the end of this course, student must be able to:	Teaching strategies to be used	Methods of assessment
d1- Present and defend the research proposal at the department and faculty level.	-Small group discussions - -Microassignments	Reports, presentations and communication with the lecturer and his colleagues.
d2- Work effectively in a team and demonstrate creativity.		
d3-Implement writing and presentation skills		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to Research	<ul style="list-style-type: none"> <li>Research phase</li> <li>Choosing research subjects</li> <li>Defining and selecting research interest</li> </ul>	1	2	a1, b1, c1
2	Information Search	<ul style="list-style-type: none"> <li>Information search - the library</li> <li>Information search -the internet</li> </ul>	1	2	a1, b1, b2, c1, d1, d2.
3	Overview of Research Design	<ul style="list-style-type: none"> <li>Type of research design</li> <li>Cross-sectional study</li> <li>Case-control study</li> <li>Cohort study</li> <li>Experimental studies/Clinical Trial</li> <li>Quasi-experimental studies</li> <li>Qualitative research method</li> </ul>	1	2	a1,a2, b2, d3
4	Literature review	<ul style="list-style-type: none"> <li>Information storage</li> <li>Writing quotations and references – UKM Style, Vancouver, Harvard</li> <li>How to avoid plagiarism?</li> </ul>	1	2	a1, a2, b1, b2, b3, c1, d1, d2, d3.
5	Research Process	<ul style="list-style-type: none"> <li>Steps in medical research</li> <li>Objectives</li> <li>Research hypothesis and variables</li> </ul>	1	2	a1, a2, b1, b2, b3, c1, d1, d2, d3.



		<ul style="list-style-type: none"> <li>• Writing objectives and hypothesis</li> <li>• Problems framework</li> </ul>			
6	Questionnaire Design	<ul style="list-style-type: none"> <li>• Type of questions and questionnaire format</li> <li>• Questionnaire implementation – interview technique</li> </ul>	1	2	a2, b1, b2, c1, d2, d3.
7	• Mid Exam		1	2	a1, a2, b1, b2, b3, c1, d1, d2, d3.
8	Research Management	<ul style="list-style-type: none"> <li>• Research organization and time table</li> <li>• Research budget</li> <li>• How to get research budget</li> </ul>	1	2	a1, a2, b1, b2, b3, c1, d2, d3.
9	Research Ethics	<ul style="list-style-type: none"> <li>• Getting ethical approval</li> </ul>	1	2	a1, a2, b1, b2, b3, c1, d2, d3.
10	• Final Exam		1	2	a1, a2, b1, b2, b3, c1, d1, d2, d3.
10 Number of Weeks/and Units Per Semester				20	

VI. Teaching Strategies:
-Lectures and seminars -Solving Problem method and discussion

VII. Assignments and projects:				
No	Assignment	CILOs	Week Due	Mark

1	- Project	a1, a2, b1, b2, c1, d3	8	5
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VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	8	5	5%	a1, a2, b1, b2, c1, d3
2	Quizzes	4	5	5%	a1, a2, b1, b2, c1, d2, d3
3	Mid Exam	6	10	10%	a1, a2, b1, b2, c1, d1
4	Final Exam	10	30	30%	a1, a2, b1, b2, c1, d1, d2, d3
5	Total		50	50%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>Polgar Colton, T. 2000.<i>Statistics in Medicine</i>.Little Brown and Co.Boston. FourthEd.</li> <li>Dawson, B. and Trapp, R.G.2001. <i>Basic and Clinical Biostatistics</i>. Third Edition Prentice-Hall International Inc.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li><u>Geoffrey, R. M., David, D.andDavid, F.</u>2005. Essentials of Research Design and Methodology.Essentials of Behavioral Science. Prentice Hall Inc.</li> <li><u>John, W. C.</u>2002. Research DesignQualitative, Quantitative, and Mixed Methods Approaches (SecondEdition), SagePublications.</li> <li><u>Geoffrey, R. andDavid, L. S.</u>2000. Biostatistics: The Bare Essentials, Second Edition</li> </ol>
3 -Electronic Materials and Web Sites etc.	
	1- <a href="http://link.springer.com/chapter/10.1007/0-387-23273-7_3#page-1">http://link.springer.com/chapter/10.1007/0-387-23273-7_3#page-1</a>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook

1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Pharmacology IV

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Pharmacology IV				
2	Course Number and Code:	B11464				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3				3
4	Study level/year at which this course is offered:	Second semester/ Fourth year				
5	Pre –requisite :	Pharmacology III				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English - Arabic				
9	Prepared By:	Dr/ Mohammad Abobakr Al-Ghazali				
10	Approved By:					

### II. Course Description:

This course will provide the student with the essential pharmacological skills and knowledge of the endocrine system and the symptoms, mechanism of actions, effects and treatment of different antimicrobial agents.

### III. ILOs: After participation in this course students must be able to:

- 1- Classify the groups of drugs in each disease in this course.
- 2- Describe the mechanism of actions of drugs used in different disease discussed in this course.
- 3- Recognize the side effects that can occur with different drugs explained in this course.
- 4- Distinguish the actions, mechanisms and side effects of different drugs included in this course.
- 5- Foretell the pharmacological aspects of individual drugs, once provided with their pharmacological class.
- 6- Organize the first line of antibiotic treatment against different microbes.
- 7- Perform confident oral and written knowledge and skills gained from this course.

- 8- Demonstrate professional competence in selecting appropriate drugs from different groups that covered in this course.  
9- Choose professional in selecting the convenient therapy for different diseases covered in this course.  
10- Work effectively in a team and demonstrate creativity and time management abilities.  
11- Demonstrate critical thinking and decision making abilities.  
12- Communicate professionally with patients and other health care specialist by verbal and written means.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. After participating in this course student must be able to</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1- Classify the groups of drugs in each disease in this course	-Lectures using Animations -Student oral and written presentation	- written exam - Quizzes - Presentation
a2- Describe the mechanism of actions of drugs used in different disease discussed in this course		
a3- Recognize the side effects that can occur with different drugs explained in this course		

#### (B) Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills. After participating in this course student must be able to</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1- Distinguish the actions, mechanisms and side effects of different drugs included in this course	-case discussion -group presentation	- Written exam - Quizzes - Presentation
b2- Foretell the pharmacological aspects of individual drugs, once provided with their pharmacological class.		
b3- Organize the first line of antibiotic treatment against different microbes		

#### (C) Professional and Practical Skills.

##### Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:



Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills. <i>After participating in this course student must be able to</i>	Teaching strategies to be used	Methods of assessment
c1- Perform confident oral and written knowledge and skills gained from this course	-group presentation -research activities	- Written exam - Quizzes - Presentation
c2- Demonstrate professional competence in selecting appropriate drugs from different groups that covered in this course		
c3- Choose professional in selecting the convenient therapy for different diseases covered in this course.		

**(D)General/ Transferable Skills:**

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills. <i>After participating in this course student must be able to</i>	Teaching strategies to be used	Methods of assessment
d1- Work effectively in a team and demonstrate creativity and time management abilities	-group discussion - presentation	- Written exam - Quizzes - Presentation
d2- Demonstrate critical thinking and decision making abilities.		
d3- Communicate professionally with patients and other health care specialist by verbal and written means		

**V. Course Content:**

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Endocrine System	Hypothalamic and Pituitary Hormones	5	15	a2- a3 – b1-b2- c1- c2- c3- d1- d2- d3
		Thyroid and Antithyroid Agents			
		Adrenocorticosteroids and Adrenocortical Antagonist			
		Gonadal Hormones and Inhibitors			
		Pancreatic Hormones and Antidiabetic Agents			
2	Chemotherapeutic Drugs I	Introduction to Antimicrobial Drugs	1	3	a1- a2- b1- b2- b3- c1-

					c2- c3- d1- d2- d3
3	Midterm Exam		1	3	a1- a2- a3 - b1-b2- b3- c1- c2- c3- d1- d2- d3
4	Chemotherapeutic Drugs II	Folate Antagonist	7	21	a1- a2- a3 - b1-b2- b3- c1- c2- c3- d1- d2- d3
		Inhibition of Cell Wall Synthesis			
		Inhibition of Protein Synthesis			
		Quinolones			
		Antimycobacterial Drugs			
		Antifungal, Anti-protozoal, Anti-malarial			
		Anthelmintic Drugs			
		Anticancer Vitamins			
5	Final Exam		1	3	a1- a2- a3 - b1-b2- b3- c1- c2- c3- d1- d2- d3
Number of Weeks/and Units Per First semester5				45	

#### VI. Teaching Strategies:

- Lectures
- Student oral and written presentation

#### VII. Assignments and projects:

No	Assignment	CILOs	Week Due	Mark
1	- Presentation	b1-b2- b3- c1- c2- c3- d1- d2- d3	6	5

#### VIII. Assessment Tasks:



No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Presentation	6	5	5%	b1-b2- b3- c1- c2- c3- d1- d2- d3
2	Quizzes and Exercises and Home works	4-8	5	5%	a1- a2- a3 – b1-b2- b3- c1- c2- c3- d1- d2- d3
3	Written Test (1)	7	30	30%	a1- a2- a3 – b1-b2- b3- c1- c2- c3- d1- d2- d3
4	Final Exam (theoretical)	15	60	60%	a1- a2- a3 – b1-b2- b3- c1- c2- c3- d1- d2- d3
5	Total		100	100%	

#### IX. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009) Lippincott's Illustrated Reviews of Pharmacology, *11th edition*, Lippincott's Williams and Wilkins, Philadelphia.
- 2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012) Basic and Clinical Pharmacology, *Fifth edition*, Mc Graw Hill Lange, U.S.A.

##### 2-Recommended Books and Reference Materials.

- 1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale's Pharmacology, *6th edition*, Churchill Livingstone Elsevier, Philadelphia.
- 2- Lectures notes.

##### 3-Electronic Materials and Web Sites *etc.*

- 1- [www.who.int](http://www.who.int)
- 2- [www.drugs.com](http://www.drugs.com)

#### X. Course Policies: (including plagiarism, academic honesty, attendance etc)

<p>The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook</p>	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



Fifth year: first semester

### Course Specification of Medicinal chemistry III

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Medicinal Chemistry III			
2	Course Number and Code:	<b>B11537</b>			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		2	1		
4	Study level/year at which this course is offered:	<i>First semester/Fifth year</i>			
5	Pre –requisite :	Medicinal chemistry II			
6	Co –requisite :				
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	Arabic/English			
9	Prepared By:	Dr. Tawfeek Ahmed Alobaidy			
10	Approved By:				

II. Course Description:	
<p>This course introduces students to medicinal chemistry of antibacterial, antibiotic Antimycobacterial, antifungal, antiviral, anticancer and antimalarial agents. The course also practices the qualitative and quantitative analysis of some drugs.</p>	

III. ILOs:	
<p>At the end of this course the students should be able to:</p> <ol style="list-style-type: none"> <li>1 Describe the mechanism of action of studied classes of drugs</li> <li>2 Recognize the synthesis of some studied classes of drugs</li> <li>3 Explain the SAR of studied categories</li> <li>4 Illustrate the metabolism of studied classes of drugs.</li> <li>5 Predict possible metabolites of different classes of drugs</li> <li>6 Identify the SAR of studied categories of drugs</li> <li>7 Analyze the result of assay of some studied drugs</li> <li>8 Design and evaluate qualitative and quantitative analysis of some drugs.</li> <li>9 Handle and dispose the chemical and pharmaceutical preparations safely and effectively.</li> <li>10 Operate different equipment used in the lab</li> <li>11 Carry out the qualitative analysis of some drugs</li> </ol>	



<p>12 Cooperate with his colleagues to prepare a scientific topic. 13 Implement writing and presentation skills 14 Work effectively in a team. 15 Demonstrate creativity and time management.</p>
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**IV. Alignment Learning Outcomes with Teaching and Assessment Methods:**

**Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:**

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> After completing this program, students would be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1-Describe the mechanism of action of studied classes of drugs	Lectures using data show video	MCQ Oral Exam, Quizzes, exam, short answers Homework and Participation.
a2-Recognize the synthesis of some studied classes of drugs		
a3- Explain the SAR of studied categories		
a4- Illustrate the metabolism of studied classes of drugs.		

**(B) Intellectual Skills:**

**Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:**

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> After completing this program, students would be able to:	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
b1-Predict possible metabolites of different classes of drugs	Lectures, Practice session, Discussions, Solving Problem methods	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b2-Identify the SAR of studied categories of drugs		
b3-Analyze the result of assay of some studied drugs.		
b4-Design and evaluate qualitative and quantitative analysis of some drugs.		

**(C) Professional and Practical Skills.**

**Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:**





Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills After completing this program, students would be able to:	Teaching strategies to be used	Methods of assessment
c1-Handle and dispose the chemical and pharmaceutical preparations safely and effectively.	Lectures and Group assignments Practical works.	Practical reports, And practical reports.
c2-Operate different equipment used in the lab		
c3-Carry out the qualitative analysis of some drugs		

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills After completing this program, students would be able to:	Teaching strategies to be used	Methods of assessment
d1- Cooperate with his colleagues to prepare a scientific topic.	Small group discussions Practical classes	Reports, presentations and communication with the lecturer and his colleagues.
d2- Implement writing and presentation skills		
d3- Work effectively in a team.		
d4- Demonstrate creativity and time management		

#### V. Course Content:

##### 1 – Course Topics/Items:

##### a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Antibacterial agents	Sulfonamides	1	2	a1, a3, a4, b1, b2, d1, d2, d4
2	Antibiotics I	Penicillins	1	2	a2, a3, a4, b1, b2, d1, d3
3	Antibiotics II	Cephalosopins	1	2	a1, a2, b1, b2, d1, d2
4	Antibiotics III	Tetracyclines, Aminoglycosides	1	2	a1, a4, b1, b2, d1, d4
5	Antibiotics IV	Lincosamide, macrolide and chlormphenicol	1	2	a1, a4, b1, b2, d1, d2

6	Quinolones	Ist generation Secondgeneration and 3dr generation	1	2	a3, a4, b1, b2, d3, d4
7	midterm exam		1	2	a1-a4, b1-b4
8	Anti mycobacterial agents	<u>Anti T.B:</u> first line Secondline <u>antileprosy</u>	1	2	a1, a2, a3, a4, b1, b2, d1, d2, d3, d4
9	Antifungal agent	Antibiotics, azoles, allylamines and morpholines, antimetabolites, fatty acids and dyes	1	2	a1, a3, a4, b1, b2, d1, d2
10	Antiviral agent	Medically significant viruses, DNA viral replication, The building blocks of DNA nucleosides, Agents interfere with viral nucleic acid replication Anti-Retroviral [AntiHIV] Agents Agents inhibit the uncoating process, Neuraminidase Inhibitors, Non- Nucleoside Reverse Transcriptase [RT] Inhibitors HIV Protease Inhibitors	1	2	a1, a2, b1, b2, d1, d2, d4
11	Anticancer I	Types of Neoplasm Mechanism of Cancer formation <i>Chemotherapeutic Agents</i> Alkylating agents.	1	2	a1, a2, a4, b1, d1, d2, d4



		Anti-metabolites [ Specific S ]			
12	Anticancer II	DNA intercalating agents. Antibiotics. Antimitotic agents [ Specific M ]. Hormones. Miscellaneous compounds.	1	2	a2, a3, a4, b1, b2, d1, d4
13	Antimalarial agents	Life cycle of the parasite, naturally occurring compounds, quinolone derivatives, aminoacridine, tetrahydrofolate synthesis inhibitors, biguinides, polycyclic antimalarial agents	1	2	a1, a2, a3, a4, b2, d1, d2,
14	final exam		1	2	a1-a4, b1-b4
Number of Weeks/and Units Per Semester				24	

b - PracticalAspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Qualitative analysis ofnicotinic acid	1	3	b3, b4, c1, c2, c4, d1, d2
2	Quantitative analysis ofnicotinic acid	1	3	a1, b4, c1, c2, c3, d3, d4
3	Quantitative estimation ofnalidixic acid	1	3	b3, b4, c1, c2, c3, d1
4	Quantitative estimation ofcyclophosphamide	1	3	a1, b3, c1, c2, c3, d1, d4
5	Quantitative estimation ofbusulfan	1	3	b3, b4, c1, c2, c3
6	Quantitative estimation ofpenicillinin capsules	1	3	a1, b3, b4, c1, c2, c3, d1, d4
7	Identification of tetracyclines	1	3	b3, b4, c1, c2, c4, d3, d4



8	Identification and assay of chloroquine	1	3	a1, b3, c1, c2, c4, d1,
9	Identification of gresoflavins	1	3	a1, b3, b4, c1, c2, c4
10	Final Exam	1	3	c1-c3, b1-b4, d1-d4
Number of Weeks/and Units Per Semester			33	

VI. Teaching Strategies:
Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions, and Practical classes

VII. Assignments and projects:				
No	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-4, d1-d3	5	5

VIII. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project ( single\group)	2, 8	5	5%	a1-4, b1-4, d1-d3
2	Practical reports	1-9	10	10%	a1-4, b1-4, d1-d3
3	Oral Tests	5, 9	5	5%	, a1-a4, b1-b4
4	Written Test (1)	7	10	10%	a1-4, b1-4
5	Final Exam (theoretical)	14	50	50%	a1-4, b1-4
6	Final Exam (practical)	11	20	20%	b1-4, c1-c3, d1-d3
7			100	100%	

IX. Learning Resources:
1-Required Textbook(s) ( maximum two ).

	<ol style="list-style-type: none"><li>1- John M. Beale, Jr. and John H. Block, "Text book of Organic Medicinal and Pharmaceutical Chemistry", 2011, 12th Edition, Wilson and Gisvold, Lippincott Williams and Wilkins, A Wolters Kluwer Company, Philadelphia.</li><li>2- Graham L. Patrick, "An Introduction to Medicinal Chemistry", 2009, Fourth Edition, Oxford University Press Inc., New York</li></ol>
<b>2-Recommended Books and Reference Materials.</b>	
	<ol style="list-style-type: none"><li>1- Thomas Nogrady, Donald F. Weaver. Medicinal Chemistry A Molecular and Biochemical Approach, 2005, Third edition, Oxford University Press, Inc., New York.</li><li>2- Donald J. Abraham, "BURGER'S Medicinal Chemistry and Drug Discovery" 6<sup>th</sup> edition, A John Wiley and Sons, Inc., Virginia.</li><li>3- Thomas L. Lemke, Victoria F. Roche, David A. Willaiams and S. William Zito "Foye's Principles of Medicinal Chemistry", 2008, 6<sup>th</sup>, Edition, Lippincott Williams and Wilkins, a Wolters Kluwer business, Philadelphia.</li><li>4- Povl Krogsgaard-Larsen, Tommy Liljefors and Ulf Madsen, "Textbook of Drug Design and Discovery". 2002, Third edition, Taylor and Francis, London.</li><li>5- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook" 2006, Springer-Verlag Berlin Heidelberg, Berlin.</li></ol>
<b>3-Electronic Materials and Web Sites <i>etc.</i></b>	
	<ol style="list-style-type: none"><li>1- <a href="http://www.chemaxon/marvin">http://www.chemaxon/marvin</a></li><li>2- <a href="http://www.webmolecules.com">http://www.webmolecules.com</a></li><li>3- <a href="http://www.acdlabs.com">http://www.acdlabs.com</a></li><li>4- PASS Prediction of Activity Spectra for Substance) (<a href="http://www.ibmh.msk.su/PASS">http://www.ibmh.msk.su/PASS</a>).</li></ol>

X.	Course Policies: (including plagiarism, academic honesty, attendance etc)
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<p>The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook</p>	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"><li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li></ul>
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4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li></ul>



	<ul style="list-style-type: none"><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism): “To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Community Pharmacy

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Community Pharmacy			
2	Course Number and Code:	B11587			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		3			3
4	Study level/year at which this course is offered:	Second semester/ Fifth year			
5	Pre –requisite :				
6	Co –requisite :	Pharmacology 4			
7	Program (s) in which the course is offered:				
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Dr. Mohammed Addoais			
10	Approved By:				

II. Course Description:	
<p>This course is designed to provide students with a detailed knowledge and understanding on the pathogenesis, clinical features, and management and treatment outcomes of some minor ailments. Assessment and management of some minor respiratory, gastrointestinal, skin, eye, ear and infestation ailments will be studied.</p>	

III. ILOs: at end of the course students will be to:	
<ol style="list-style-type: none"> <li>1. Enumerate the non-prescription drugs.</li> <li>2. Identify signs and symptoms of minor illnesses.</li> <li>3. Describe the management of some minor illnesses by OTC drugs.</li> <li>4. Differentiate the symptoms of different causing diseases.</li> <li>5. Investigate the drug related problems.</li> <li>6. Compare between different family planning methods</li> <li>7. Diagnose minor ailments in community pharmacy</li> <li>8. Manage minor ailments in community pharmacy</li> </ol>	



9. Prescribe the right OTC drugs for the ailment condition .
10. Solve any drug related problems in community pharmacy
11. Communicate effectively with patients, the public and health professionals.
12. Justify treatment options to patients.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Enumerate the non-prescription drugs.	Lectures using data show Video animation and seminars	Quiz Written exam
a2-Identify signs and symptoms of minor illnesses.		
a3- Describe the management of some minor illnesses by OTC drugs		

#### (B)Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b1-Differentiate the symptoms of different causing diseases.	Tutorial Group discussion Lecture	Oral exam Written exam Written exam
b2-Investigate the drug related problems.		
b3- Compare between different family planning methods		

#### (C)Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i>	<i>Teaching strategies to be used</i>	<i>Methods of assessment</i>
<i>At end of the course students will be able to:</i>		
c1-Diagnose minor ailments in community pharmacy	Case studies Group discussion	Report Oral exam Written exam
c2- Manage minor ailments in community pharmacy		
c3- Solve any drug related problems in community pharmacy		

#### (D)General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
d1-Communicate effectively with patients, the public and health professionals.	Directed reading Independent study tutorial	Report Presentation
d2-Justify treatment options to patients.		

V. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:

No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Community pharmacy services	<ul style="list-style-type: none"> <li>Self-care and self-medication .</li> <li>Drug use in special populations</li> <li>Activities of the community pharmacist</li> <li>Prescription and over-the counter (OTC) medications</li> <li>Assessment of patient</li> <li>Physical assessment skills</li> </ul>	2	6	a1, a2, b1, c2, c3, d1 d2
2	OTC For treatment of GIT disorders	<ul style="list-style-type: none"> <li>Mouth ulcers</li> <li>Heart burn</li> <li>Indigestion</li> <li>Nausea and vomiting</li> <li>Constipation</li> <li>Diarrhea</li> <li>Haemorrhoids</li> </ul>	2	6	a3, b1, b2, c1, c2, c3, d1, d2
3	OTC For treatment of respiratory disorders	<ul style="list-style-type: none"> <li>Cold and flu</li> <li>Cough</li> <li>Sore throat</li> <li>Allergic rhinitis</li> </ul>	2	6	a1, a2, a3, b1, b2
		Midterm exam	1	3	a1, a2, a3 b1, b2
4	OTC For treatment of skin disorders	<ul style="list-style-type: none"> <li>Eczema/dermatitis/common childhood rashes</li> <li>Acne</li> <li>Athlete's foot</li> </ul>	3	9	a3, b1, b2, c1, c2, c4, d1, d2



		<ul style="list-style-type: none"> <li>• Warts and verrucae</li> <li>• Hair loss</li> <li>• Dandruff</li> <li>• Psoriasis</li> <li>• Cold sores</li> <li>• Warts and verrucas</li> <li>• Corns and calluses</li> <li>• Fungal infections</li> </ul>			
5	OTC For treatment of pain and headache & OTC For treatment of Eye and ear disorders	<ul style="list-style-type: none"> <li>• Headache and migraine</li> <li>• Dental pain</li> <li>• Musculoskeletal problems</li> <li>• Ear problems               <ul style="list-style-type: none"> <li>○ Earache</li> <li>○ Ear wax</li> <li>○ Otitis externa</li> </ul> </li> <li>• Eye conditions               <ul style="list-style-type: none"> <li>○ Conditions of the cornea</li> <li>○ Conditions of the eyelid</li> <li>○ Other eye problems</li> </ul> </li> </ul>	1	3	a3, b1, b2, c1, c2, c4, d1, d2
6	OTC For treatment of Women's conditions & OTC For treatment of Infestations	<ul style="list-style-type: none"> <li>• Cystitis</li> <li>• Dysmenorrhoea</li> <li>• Premenstrual syndrome (PMS)</li> <li>• Vaginal thrush</li> <li>• Head lice</li> <li>• Scabies</li> <li>• Threadworm</li> </ul>	1	3	a3, b1, b2, c1, c2, c4, d1, d2
7	Community role	<ul style="list-style-type: none"> <li>• The role of the pharmacist in family planning</li> <li>• Smoking cessation</li> </ul>	1	3	d1, d2
8		Final exam	1	3	a1, a2, a3, b1, b2, b3
Number of Weeks/and Units Per Semester			14	42	

#### VI. Teaching Strategies:

- Lectures using data show
- Video animation and seminars
- Directed reading
- Independent study
- Tutorial

#### VII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
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1	Oral Tests	5, 10	5	5%	a1, a2, a3, b1, b2, b3, c1, c2, c3, d1, d2
2	Quizzes	6, 9	5	5%	a1, a2, a3, b1, b2, b3
3	Written Test (midterm exam )	7	30	30%	a1, a2, a3, b1, b2, b3
4	Final Exam (theoretical)	16	60	60%	a1, a2, a3, b1, b2, b3
Total			100	100%	

VIII. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- Alan Nathan (2008). Managing symptoms in pharmacy. Second edition Pharmaceutical press. London.</p> <p>2- Paul Rutter (2008).Community Pharmacy: Symptoms, Diagnosis and Treatment, second edition, Elsevier, London.</p>
2-Recommended Books and Reference Materials.	
	<p>1. Daniel L. Krinsky, Rosemary R. Berardi, Stefanie P. Ferreri, Anne L. Hume, Gail D. Newton, Carol J. Rollins, Karen J. Tietze (2011). Handbook of Non-Prescription drugs, 17th edition. American pharmaceutical association. Washington.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> </ul>

	<ul style="list-style-type: none"> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"> <li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>• Midterm Exam cheating results in giving the student a mark of zero</li> <li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li> <li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li> </ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"> <li>• Plagiarism will results in losing the marks of the assignments.</li> <li>• If the students personates other at examination time both will be suspended for a full academic year</li> </ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"> <li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li> <li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li> <li>• Eating or drinking is strictly prohibited.</li> </ul>

## Course Specification of Clinical Pharmacy I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Clinical Pharmacy I				
2	Course Number and Code:	B11567				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3				3
4	Study level/year at which this course is offered:	First Semester/Fifth year				
5	Pre –requisite :	Pharmacology IV				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English and Arabic				
9	Prepared By:	Salah Abdullah Ahmed				
10	Approved By:					

### II. Course Description:

This course provides an understanding of the principles of clinical pharmacy and information on the etiology, clinical signs and symptoms, investigations and principles of treatment of disease important to pharmacists in their development of patient-oriented practice.

### III. ILOs: Upon successful completion of this course, the students should be able to:

- 1-Identify the clinical presentations of diseases.
- 2- List the finding of different laboratory tests and its relation to disease management.
- 3-Explain the clinical management of various clinical cases.
- 4- Recognize the pharmacotherapy-related problems such as drug side effects, interactions, disease contraindication.
- 5-Illustrate the drug use and management of disease of special populations.

- 6-Analyze and appraise clinical cases
- 7-Create therapeutic plan for certain diseases
- 8-Investigate different drug-related problems in clinical and/or pharmacy settings
- 9-Explore relevant information for clinical case notes and discuss problems in therapeutic management of patients
- 10-Interpret signs and symptoms of certain diseases
- 11-Perform different diagnosis of diseases
- 12- Implement therapeutic plans for treatment of certain diseases
- 13-Solve drug-related and patient-related problems
- 14-Monitor drug regimen therapeutic outcomes
- 15- Assess patient cases and evaluate the overall treatment outcomes
- 16-Write reports and give oral presentations
- 17-Use web browsing to locate and use online data bases

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> Upon successful completion of this course, the students should be able to:	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1-Identify the clinical presentations of diseases.	Lectures using data show, and case discussions.	Quizzes, exams, asking questions, and active participation.
a2- List the finding of different laboratory tests and its relation to disease management.	≈	≈
a3-Explain the clinical management of various clinical cases.	≈	≈
a4-Recognize the pharmacotherapy-related problems such as drug side effects, interactions, disease contraindication.	Case discussion	≈
a5- Illustrate the drug use and management of disease of special populations.	Case discussion	≈

##### (B)Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> Upon successful completion of this course, the students should be able	Teaching strategies to be used	Assessment Methods
b1-Analyze and appraise clinical cases	Case discussions and assignments.	Quizzes, exams, asking questions, homeworks and active participation.
b2-Create therapeutic plan for certain diseases	Lectures using data show, describe guidelines and algorithms, case discussions and assignments.	≈
b3-Investigate different drug-related problems in clinical and/or pharmacy settings	Case discussions and assignments.	≈
b4-Explore relevant information for clinical case notes and discuss problems in therapeutic management of patients	Case discussions and assignments.	≈
<b>(C)Professional and Practical Skills.</b>		
Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:		
<i>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills</i> Upon successful completion of this course, the students should be able	Teaching strategies to be used	Methods of assessment
c1-Interpret signs and symptoms ofcertain diseases	Case discussions, laboratory work and assignments.	Quizzes, exams, lab reports, asking questions, homework and active participation.
c2-Perform different diagnosis of diseases	≈	≈
c3- Implement therapeutic plans for treatment of certain diseases	≈	≈
c4-Solve drug-related and patient-related problems	≈	≈
c5-Monitor drug regimen therapeutic outcomes	≈	≈
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
<i>Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills</i>	Teaching strategies to be used	Methods of assessment





Upon successful completion of this course, the students should be able		
d1- Assess patient cases and evaluate the overall treatment outcomes	Case discussions and assignments.	Quizzes, exams, asking questions, homework and active participation.
d2-Write reports and give oral presentations	Assignments and discussions	≈
d3-Use web browsing to locate and use online data bases	≈	≈

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction	SOAP notes	1	3	a1, b1, d1, d2
		Lab data. Normal v/s abnormal values and significance	1	3	a2, b1, b4, c1, c2
2	Cardiovascular disorders	Hypertension	1	3	a1-a5 b1-b4 c1, c5 d1, d3
		Dyslipidemias	1	3	
		Stable angina	1	3	
		Acute coronary syndrome	1	3	
		Heart failure	1	3	
		Mid-term exam	1	3	
		Strokes	1	3	
		Dysrhythmia	1	3	
		Venous thromboembolism	1	3	
3	Respiratory disorders	Bronchial asthma	1	3	
		Chronic obstructive pulmonary disease and upper respiratory infections	1	3	



4	Gastrointestinal tract disorders	Peptic ulcer	1	3	
5	Revision and practical exam	-	1	3	
6	Final exam	-	1	3	
Number of Weeks/and Units Per First semester6				48	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs	
1	Case discussion according SOAP notes, and interpretation of laboratory data.	1	2	a1, a2, a3, b1, b2, b3, b4, c1, c2, c3, c4 d1, d2	
2	Introduction to cardiovascular testing	1	2	a1, a2, b1, c1, c2, d2	
3	Case-studies on hypertension	1	2	a1-a5 b1-b4 c1-c5 d1, d2	
4	Case-studies on ischemic heart disease	1	2		
5	Case-studies on acute coronary syndrome	1	2		
6	Case-studies on heart failure	1	2		
7	Case-studies on strokes	1	2		
8	Case-studies on dysrhythmias	1	2		
9	Case-studies on venous thromboembolism	1	2		
10	Case-studies on bronchial asthma	1	2		
11	Case-studies on chronic obstructive pulmonary disease.	1	2		
12	Case-studies on upper respiratory infections	1	2		
13	Case-studies on peptic ulcer disease	1	2		
14	Final Practical exam	1	2		
Number of Weeks/and Units Per Semester			28		

VI. Teaching Strategies:

Lectures using data show, presentations, problem solving method, case-studies and discussion, assignments and laboratory work.

VII. Assignments and projects:



no	Assignment	CILOs	Week Due	Mark
1	Presentations	a4, a5, b2, b3, b4 c3, c4, d2	8	5
2	Case discussions	a1-a5 b1-b4 c1-c5 d1, d2	All	
3	Drug fact sheet	a4, a5, b3, b4, c5	9	5
4	Websites search	d3	12	

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Practical reports	1-13	10	10%	a1-a5, b1-b4, c1-c5 d1, d3
2	Assignments	all	5	5%	a1-a5, b1-b4, c1-c5 d1, d3
3	Written Test (1) homework and oral test	8	15	15%	a1-a5
4	Final Exam (theoretical)	16	50	50%	a1-a5, b1-b4, c1-c5 d1, d3
5	Final Exam (practical)	15	20	20%	
6	Total		100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-Dipiro et al, Pharmacotherapy Handbook, 7th edition 2008, McGraw Hill 2-Koda-Kimble and Young's, Applied therapeutics "the clinical use of drugs", 10th edition 2013, Lippincott Williams and Wilkins.
2-Recommended Books and Reference Materials.	
	1- Dipiro et al, Pharmacotherapy A pathophysiologic Approach, 7th edition 2008, McGraw Hill.

	2- Dipiro et al, Pharmacotherapy Principles and Practice, 7th edition 2008 McGraw Hill.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.dynamed.ebscohost.com">www.dynamed.ebscohost.com</a> 2- <a href="http://www.drugs.com">www.drugs.com</a> 3- <a href="http://www.drugdigest.com">www.drugdigest.com</a> 4- <a href="http://www.pharmacistletter.com">www.pharmacistletter.com</a> 5- <a href="http://www.rxlist.com">www.rxlist.com</a>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>• Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Industrial Pharmacy I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Industrial Pharmacy I				
2	Course Number and Code:	B11585				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3				3
4	Study level/year at which this course is offered:	First semester/Fifth year				
5	Pre –requisite :	Pharmaceutics III				
6	Co –requisite :	----				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English and Arabic				
9	Prepared By:	Dr. Abdulkarim Alzomor				
10	Approved By:					

II. Course Description:	
<p>This course provides an overview of FDA guidelines and cGMP's. The course imparts to the student the principles of drug development and production and equips the student with basic skills in the good manufacture of pharmaceuticals process validation and packaging selection and evaluation. Demonstrations and training will provide first-hand experience in the use of equipment and procedures employed to manufacture sterile products.</p>	
III. ILOs: After participating in the course, students would be able to	
<ol style="list-style-type: none"> <li>1- Identify the concept and scope of good manufacturing practice.</li> <li>2- Define the concept of QC, GMP, QA and validation.</li> <li>3- Recognize the principles of validation, packaging materials, sterilization.</li> <li>4- Design diagram for pharmaceutical factory.</li> <li>5- Investigate the risk during manufacturing.</li> <li>6- Appraise pharmaceutical system and validation process.</li> </ol>	

- 7- Implement GLP and GMP guidelines in pharmacy practice.
- 8- Operate different pharmaceutical materials, equipment and instruments and developing technologies
- 9- Evaluate using technology in analyzing data and writing report.
- 10- Cooperate and possess positive relation with others and be able to work in a team.
- 11- Have ethical values in professional work.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### (A) Knowledge and Understanding:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
After participating in the course, students would be able to	Lectures using data show, video Discussion and presentation.	Quizzes, Written exam
a1. Identify the concept and scope of good manufacturing practice.		
a2. Define the concept of QC, GMP, QA and validation.		
a3. Recognize the principles of validation, packaging materials, sterilization.		

##### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
After participating in the course, students would be able to:	Lectures, Training, Discussions, Solving Problem methods,	Presentation, Homework and research.
b1. Design diagram for pharmaceutical factory.		
b2. Investigate the risk during manufacturing.		
b3. Appraise pharmaceutical system and validation process.		

##### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
After participating in the course, students would be able to:	- Training in factories	Report and written exams
c1.Implement GLP and GMP guidelines in pharmacy practice.		
c2.Operate different pharmaceutical materials, equipment and instruments anddeveloping technologies.		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills	Teaching strategies to be used	Methods of assessment
After participating in the course, students would be able to:	1. Small group discussions 2. Tutorials 3. Training classes	Reports, presentations and communication with the lecturer and his colleagues.
d1. Evaluate using technology in analysing data and writing report.		
d2-Cooperate and possesspositive relation with others and be able to work in a team.		
d3. Have ethical values in professional work		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Good Manufacture Practice (GMP)	<ul style="list-style-type: none"> <li>- Introduction.</li> <li>- Quality, principles, quality assurance, GMP and quality control</li> <li>- Quality management and total quality management.</li> </ul>	١	3hr	a1, a2
2	Current Good Manufacture Practice (cGMP)	<ul style="list-style-type: none"> <li>- Premises (location of factory, design and different areas in factory (weighing area, sampling area, storage area,</li> </ul>	٢	6hr	a1, b1, c1



		maintenance area, ancillary area, production area and quality control area			
3	Good Manufacture Practice (cGMP)	<ul style="list-style-type: none"> <li>- Personnel and training: principles, training and hygiene.</li> <li>- Key persons</li> <li>- Documentation: principles, specification, records and batch (SOP).</li> </ul>	١	3hr	a1, b3, c1, d1, d2
4	Good Manufacture Practice (cGMP)	<ul style="list-style-type: none"> <li>- Manufacture: principles, validation, contamination, starting and intermediate materials, packaging material and finished product.</li> <li>- Master-formula</li> <li>- Recovered materials, complaints procedures and product recall. Good laboratory practices</li> </ul>	٢	6hr	a1, a2, b3, c1, c2
5	Exam		١	3hr	a1, a2, a3, b1, b3, c1, c2
6	Sterile Products	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Types of sterile products</li> <li>- Parentrals.</li> <li>- Advantages and disadvantages.</li> <li>- Total parenteral nutrition - (TPN)</li> <li>- Powders for injection.</li> <li>- Pyrogens.</li> <li>- Vehicles.(Purified water preparation)</li> <li>- Added substances (preservatives, antioxidants, solubilizer. suspending agents, buffers, stabilizers etc.)</li> </ul>	١	3hr	a1, a3, c2
7	Sterilization	Sterilization techniques; moist heat and dry heat sterilization, radiation, gaseous, filtration, etc.	١	3hr	a3, b2

8	Sterile preparation (continue)	<ul style="list-style-type: none"> <li>- Design of Sterile Area.</li> <li>- Sterile area and its classification;</li> <li>- Air control, (Laminar flow etc).</li> <li>- Air locks, environmental monitoring methods.</li> </ul>	١	3hr	a1, b1, c1, c2
9	Sterile preparation (continue)	<ul style="list-style-type: none"> <li>- Filling/ packaging (plastic and glass containers).</li> <li>- Validation of equipment; e.g autoclave filters, etc.</li> <li>- Validation of filling and packing machines.</li> </ul>	١	3hr	a3, c1, c2
10	Packaging Technology	<ul style="list-style-type: none"> <li>- Influence of packaging materials, Type of pharmaceutical packaging, Manufacturing packaging, Problems of packaging, Advantage and disadvantage of packaging materials.</li> </ul>	٢	6hr	a3, c1, c2
11	- Final exam		١	٣	a1, a2, a3, b1, b2, c1, c2 and d1
Number of Weeks/and Units Per Semester			14	42	

#### VI. Teaching Strategies:

- Lectures using data show, video.
- Discussion of Training report and presentation.

#### VII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Quizzes	8	10	10%	a1, a2, c1, c3
2	Written Test (1) Mid exam	6	30	30%	a1, a2, a3, b1, b3, c1, c2
3	Final Exam (theoretical)	14	60	60%	a1, a2, a3, b1, b2, c1, c2 and d1

5	Total		100	100%	
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VIII. Learning Resources:					
1-Required Textbook(s) ( maximum two ).					
	1- Michael E. Aulton; (2006). Pharmaceutics; the Science of Dosage Form Design. 2- Jhon Sharp;(2006). Good pharmaceutical manufacture practice, rational and compliance.				
2-Recommended Books and Reference Materials.					
	1- Williams and Wilkins (2005). Remington; the Science and Practice of Pharmacy (2first edition). Publisher: Lippincott. 2- Patrick J. Sinko (2006). Martin's Physical Pharmacy and Pharmaceutical Sciences.				
3-Electronic Materials and Web Sites <i>etc.</i>					
	1- <a href="http://www.Pharmaceutical manufacturing process.com">www. Pharmaceutical manufacturing process.com</a> 2- CD production lines and Quality control in different factory				

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)					
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook					
1	Class Attendance: <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>				
2	(Tardy): Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.				
3	(Exam Attendance/Punctuality): <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> </ul>				



	<ul style="list-style-type: none"><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

### قالب توصيف مقرر مهارات تسويقية واتصال

الجامعة: جامعة الناصر

الكلية: العلوم الطبية

القسم: الصيدلة

البرنامج: الصيدلة

I. General Information: معلومات عامة					
1	Course Title: اسم المقرر	مهارات تسويقية واتصال			
2	Course Number and Code: رمز ورقم المقرر	B11527			
3	Credit hours: الساعات المعتمدة	س. م C.H			الاجمالي
		نظري	عملي	تطبيق	
		2			2
4	Study level/year at which this course is offered: الفصل / المستوى الدراسي الذي يدرس فيه المقرر	الفصل الأول/ المستوى الخامس			
5	Pre –requisite : المقررات السابقة	لا يوجد			
6	Co –requisite : المقررات المصاحبة	لا يوجد			
7	Program (s) in which the course is offered: البرامج التي يدرس فيها المقرر				
8	Language of teaching the course: لغة تدريس المقرر	العربية			
9	Prepared By: اعداد	د/ محمد الكهالي			
10	Approved By: تم اقراره من				

II. Course Description: وصف المقرر	
تهدف هذه المادة إلى تزويد الطالب بالمعارف والمفاهيم الأساسية لإدارة التسويق في منظمات الأعمال، وتعزيز الفهم لأساليب التواصل مع المستهلكين وإدارة العلاقات مع العملاء ورفع القدرات وتنمية المهارات في مجال توجيه الجهود التسويقية.	

### III. ILOs: مخرجات تعلم المقرر

- ١- يشرح أسس ومفاهيم إدارة التسويق والاتصال
- ٢- يصف الاستراتيجيات التسويقية
- ٣- يعدد المفاهيم الحديثة في التسويق
- ٤- يلاحظ طبيعة التكامل بين مفاهيم وأساس إدارة التسويق واستراتيجيات وخطط التسويق
- ٥- يحلل مشاكل العمل التسويقية ويتخذ القرارات المناسبة حيالها
- ٦- يربط بين الجوانب النظرية في علم التسويق والجوانب التطبيقية في الحياة العملية
- ٧- يكتشف الاستراتيجيات والأفكار التسويقية التي تتلاءم مع طبيعة الحياة العملية المتغيرة في منشآت الأعمال
- ٨- يعد خطط الاستراتيجية
- ٩- يصمم خطط تسويقية
- ١٠- يستخدم التفكير الخلاق في عملية اتخاذ القرار
- ١١- يطبق الأساليب التسويقية الحديثة في التأثير على العملاء
- ١٢- يعمل بروح الفريق الواحد
- ١٣- يلتزم بالوقت
- ١٤- يتعامل مع الآخرين بإيجابية

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

تسكين المخرجات مع طرق التدريس والتقييم

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods: تسكين مخرجات المعرفة والفهم مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding. مخرجات المعرفة والفهم	Teaching strategies to be used. طرق التدريس	Assessment Methods. طرق التقييم
a1- يشرح أسس ومفاهيم إدارة التسويق والاتصال	المحاضرات المناقشة والحوار العروض المقدمة	اختبارات نظرية مشاركة واجبات/ حالات عملية مشاريع تطبيقية
a2- يصف الاستراتيجيات التسويقية		
a3- يعدد المفاهيم الحديثة في التسويق		

### (B) Intellectual Skills: المهارات الذهنية

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment

تسكين مخرجات المهارات الذهنية مع طرق التدريس والتقييم

Course Intended Learning Outcomes (CILOs) in Intellectual Skills. مخرجات المقرر في المهارات الذهنية	Teaching strategies to be used استراتيجيات التدريس	Assessment Methods طرق التقييم
b1- يلاحظ طبيعة التكامل بين مفاهيم وأساس إدارة التسويق واستراتيجيات وخطط التسويق	١. المحاضرات ٢. أمثلة واقعية للمنظمات وتطبيق بعض الاستراتيجيات عليها ٣. العصف الذهني ٤. المناقشة والحوار	١. اختبارات نظرية ٢. مشاركة ٣. واجبات/ حالات عملية ٤. مشاريع تطبيقية
b2- يحلل مشاكل العمل التسويقية ويتخذ القرارات المناسبة حيالها		
b3- يربط بين الجوانب النظرية في علم التسويق والجوانب التطبيقية في الحياة العملية		
b4- يكتشف الاستراتيجيات والأفكار التسويقية التي تتلاءم مع طبيعة الحياة العملية المتغيرة في منشآت الأعمال		

### (C) Professional and Practical Skills. المهارات المهنية والعملية

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills مخرجات المقرر في المهارات المهنية والعملية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
c1- يعد الخطط الاستراتيجية	١. المحاضرات ٢. المناقشة والحوار ٣. حالات دراسية	١. تقارير ٢. الواجبات المنزلية ٣. وضع أسئلة وواجبات عملية واستبيان لتطبيقها على بعض المؤسسات
c2- يصمم خطط تسويقية		
c3- يستخدم التفكير الخلاق في عملية إتخاذ القرار		
c4- يطبق الأساليب التسويقية الحديثة في التأثير على العملاء		
(D) General/ Transferable Skills: المهارات العامة والانتقالية		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods. تسكين مخرجات العامة والانتقالية مع طرق التدريس والتقييم.		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills مهارات المقرر العامة والانتقالية	Teaching strategies to be used استراتيجيات التدريس	Methods of assessment طرق التقييم
d1- يعمل بروح الفريق الواحد	١. المناقشة والحوار ٢. حالات دراسية	١. يتم تقديم حالات تطبيقية تعتمد على البحث عن المعلومات في الإنترنت والمراجع العلمية ٢. ملاحظة طريقة عرض الطالب للموضوع واستجابته لتعليقات زملائه
d2- يلتزم بالوقت		
d3- يتعامل مع الآخرين بإيجابية		

X. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of Weeks	Contact hours	C-ILOs
1	Introduction an overview of marketing	- Definition - Simple marketing systems - Marketing value	1	2	a 1, b 1, d 2, d 3
2	Marketing functions	- Marketing relationship - Customer value - Customer relationship management	1	2	a 1, b 1, d 2, d 3
3	Marketing environment	- External Forces that effect on marketing environment	1	2	a 2, b 1, b 3, b 4, d 2, d 3

		<ul style="list-style-type: none"> <li>- Internal forces that impact on organizations</li> <li>- Micro environment and macro environment</li> </ul>			
4	Marketing process	<ul style="list-style-type: none"> <li>- Analyzing marketing opportunities</li> <li>- Method of selecting target market</li> <li>- Developing marketing mix</li> <li>- Managing marketing efforts</li> </ul>	1	2	a 3, b 1, b 3, c 1, c 4. d 1, d 2, d 4, d 5
5	Consumer behavior	<ul style="list-style-type: none"> <li>- Model of buyer behavior</li> <li>- Characteristics affecting consumer behavior</li> <li>- Buying decision process</li> </ul>	1	2	a 2, b2, b4, c3, d1, d2, d3
6	Market segmentation	<ul style="list-style-type: none"> <li>- Segmentation definition</li> <li>- Target marketing</li> <li>- Market positioning</li> </ul>	1	2	a 2, b2, b3, c3, d1, d2, d3
7	Mid-term examination		1	2	a1, a 2, a3, b1, b2, b3, b4, c1, c2, c3, c4, d1
8	Marketing mix ( product strategies )	<ul style="list-style-type: none"> <li>- Define four marketing activities</li> <li>- Product definitions</li> <li>- Product classification</li> <li>- Product decisions</li> <li>- Brand strategies</li> </ul>	1	2	a 3, b 1, b 3, c 1, c 4. d 1, d 2, d 4, d 5
9	Pricing strategies	<ul style="list-style-type: none"> <li>- Price definition</li> <li>- Factors affecting price decisions</li> <li>- Consumer perception of price and value</li> <li>- Pricing policies</li> </ul>	1	2	a 3, b 1, b 3, c 1, c 4. d 1, d 2, d 4, d 5
10	Place strategies ( distributions)	<ul style="list-style-type: none"> <li>- Distribution definitions</li> <li>- Marketing channel</li> <li>- Marketing intermediaries</li> <li>- Distribution channel functions</li> <li>- Channel behavior and conflict management</li> <li>- Franchising</li> </ul>	1	2	a 3, b 1, b 3, c 1, c 4. d 1, d 2, d 4, d 5
11	Promotion strategies	<ul style="list-style-type: none"> <li>- Promotion definition</li> <li>- Promotion goals</li> <li>- Marketing communication mix</li> </ul>	1	2	a 3, b 1, b 3, c 1, c 4. d 1,



	(marketing communications)	<ul style="list-style-type: none"> <li>- Communication process</li> <li>- Marketing communications objectives</li> <li>- Steps in developing effecting communication.</li> </ul>			d 2, d 4, d 5
12	Marketing strategy planning	<ul style="list-style-type: none"> <li>- Strategic Planning and Marketing Process</li> <li>- Characteristics of a Strategic Plan</li> <li>- SWOT Analysis</li> <li>- <b>Setting Company Objectives and Goals</b></li> <li>- Portfolio Analysis</li> <li>- Developing the marketing Mix plans</li> <li>- Managing the marketing effort</li> </ul>	1	2	a 3, b 1, b 3, c 1, c 4, d 1, d 2, d 4, d 5
13		Final Exam	1	2	a1, a 2, a 3, b1, b2, b3, b4, c1, c2, c 3, c4, d1, d2, d3
Number of Weeks/and Units Per Semester			13		26

#### V. Teaching Strategies: استراتيجيات التدريس

- أسلوب المناقشة ودراسة الحالات.
- الزيارات الميدانية
- الأسئلة والعروض المقدمة.
- المحاضرات
- أمثلة واقعية للمنظمات وتطبيق بعض الاستراتيجيات عليها
- العصف الذهني
- المناقشة والحوار

#### VI. Assignments and projects: الأبحاث والواجبات

no	Assignment البحث	مخرج تعلم المقرر CILOs	Week Due الاسبوع	Mark الدرجة
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1	حالات عملية عن استراتيجية وخطط التسويق	a – 1, b – 1,	10	5
2	تقرير عن الاتجاهات الحديثة في مجال التسويق	b – 2, c – 2, c – 3, d – 2	3	

VII. Assessment Tasks: طرق التقييم					
No	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	Aligned Course Learning Outcomes مخرج التعلم الذي يحققه
1	Exercises and Home works التمارين والواجبات المنزلية	10, 3	5	5%	a – 2, a – 3, a – 4, b – 1, b – 4
2	Project مشروع	9	5	5%	a – 1, b – 1, b – 2, c – 2, c – 3, d – 2,
3	Midterm	7	30	30%	a – 1, b – 1, d – 2, a – 2, b – 3, b – 4, a – 3
4	Final Exam (theoretical) امتحان نهائي (نظري)	14	60	60%	a – 1, a – 2, a – 3, b – 1, b – 2, b – 3, b – 4 c – 1, c – 2, c – 3, c – 4, d – 1, d – 2, d – 3
5	Total		100	100%	

VIII. Learning Resources: مصادر التعلم	
1-Required Textbook(s) ( maximum two ). ( المراجع المطلوبة (بحد اقصى ٢) )	
	1- principles of marketing by Philip Kotler and Gary Armstrong . 2- Fundamentals of marketing by Stanton . Etzel and Walker 3- Marketing by Jorl R. Evans and Barry Berman.

2-Recommended Books and Reference Materials. المراجع الموصي بها.	
	١. نظام سويدان، ٢٠٠٨، التسويق مفاهيم معاصرة.
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت.	

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
سياسات المقرر (يشمل السرقة الادبية وموائيق الشرف والحضور الخ	
The University Regulations on academic misconduct will be strictly enforced. Please refer to ----- بحسب لائحة جامعة الناصر لشئون الطلاب----	
1	<p>Class Attendance: حضور المحاضرات</p> <ul style="list-style-type: none"> <li>الالتزام بالمواعيد المحددة للمحاضرات والانتظام في الحضور، وضرورة حضور ( ٧٥٪ ) من ساعات المقرر.</li> <li>إذا تجاوز نسبة غياب الطالب (٢٥٪) من ساعات المقرر يعتبر محروماً في المقرر. إلا إذا كان غيابه بسبب مرض او بعذر قاهر تقبله عمادة الكلية، وبموجب وثائق رسمية ومعتمدة.</li> </ul>
2	<p>Tardy: التأخير</p> <ul style="list-style-type: none"> <li>يسمح للطالب المتأخر بدخول المحاضرة إذا تأخر في حدود ربع ساعة فقط وبعذر. وإذا تكرر تاخر الطالب اكثر من ثلاث مرات بدون عذر يتم تنبيهه واخذ تعهد كتابي بعدم تكرار ذلك مالم يستدعى ولى امره ويشعر بذلك ويمنع من حضور المحاضرات ويعتبر راسباً في المقرر.</li> </ul>
3	<p>Exam Attendance/Punctuality: حضور الامتحان والانضباط</p> <ul style="list-style-type: none"> <li>عدم السماح بدخول الامتحان بعد مرور أكثر من نصف ساعة من بدء الامتحان.</li> <li>لا يسمح للطالب الخروج من القاعة الامتحانية بعد توزيع الأسئلة إلا بعد مرور نصف وقت الامتحان.</li> <li>في حالة تغيب الطالب عن الامتحان بعذر مقبول يعاد له الاختبار بالدور الثاني بدرجة كاملة.</li> <li>يعتبر الطالب الغائب في اختبار نهاية الفصل راسباً في المقرر الذي تغيب فيه وعند اعادة الامتحان تحسب له الدرجة الصغرى (٥٠٪).</li> <li>يحرم الطالب من المقرر الذي اخل فيه بالنظام.</li> <li>في المقررات العملية اذا رسب الطالب في الجزء العملي او النظري يعتبر راسباً في المقرر وعليه اعادة الامتحان في الجزء الذي رسب به وتحسب له الدرجة الصغرى.</li> <li>يمنع استخدام الهواتف المحمولة اثناء الامتحان ويعتبر الطالب محروماً من المقرر اذا قام باستخدامه.</li> </ul>
4	<p>Assignments and Projects: الابحاث والمشاريع</p> <ul style="list-style-type: none"> <li>- تقديم الابحاث والمشاريع في الوقت المحدد تماماً.</li> <li>أذا تأخر الطالب عن تقديم واجباته في الموعد الذي حدد له لن يقبل إلا إذا ما وافق الأستاذ على قبول التأخير، بناءً على ظروف قاهرة يتم شرحها والإعلان عنها خطياً قبل رفع درجات المقرر مالم يحرم الطالب من الدرجة المخصصة لهذا النشاط.</li> </ul>

5	<p><b>Cheating: الغش</b></p> <p>لن يتم التسامح مع الغش وهو: محاولة الطالب الغش بالحديث أو النظر في ورقة الغير أو الإشارة أو محاولة استخدام أية وسيلة من وسائل الغش.</p> <ul style="list-style-type: none"><li>■ الغش في الامتحان النصفى أو الشروع فيه يعتبر الطالب محروماً من درجة الامتحان النصفى للمقرر.</li><li>■ الطالب الذي يغش في الامتحان النهائي يحرم من المقرر اذا لم يستفد من الغش او المقرر الذي غش فيه والذي يليه اذا استفاد من الغش. ويحرم من المقرر الذي غش فيه والمقرر الذي قبله اذا غش في اخر مقرر.</li><li>■ إذا تكرر غش الطالب أكثر من مرة في الدورة الامتحانية الواحدة يطبق عليه حكم الفصل من الدراسة لمدة عام جامعي او فصل نهائي اذا تكرر الغش لأكثر من مرتين.</li></ul>
6	<p><b>Plagiarism: الانتحال والسرقة الادبية:</b></p> <p>الطالب الناقل لأفكار الآخرين دون التوثيق يحرم من الدرجة ويعنف على فعلته تلك دون التشهير به أمام زملائه.</p> <ul style="list-style-type: none"><li>■ الطالب المنتحل صفة طالب آخر أثناء أداء الامتحان تطبق عليه المادة (٦٥) الفقرة (٢) من اللائحة الموحدة لشئون الطلاب بجامعة الناصر، وهو "الفصل" ويكون بقرار من الجهات المعنية. وتسري العقوبة نفسها على الطالب الذي انتحل شخصيته لنفس الغرض.</li></ul>
7	<p><b>Other policies: سياسات اخرى</b></p> <ul style="list-style-type: none"><li>■ لا يسمح استخدام الهواتف المحمولة داخل قاعة المحاضرة، أو أثناء سير الامتحان.</li><li>■ إذا سلك الطالب سلوكاً غير مقبول فإنه يُحال إلى الجهات المعنية لاتخاذ اللازم، مشفوعاً بتقرير عن ذلك.</li><li>■ يمنع الاكل او الشرب أثناء المحاضرة.</li></ul>



## Course Specification of Applied Pharmacognosy I

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Applied Pharmacognosy I			
2	Course Number and Code:	B11476			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		4			
4	Study level/year at which this course is offered:	first Semester/ third year			
5	Pre –requisite :	Pharmacognosy II Phytochemistry II			
6	Co –requisite :	None			
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Wedad Mansour and Bushra Moharam			
10	Approved By:				

II. Course Description:	
<p>The course introduces the student to a variety of complementary and alternative medicine topics including phytotherapy, homeopathy, aromatherapy, cauterization and bloodletting therapy. Special attention will be focused on plants that have been used for the treatment of human diseases such as constipation, asthma, and peptic ulcer, and other diseases. The course will cover the different methods for quality control of medicinal plants to ensure that the highest degree of safety and effectiveness is achieved. The students will have a good basic in plant tissue culture and its application in the production of active constituents.</p>	



### III. ILOs:

After participating in the course, students would be able to

- 1- Recognize the principles of the various fields of traditional medicine.
- 2- Explain the principles of using some herbal medications to relief some common health problems e.g. constipation, asthma, and peptic ulcer, and other diseases.
- 3- Illustrate the principles of the standardization and evaluation of herbal drugs.
- 4- Define plant tissue culture and describe the application of plant tissue culture in pharmacy.
- 5- Formulate the herbal medicine to treat and prevent some common diseases
- 6- Design the methods for standardization and evaluation of herbal drugs
- 7- Assess reliably scientific data, analyzes published literature and collaborates with others in the herbal pharmacy practice.
- 8- Research about herbal drug interactions and adverse drug reactions.
- 9- Investigate the application of plant tissue culture in pharmacy.
- 10- Undertake risk assessments concerning herbal drugs interactions, adverse reactions, toxicity profile and incompatibilities in different herbal preparations.
- 11- Prescribe the methods for standardization and evaluation of active substances using analytical, structural and physical standers.
- 12- Use different abbreviations and medical terms belonging to tissue culture and biotransformation.
- 13- Conduct research studies and analyze results.
- 14- Perform effective communication and positive relation with others and be able to work as an effective member in a team.
- 15- Implement technology skills including word processing, power point presentation and spreadsheets, in addition to online net search.
- 16- Use technology in analyzing data and information.

IV. Course Content:				
1 – Course Topics/Items: Applied pharmacognosy				
a – Theoretical Aspect:				
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours
1	Traditional medicine	-Main fields of traditional medicine, herbal medicine, virtues and shortcomings of phytotherapy, the scientific basis of herbal medicine.	1	2
		-Treatment of constipation, asthma, inflammation and peptic ulcer and therapeutic effects of ginseng.	1	2
		-synergism and antagonism in the phytopharmacology	1	2
		-Renewed interest in some old remedies.	1	2
		-Factors influencing the activity of medicinal plant; ecological, allelopathy, biological and polyploidy.	1	2
		-Standardization of phytopharmaceuticals	1	2
2		Mid exam	1	2
3	Evaluation of herbal drugs	Intruduction, methods of evaluating the herbal drug; organoleptic and microscopical methods	1	2
		Physicochemical and chromatographic methods in evaluation of herbal drug	1	2
		Immunological and Microbiological quality of medicinal plants methods	1	2
4	Plant tissue culture	Introduction and materials of plant tissue cultures	1	2
		Methods of plants tissue culture	1	2
		Phytopharmaceutical produced by plant tissue culture	1	2



5		Final exam	1	2
Number of Weeks/and Units Per Semester				28

#### V. Teaching Strategies:

- Lectures using board and makers, data show, video animation and seminars
- Solving Problem method, independent study and discussion

#### VI. Assignments and projects:

No	Assignment	Week Due	Mark
1	Seminar	10, 11	5
2	Project	5, 8	
3	Micro assignments	3-11	

#### VII. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	3-11	5	5%
2	Exercises and Home works Quizzes	3, 6, 11	5	5%
3	Written Test (1)	7	30	30%
4	Final Exam (theoretical)	14	60	60%
5	Total		100	100%

#### VIII. Learning Resources:

1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York.





	2- Steven M. Colegate and Russell J. Molyneux. "Bioactive natural products: detection, isolation, and structural determination" (2008); Seconded, editor.
2-Recommended Books and Reference Materials.	
	1- Paul M. Dewick. "Medicinal Natural Products. (A Biosynthetic approach)" (2001). 2- Silverstein and Webster. "Spectroscopic Identification of organic compounds" (1996); 6th Ed.
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p><a href="http://pages.intnet.mu/webpam/Pharmacognosy.htm">http://pages.intnet.mu/webpam/Pharmacognosy.htm</a>-1</p> <p>2- <a href="http://www.phcog.org/">http://www.phcog.org/</a></p> <p>3- <a href="http://www.botanical.com">http://www.botanical.com</a></p>

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p style="text-align: right;">(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>

3	<p style="text-align: right;">(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>• The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p style="text-align: right;">(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>• The students have to submit the assignment or project on time.</li> <li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>
5	<p style="text-align: right;">(Cheating):</p> <ul style="list-style-type: none"> <li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li> <li>• Midterm Exam cheating results in giving the student a mark of zero</li> <li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li> <li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li> </ul>
6	<p style="text-align: right;">(Plagiarism):</p> <p style="text-align: center;">“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"> <li>• Plagiarism will results in losing the marks of the assignments.</li> <li>• If the students personates other at examination time both will be suspended for a full academic year</li> </ul>



7	<p style="text-align: right;">(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>
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**Fifth year: second semester**



## Course Specification of Quality Control

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Quality Control				
2	Course Number and Code:	B11586				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3				3
4	Study level/year at which this course is offered:	Second semester/Fifth year				
5	Pre –requisite :					
6	Co –requisite :					
7	Program (s) in which the course is offered:	none				
8	Language of teaching the course:	English/ arabic				
9	Prepared By:	Dr. Tawfik Alobaidy				
10	Approved By:					

II. Course Description:	
<p>This course deals with the study of Introduction to quality control, Documentation, Sampling, Errors In Pharmaceutical Analysis, Method of Validation, Drug stability and stability indication. Also it covers the Application of QC.</p>	



### III. ILOs:

At the end of this course the student should be able:

1. Recognize some QC terminology and describe documentation.
2. Explain errors, their causes, types and how to overcome the errors in pharmaceutical analysis.
3. Illustrate validation method and drug stability.
4. Describe sampling types, handling and preservation.
5. Identify indicator for drug stability
6. Predict how to minimize errors and enhance quality of pharmaceutical preparation.
7. Diagram the schemes that relate all steps of for quality control of all dosage forms.
8. Manage and organize the time..
9. Work independently or as a team.
10. Acquire an ethical attitude and approach.

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
At the end of this course the student should be able:	Lectures using data show video animation	MCQ Oral Exam, Quizzes, exam, short answers , Homework and Participation.
a1-Recognize some QC terminology.		
a2-Explain errors, their causes, types and how to overcome the errors in pharmaceutical analysis.		
a3- Illustrate validation method and drug stability.		
a4- Describe sampling types, handling and preservation.		

(B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>



At the end of this course the student should be able:	Lectures, Practice session,	Oral presentation, criteria-based performance evaluation Interpretative exercises.
b1-Identify indicator for drug stability.	Discussions, Solving Problem methods	
b2-Predict how to minimize errors and enhance quality of pharmaceutical preparation.		
b3-Diagram the schemes that relate all steps of for quality control of all dosage forms		

(C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
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(D) General/ Transferable Skills:

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
At the end of this course the student should be able:	Small group discussions	reports, presentations and communication with the lecturer and his colleagues.
d1- Manage and organize the time	Practical classes	
d2-Work independently or as a team		
d3.Acquire an ethical attitude and approach		

V. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction to quality control	Definitions of quality, basic principle of quality control. Component of Quality	2	6	a1, b3, d1-2

		Control, General Quality System Requirements, The main part of the ISO standard is made up of three separate standards, Pharmaceutical Quality Control System, Control Charts,			
2	Documentation	The purposes of documentation, Good documentation in QA system, Types of documentation for QA.	1	3	a1, b3, d2-d4
3	Sampling	Types, Handling the Sample in the Laboratory, the information that may be taken in consideration during sampling, Sampling Procedures And Errors, sampling of solid, liquid and gas, <u>Sample preservation:</u>  Why Sample preservation? Common steps in sample preservation <u>Sample preparation</u>	1	3	a4, b2, d2
4	Errors In Pharmaceutical Analysis	Meaning of errors, Classification of Errors.	2	6	a2, b2, d3
5	Midterm exam		1	3	a1-a4, b1-b3
6	Method Validation	Meaning, method of validation Validation approaches, Method of validation according to USP or ICH, Some Important Terminology	1	3	a3, b3, d1-3
7	Drug stability and stability indication	Definition, Purpose of stability testing, The type of stability studies depends on the different phases of drug and use, Degradation and stability of drugs, Routes of drug instability in dosage form, Chemical degradation routes,	1	3	b1, d1-3



		Stability Indicating Assay Methods (SIAMs),			
8	Physicochemical properties	Physicochemical properties of drug Spectroscopic method for analysis	1	3	a3, b3, d1-3
9	Chromatographic		1	3	b1, d1-3
10	Application of QC	Quality control of raw, material and pharmaceutical dosage forms	1	3	a1-a3, b1-b3, d1d
11	Final exam		1	3	a1-a4, b1-b3
Number of Weeks/and Units Per Semester				39	

#### VI. Teaching Strategies:

Lectures using data show video animation, Practice session, Discussions, Solving Problem methods, Group assignments, Small group discussions, and Practical classes.

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	- Project	a1-4, b1-3, d1-d3	5	5

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project	2, 8	5	5%	a1-4, b1-3, d1-d3
2	Oral Tests	5, 9	5	5%	, a1-a3, b1-b3
3	Written Test (1)	7	30	30%	a1-4, b1-3
4	Final Exam (theoretical)	14	60	60%	a1-4, b1-3
			100	100%	



IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- SomenathMitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada. 2- Satinder Ahuja, Stephen Scypinski, Handbook Of ModernPharmaceutical Analysis, 2001, Academic Press, San Diego, USA.
2-Recommended Books and Reference Materials.	
	1- J. Ermer and J. H. McB. Miller, Method Validation in Pharmaceutical Analysis, 2005, WILEY-VCH Verlag GmbH and Co. KGaA, Weinheim.  2- Robert A. Nash, Alfred H. Wachter, Pharmaceutical Process Validation, Volume 129, Marcel Dekker Inc. 3- Andrew J Fletcher, Lionel D Edward, Anthony W Fox Peter Stonie, Princible and practice of medicine, 2002, John Wiley and Sons Ltd. London, UK
3-Electronic Materials and Web Sites <i>etc.</i>	

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	Class Attendance: <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	(Tardy): Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.

3	<p style="text-align: right;">(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"><li>• Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li><li>• Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p style="text-align: right;">(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p style="text-align: right;">(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p style="text-align: right;">(Plagiarism):</p> <p style="text-align: center;">“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>



7	<p style="text-align: right;">(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>
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## Course Specification of Hospital Pharmacy

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Hospital Pharmacy				
2	Course Number and Code:	<b>B11582</b>				
3	Credit hours: 2hrs.	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3				3
4	Study level/year at which this course is offered:	<i>First semester/Fifth year</i>				
5	Pre –requisite :	Health Managment				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English/Arabic				
9	Prepared By:	Dr. Mohammed Addoais				
10	Approved By:					

II. Course Description:	
<p>An introductory course to the practice of pharmacy in a hospital setting will include organizational structure of the pharmacy department and its relation to other departments. It covers the different drug distribution systems, bulk compounding methods, parenteral admixtures, practice standards, pharmacy and therapeutics committee and general pharmacy administration</p>	

III. ILOs: at end of the course students will be to:	
<ol style="list-style-type: none"> <li>1. Explain hospitals and organization</li> <li>2. list the pharmacy and therapeutic committee functions</li> <li>3. Describe proper aseptic technique in IV admixture compounding</li> <li>4. Mention the process of adverse drug reaction reporting and analysis</li> <li>5. Compare between different drug distribution systems</li> <li>6. Solve the drug relating problems.</li> <li>7. Investigate the drug related problems.</li> </ol>	



8. Prepare intravenous admixture
9. Perform therapeutic drug monitoring
10. Solve any drug related problems in community pharmacy
11. Communicate effectively with patients, the public and health professionals.
12. Cooperate with health professionals

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
<i>At end of the course students will be able to:</i>		
a1-Explain hospital organization	Lectures using data show, Video animation and seminars, Directed reading, Independent study	Written exam Quiz
a2-List the pharmacy and therapeutic committee functions		
a3- Describe proper aseptic technique in IV admixture compounding		
a4- Mention the process of adverse drug reaction reporting and analysis		

##### (B)Intellectual Skills:

##### Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
<i>At end of the course students will be able to:</i>		
b1-Compare between different drug distribution systems	Directed reading Independent study Solving problem methods	Oral exam Presentation Written exam
b2-Solve the drug relating problems.		
b3-Investigate the drug related problems.		

##### (C)Professional and Practical Skills.

##### Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:

Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
c1- Prepare intravenous admixture	Directed reading Independent study Solving problem methods Case studies	Written exam
c2- Perform therapeutic drug monitoring		
c3- Solve any drug related problems in community pharmacy		
<b>(D)General/ Transferable Skills:</b>		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.		
Course Intended Learning Outcomes (CILOs) inGeneral and Transferable Skills <i>At end of the course students will be able to:</i>	Teaching strategies to be used	Methods of assessment
d1-Communicate effectively with patients, the public and health professionals.	Group discussion Seminars Directed reading Independent study	Reports and discussion based assessment
d2-Cooperate with health professionals		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction	<ul style="list-style-type: none"> <li>Organization and Structure Organization of a hospital and hospitalpharmacy</li> <li>Responsibilitiesof a hospital pharmacist</li> <li>Pharmacy and therapeuticcommittee</li> <li>Budget preparation and Implementation.</li> <li>Hospital formulary Contents, preparation and revision of hospital formula</li> </ul>	2	6	a1, a2, b1, c3, d1 d2
2	Drug Store Management and Inventory Control:	<ul style="list-style-type: none"> <li>Organization of a drug store</li> <li>Types of materials stocked</li> <li>Storage conditions.</li> <li>Purchase and Inventory Control <ul style="list-style-type: none"> <li>Principles</li> </ul> </li> </ul>	2	6	a3, d1



		<ul style="list-style-type: none"> <li>○ purchase procedures</li> <li>○ Purchase order</li> <li>○ Procurement and stocking</li> </ul>			
3	Drug Distribution Systems in Hospitals:	<ul style="list-style-type: none"> <li>● Outpatient dispensing - methods adopted.</li> <li>● Dispensing of drugs to inpatients .</li> <li>● Types of drug distribution systems . <ul style="list-style-type: none"> <li>○ Floor stockDDS</li> <li>○ Unit doseDDS</li> <li>○ Prescription DDS</li> </ul> </li> <li>● Automation in drug distribution <ul style="list-style-type: none"> <li>○ Goals</li> <li>○ Automated dispensing systems</li> </ul> </li> <li>● Charging policy – labeling</li> <li>● Dispensing of drugs to ambulatory patients.</li> <li>● Dispensing of controlled drugs.</li> </ul>	4	12	a3, a4, b1, c1, c2, d1, d2
4		Midterm exam	1	3	a1, a2, b1, b2
5	Pharmacy services	<ul style="list-style-type: none"> <li>● Inpatient pharmacy services <ul style="list-style-type: none"> <li>○ Dose adjustment.</li> <li>○ Intravenous admixture (TPN)</li> <li>○ principles of lamina air flow (LAF) hood operation</li> <li>○ principles of aseptic technique, as well as policies and procedures for parenteral drug administration</li> <li>○ Practice the appropriate aseptic technique used in the preparation of intravenous admixture</li> <li>○ calculations associated in all aspects of intravenous admixture preparation appropriately and accurately</li> <li>○ Therapy drug monitoring (TDM)</li> <li>○ Evaluation of medication orders for drug allergy, interactions, and contraindications according to specific patient profiles</li> </ul> </li> <li>● Outpatient pharmacy services <ul style="list-style-type: none"> <li>○ Care of patients with chronic illnesses</li> <li>○ Smoke cessation</li> <li>○ Family planning</li> </ul> </li> </ul>	6	18	a4, b2, b3, c2, c3, d1, d2
6		Final exam	1	3	a1, a2, a3, a4, b2, b3,





				c2, c3, d1, d2
Number of Weeks/and Units Per Semester			16	48

VI. Teaching Strategies:				
<ul style="list-style-type: none"> <li>Lectures using data show</li> <li>Video animation and seminars</li> <li>Directed reading</li> <li>Independent study</li> <li>Group discussion</li> <li>Solving problem methods</li> </ul>				

VII. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	Reports	b1, b2, b2, c1, c2, c3, d1, d2	11	5

VIII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Project	11	5	5%	b1, b2, b2, c1, c2, c3, d1, d2
2	Quizzes and oral test	6, 8	5	5%	a1, a2, a3, a4, b1, b2, b2, d1, d2
3	Written Test (midterm exam )	9	30	30%	a1, a2, a3, a4, b1, b2, b2, d1, d2
4	Final Exam (theoretical)	16	60	60%	a1, a2, a3, a4, b1, b2, b2, d1, d2
Total			100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- M. C.Allwood and J. T. Fell (2010)."Textbook of Hospital Pharmacy" Fourthedition. Blackwell Scientific Publications, Oxford, UK.
2-Recommended Books and Reference Materials.	

	1. W.E. Hassan (1986). "Hospital Pharmacy" Fifthed. Lea and Febiger, Philadelphia.
3-Electronic Materials and Web Sites <i>etc.</i>	

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed n that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>



## Course Specification of Clinical Pharmacy II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Clinical Pharmacy II				
2	Course Number and Code:	<b>B11568</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		2	1			3
4	Study level/year at which this course is offered:	Second semester/Fifth Year				
5	Pre –requisite :	Clinical Pharmacy I				
6	Co –requisite :					
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English and Arabic				
9	Prepared By:	Salah Abdullah Ahmed				
10	Approved By:					

II. Course Description:	
<p>This course provides an understanding of the principles of clinical pharmacy and information on the etiology, clinical signs and symptoms, investigations and principles of treatment of disease important to pharmacists in their development of patient-oriented practice.</p>	

### III. ILOs:

Upon successful completion of this course, the students should be able to:

- 1-Identify the clinical presentations of diseases.
- 2- List the finding of different laboratory tests and its relation to disease management.
- 3-Explain the clinical management of various clinical cases.
- 4-Recognize the pharmacotherapy-related problems such as drug side effects, interactions, disease contraindication.
- 5-Illustrate the drug use and management of disease of special populations
- 6-Analyze and appraise clinical cases
- 7-Create therapeutic plan for certain diseases
- 8-Investigate different drug-related problems in clinical and/or pharmacy settings
- 9-Explore relevant information for clinical case notes and discuss problems in therapeutic management of patients
- 10-Perform different diagnosisof diseases
- 11-Implement therapeutic plans for treatment of certain diseases
- 12-Solve drug-related and patient-related problems
- 13-Monitor drug regimen therapeutic outcomes
- 14- Assess patient cases and evaluate the overall treatment outcomes
- 15-Write reports and give oral presentations

### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i> Upon successful completion of this course, the students should be able	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
a1-Identify the clinical presentations of diseases.	Lectures using data show, and case discussions.	Quizzes, exams, asking questions, and active participation.
a2- List the finding of different laboratory tests and its relation to disease management.	≈	≈
a3-Explain the clinical management of various clinical cases.	≈	≈
a4-Recognize the pharmacotherapy-related problems such as drug side effects, interactions, disease contraindication.	Case discussion	≈
a5-Illustrate the drug use and management of disease of special populations.	Case discussion	≈

### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:



<p><i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i> Upon successful completion of this course, the students should be able</p>	<p>Teaching strategies to be used</p>	<p>Assessment Methods</p>
<p>b1-Analyze and appraise clinical cases</p>	<p>Case discussions and assignments.</p>	<p>Quizzes, exams, asking questions, homework and active participation.</p>
<p>b2-Create therapeutic plan for certain diseases</p>	<p>Lectures using data show, describe guidelines and algorithms, case discussions and assignments.</p>	<p>≈</p>
<p>b3-Investigate different drug-related problems in clinical and/or pharmacy settings</p>	<p>Case discussions and assignments.</p>	<p>≈</p>
<p>b4-Explore relevant information for clinical case notes and discuss problems in therapeutic management of patients</p>	<p>Case discussions and assignments.</p>	<p>≈</p>
<p>(C)Professional and Practical Skills.</p>		
<p>Alignment Learning Outcomes of Professional and Practical Skillsto Teaching and Assessment Methods:</p>		
<p>Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills Upon successful completion of this course, the students should be able</p>	<p>Teaching strategies to be used</p>	<p>Methods of assessment</p>
<p>c1-Perform different diagnosisofdiseases</p>	<p>Case discussions, practical work and assignments.</p>	<p>Practical reports, Quizzes, exams, asking questions, homework and active participation.</p>

c2- Implement therapeutic plans for treatment of certain diseases	≈	≈
c3-Solve drug-related and patient-related problems	≈	≈
c4-Monitor drug regimen therapeutic outcomes	≈	≈

**(D)General/ Transferable Skills:**

Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods.

Course Intended Learning Outcomes (CILOs) in General and Transferable Skills Upon successful completion of this course, the students should be able	Teaching strategies to be used	Methods of assessment
d1- Assess patient cases and evaluate the overall treatment outcomes	Case discussions and assignments.	Quizzes, exams, asking questions, homework and active participation.
d2-Write reports and give oral presentations	Assignments and discussions	≈

**V. Course Content:**

1 – Course Topics/Items:

a – Theoretical Aspect:

Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Renal disorders	Acute renal failure	1	2	a1, a2, a3, b1, b2, b3, b4, c1, c2, c3, c4 d1, d2
2		Urinary tract infections	1	2	a2, b1, b4, c1, c2
3	Endocrinology disorders	Type 1 diabetes mellitus	1	2	a1-a5 b1-b4 c1-c6 d1, d2
4		Type 2 diabetes mellitus	1	2	
5		Hyperthyroidism	1	2	
6		Hypothyroidism	1	2	

7	Gynecologic disorders	Pregnancy and lactation "therapeutic consideration"	1	2	
8	Mid-term		1	2	
9	Gynecologic disorders (continuation)	Pregnancy and lactation "therapeutic consideration"	1	2	
10	Infectious disorders	Pneumonia	1	2	
		Sepsis and septic shock			
11	Neurological disorders	Parkinson's disease	1	2	
		Epilepsy	1	2	
12	Psychological disorders	Depression	1	2	
12	Final exam	-	1	2	
Number of Weeks/and Units Per First semester6				26	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Case studies on acute renal failure	1	2	a1, a2, a3, b1, b2, b3, b4, c1, c2, c3, c4 d1, d2
2	Case studies on acute pyelonephritis	1	2	a1, a2, b1, c1, c2, d2
3	Case-studies on type 1 diabetes	1	2	a1-a5 b1-b4 c1-c4 d1, d2
4	Case-studies on type 2 diabetes	1	2	
5	Case-studies on hyperthyroidism	1	2	
6	Case-studies on hypothyroidism	1	2	
7	Case-studies on benign cases during pregnancy	1	2	
8	Case-studies on certain disorders during pregnancy	1	2	
9	Case-studies on pneumonia	1	2	
10	Case-studies on sepsis and septic shock	1	2	
11	Case-studies on Parkinson's disease	1	2	



12	Case-studies on epilepsy	1	2	
13	Case-studies on depression	1	2	
14	Final Practical exam	1	2	
Number of Weeks/and Units Per First semester4			28	4 units

#### VI. Teaching Strategies:

Lectures using data show, presentations, problem solving method, case-studies, Practical work and discussion, assignments.

#### VII. Assignments and projects:

no	Assignment	CILOs	Week Due	Mark
1	Presentations	a4, a5, b2, b3, b4 c3, c4, d2	8	10
2	Case discussions	a1-a5 b1-b4 c1-c4 d1, d2	All	
3	Drug fact sheet	a4, a5, b3, b4, c4	9	
4	Websites search	d2	12	

#### VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignments	all	10	10%	a1-a5 b1-b4 c1-c4 d1, d2
2	Practical Reports	all	10	10%	
3	Written Test (1)	8	10	10%	a1-a4
4	Final Exam (theoretical)	16	50	50%	a1, a4, b1, b2, c1-c4
5	Final Exam (practical)	14	20	20%	

					d1, d2
7	Total		100	100%	

IX. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-Dipiro et al, Pharmacotherapy Handbook, 7th edition 2008, McGraw Hill 2-Koda-Kimble and Young's, Applied therapeutics "the clinical use of drugs", 10th edition 2013, Lippincott Williams and Wilkins.
2-Recommended Books and Reference Materials.	
	1- Dipiro et al, Pharmacotherapy A pathophysiologic Approach, 7th edition 2008, McGraw Hill. 2- Dipiro et al, Pharmacotherapy Principles and Practice, 7th edition 2008 McGraw Hill.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.dynamed.ebscohost.com">www.dynamed.ebscohost.com</a> 2- <a href="http://www.drugs.com">www.drugs.com</a> 3- <a href="http://www.drugdigest.com">www.drugdigest.com</a> 4- <a href="http://www.pharmacistletter.com">www.pharmacistletter.com</a> 5- <a href="http://www.rxlist.com">www.rxlist.com</a>

X. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	Class Attendance: <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	(Tardy): Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.
3	(Exam Attendance/Punctuality): <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> </ul>

	<ul style="list-style-type: none"><li>• If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li><li>• If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li><li>• The student will be considered as failed if he broke the regulations and roles of examination.</li><li>• In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li><li>• Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li></ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Applied pharmacognosy 2

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:					
1	Course Title:	Applied pharmacognosy 2			
2	Course Number and Code:	B11577			
3	Credit hours:	C.H			Total
		Th.	Pr.	Tut.	
		4			
4	Study level/year at which this course is offered:	second semester/third year			
5	Pre –requisite :	Pharmacognosy I & II courses Phytochemistry I & II courses Applied Pharmacognocoy			
6	Co –requisite :	None			
7	Program (s) in which the course is offered:	None			
8	Language of teaching the course:	English/Arabic			
9	Prepared By:	Wedad Mansour			
10	Approved By:				

### II. Course Description:

The course provides students with information about clinical effectiveness of herbs in the prevention and/or treatment of the diseases affecting digestive system, cardiovascular system, respiratory system, non-specific enhancement of resistance, urinary system, rheumatic conditions, nervous system,



gynaecological conditions, cancer, skin diseases, eye diseases, wounds and other injuries. Also provides students with information about botanical or herbal products that will allow them to make judgments about clinical effectiveness and potential for adverse consequences in patients.

### III. ILOs:

After completion of this course, the students should be able to

- 1- Recognize the medicinal plants in prevention and healing of diseases.
- 2- Summarize the principles of using some herbal medications to relief some common health problems e.g. GIT, cardiovascular, respiratory, urinary, ....etc
- 3- Identify pharmacological properties, adverse reactions and contraindications of some herbal medications used in some specific health problems.
- 4- Suggest appropriate formulas for treatment of common diseases
- 5- Design implementation, monitoring, assessment and intervention in drug therapy to obtain the most effective, most safe and economic drug regimen.
- 6- Contribute to the development of the profession through applied study, analysis of the published literature, drug information and evaluation of medicinal plants and their uses in improving health.
- 7- Diagnose simple health problems.
- 8- Prescribe a herbal remedy for treatment of common health problems.
- 9- Create and dispense herbal medicine prescriptions as well as reviewing written prescriptions for accuracy and to reduce medication errors.
- 10- Work effectively as a member of a team
- 11- Write reports and presents it.
- 12- Communicate effectively with other health care professionals, patients and publics.
- 13- Demonstrate decision making and problem solving in using of herbal medicine as an alternative medicine.
- 14- Acquire good knowledge about herbal medicine as one of the most common alternative therapies.
- 15- Advise patients and publics to enhance recovery and achieve positive therapeutic outcomes.



IV. Course Content:				
1 – Course Topics/Items: Complementary & alternative medicine				
a – Theoretical Aspect:				
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours
1	Introduction	<ul style="list-style-type: none"> <li>- Definitions of complementary and alternative medicine</li> <li>- Concepts of complementary and alternative medicine</li> <li>- Comparison with Integrative medicine</li> <li>- Classification of complementary and alternative medicine.</li> </ul>	1	2
2	Types of complementary and alternative medicine	<ul style="list-style-type: none"> <li>- Alternative medical systems</li> <li>- Definitions, concepts, and applications of</li> <li>* Traditional Chinese medicine.</li> <li>* Indian medicine (Ayurveda).</li> </ul>	1	2
3		<ul style="list-style-type: none"> <li>- Mind-body therapies</li> <li>- Biologically Based Practices</li> </ul>	1	2
4		<ul style="list-style-type: none"> <li>- Manipulative therapies</li> <li>- Energy medicine</li> </ul>	1	2
5	Evidence based therapies	Definitions, concepts, applications of: <ul style="list-style-type: none"> <li>* Homoeopathy</li> <li>* Anthroposophical medicine</li> </ul>	1	2
6		<ul style="list-style-type: none"> <li>* Aromatherapy</li> <li>* Flower remedy therapy</li> <li>* Phytotherapy (Herbal medicine)</li> </ul>	1	2
7	Mid- term exam		1	2

8	Phytotherapy	- Herbs and herbal combinations, preparations and doses used in treatment of: * Central Nervous System disorders	1	2
9		* Urinary tract disorders * Skin diseases * Respiratory system	1	2
10		* Digestive system disorders * Rheumatic Diseases	1	2
11		* Cardiovascular system	1	2
12		* Gynecological disorders * Endocrine and metabolic problems * Performance and immune deficiencies	1	2
13	Non-medicinal based therapies	- Hydrotherapy - Apitherapy	1	2
14	Final exam		1	2
<b>Number of Weeks /and Units Per Semester</b>				

No	Assignment	Week Due	Mark
1	Seminar	10, 11	3
2	Project	5, 8	4
3	Micro assignments	3-11	3

V. Assessment Tasks:				
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	3-11	10	10%
2	Exercises and Home works	3, 6, 11	3	3%

3	Oral Tests	2, 7, 9, 12	3	3%
4	Quizzes	4, 8	4	4%
5	Written Test (1)	7	20	20%
6	Final Exam (theoretical)	14	60	60%
7	Total		100	100%

<b>VI. Learning Resources:</b>	
<b>1- Required Textbook(s) ( maximum two ).</b>	
	<p>1- Steven B Kayne. "Complementary and alternative medicine" (2009); Pharmaceutical Press.</p> <p>2- Henrich M., Barends j. and Gibbons S.A. "Fundamentals of Pharmacognosy and Phytotherapy" (2004); Churchill Livingstone, New York.</p> <p>3- Karin Kraft. "Pocket guide to herbal medicine" (2004); Georg Thieme Verlag.</p>
<b>2- Recommended Books and Reference Materials.</b>	
	<p>1- Brun L. and Cohen M. "Herbs &amp; Natural Supplements" (2010); 3rd ed., Elsevier, London</p> <p>2- Tracy T.S. &amp; Kingston R.L. "Herbal Products" (2007); 2nd ed., Humana Press, New Jersey.</p> <p>3- Evans W.C., Evans D. &amp; Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York.</p>
<b>3- Electronic Materials and Web Sites etc.</b>	
	<p>1- <a href="http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm">http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm</a></p> <p>2- <a href="http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm">http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm</a></p> <p>3- <a href="http://www.rain-tree.com/prepmethod.htm">http://www.rain-tree.com/prepmethod.htm</a></p>

<b>VII. Learning Resources:</b>	
<b>1-Required Textbook(s) ( maximum two ).</b>	
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<b>2-Recommended Books and Reference Materials.</b>	
	<p>1- Brun L. and Cohen M. "Herbs and Natural Supplements" (2010); Third ed., Elsevier, London</p>



	2- Tracy T.S. and Kingston R.L. "Herbal Products" (2007); Seconded., Humana Press, New Jersey.
3-Electronic Materials and Web Sites etc.	
	1- <a href="http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm">http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm</a> 2- <a href="http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm">http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm</a> 3- <a href="http://www.rain-tree.com/prepmethod.htm">http://www.rain-tree.com/prepmethod.htm</a>

VIII. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p style="text-align: right;">(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p style="text-align: right;">(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>

4	<p style="text-align: right;">(Assignments and Projects):</p> <ul style="list-style-type: none"><li>• The students have to submit the assignment or project on time.</li><li>• In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li></ul>
5	<p style="text-align: right;">(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p style="text-align: right;">(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year.</li></ul>
7	<p style="text-align: right;">(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

## Course Specification of Industrial Pharmacy II

University: Al-Nasser University

Faculty: Medical Science

Department: Pharmacy

Program title: Pharmacy Program

I. General Information:						
1	Course Title:	Industrial Pharmacy II				
2	Course Number and Code:	<b>B11588</b>				
3	Credit hours:	C.H				Total
		Th.	Pr.	Tut.	Tr.	
		3				3
4	Study level/year at which this course is offered:	Second semester/Fifth year				
5	Pre –requisite :	Industrial Pharmacy I				
6	Co –requisite :	----				
7	Program (s) in which the course is offered:					
8	Language of teaching the course:	English and Arabic				
9	Prepared By:	Dr. Abdulkarim Alzomor				
10	Approved By:					

II. Course Description:	
Students are to be introduced to the basic concepts involved in the manufacture of various drug dosage forms on large scale efficiently and economically. Moreover, they will be provided with the essential unit operation involved in the production of pharmaceuticals such as heat transfer, evaporation, drying, size reduction and separation, extraction, filtration, centrifugation, size enlargement and mixing process.	
III. ILOs: After participating in the course, students would be able to	
<ol style="list-style-type: none"> <li>1- Name and define the unit operations involved during industrial scale production of different dosage forms.</li> <li>2- List the different equipment utilized to carry out different unit operations.</li> <li>3- Describe the components and the operation of various equipment used during the manufacture of different dosage forms.</li> <li>4- Compare between different equipment and select the suitable equipment used efficiently to perform the required operation during pharmaceutical manufacturing.</li> <li>5- Design appropriate chart for manufacturing of different dosage forms.</li> <li>6- Estimate the product quantity by applying the rules of material balance.</li> <li>7- Solve the problems commonly encounter during the large scale production of pharmaceuticals.</li> </ol>	



- 8- Handle the strategy for working in pharmaceutical plants.  
9- Have ethical values in professional work.

#### IV. Alignment Learning Outcomes with Teaching and Assessment Methods:

##### (A) Knowledge and Understanding:

Alignment Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding.</i>	<i>Teaching strategies to be used.</i>	<i>Assessment Methods.</i>
After participating in the course, students would be able to	Lectures using data show, video.	Quizzes, Written exam.
a1. Name and define the unit operations involved during industrial scale production of different dosage forms.	- Discussion and presentation	
a2- List the different equipment utilized to carry out different unit operations.		
a3- Describe the components and the operation of various equipment used during the manufacture of different dosage forms.		

##### (B) Intellectual Skills:

Alignment Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods:

<i>Course Intended Learning Outcomes (CILOs) in Intellectual Skills.</i>	<i>Teaching strategies to be used</i>	<i>Assessment Methods</i>
After participating in the course, students would be able to:	Lectures, Training, Discussions, Solving Problem methods,	Presentation, Homework and research.
b1- Compare between different equipment and select the suitable equipment used efficiently to perform the required operation during pharmaceutical manufacturing.		
b2- Design appropriate chart for manufacturing of different dosage forms.		

##### (C) Professional and Practical Skills.

Alignment Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills	Teaching strategies to be used	Methods of assessment
After participating in the course, students would be able to:	<ul style="list-style-type: none"> <li>- Training in factories</li> <li>- Video</li> </ul>	Report and written exams
c1- Estimate the product quantity by applying the rules of material balance.		
c2- Solve the problems commonly encountered during the large scale production of pharmaceuticals.		
(D) General/ Transferable Skills:		
Alignment Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods:		
Course Intended Learning Outcomes (CILOs) in General and Transferable Skills	Teaching strategies to be used	Methods of assessment
After participating in the course, students would be able to:	<ol style="list-style-type: none"> <li>1. Group discussion</li> <li>2. Training classes</li> </ol>	Reports, presentations and communication with the lecturer and his colleagues.
d1- Handle the strategy for working in pharmaceutical plants.		
d2. Have ethical values in professional work		

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Heat transfer and Flow of heat	<ul style="list-style-type: none"> <li>- Classification of heat flow process.</li> <li>- Overall coefficient of heat transfer.</li> <li>- Mechanisms of heat transfer, conduction, convection and radiation.</li> <li>- Design of heating equipment.</li> <li>- Tubular heaters; heat transfer by radiation and convection.</li> <li>- Tubular heaters; heat interchangers, inductive heating.</li> </ul>	1	3Hrs	d1 a1, a2, a3, b1, b2, c1
2	Drying	<ul style="list-style-type: none"> <li>- Introduction, definition, factor affecting drying</li> <li>- Classification of dryers</li> </ul>	2	6hrs	a1, a2, a3, b1, b2,

		<ul style="list-style-type: none"> <li>- dryers for dilute solutions and suspensions.</li> <li>- Dryers for solid materials.</li> <li>- Convectonal and conduction dryers.</li> <li>- Theory of drying loss on drying and moisture content, equilibriummoisture content.</li> <li>- Principles of freeze drying, freeze dryers.</li> </ul>			c1c2, d1,
3	Evaporation	<ul style="list-style-type: none"> <li>- General principals of evaporation. Factor affecting evaporation</li> <li>- Classification of Evaporator – jacketed kettles, tube evaporators,</li> <li>- -forced circulation evaporators and evaporator accessories.</li> <li>- Evaporation under reduced pressure.</li> <li>- Multiple effect evaporation.</li> </ul>	1	3hrs	a1, a2, a3, b1, b2, c1 c2, d1
4	Mid Exam		1	3hrs	a1, a2, a3, b1, b2, c1 c2, d1
5	Mixing process	<ul style="list-style-type: none"> <li>- Introduction, factor affecting mixing, type of mixture</li> <li>- Fundamentals and mechanism.</li> <li>-Type of mixer used in</li> <li>-liquid/liquid,</li> <li>-liquid/solid,</li> <li>-semisolid</li> <li>--solid/solid mixing.</li> </ul>	2	6hrs	a1, a2, a3, b1, b2, c1 c2, d1
6	Size enlargement	<ul style="list-style-type: none"> <li>- Methods and mechanisms of granule formation.</li> <li>- Reasons for size enlargement.</li> </ul>	1	3hrs	a1, a2, a3, b1, b2, c1 c2, d1

		<ul style="list-style-type: none"> <li>- Pharmaceutical granulation equipments; high speed mixer granulator, oscillating granulator, extruder.</li> </ul>			
7	Size reduction	<ul style="list-style-type: none"> <li>- Theory and reasons of size reduction</li> <li>- Factors influencing size reduction.</li> <li>- Pharmaceutical applications.</li> <li>- Mechanisms and equipments used for size reduction; e.g. roller mill, ball mill, hammer mill, fluid energy mill, colloid mill.</li> </ul>	1	3hrs	a1, a2, a3, b1, c1, c2, d1
8	Filtration	<ul style="list-style-type: none"> <li>-Theory of filtration and filtration media.</li> <li>- Darcy's equation.</li> <li>- Filter aids.</li> <li>- Classification of filtration filters (e.g. plate and frame filter, leaf filter, filter press, rotary filter.....).</li> </ul>	1	3hrs	a1, a2, 3, b1, b2, c1 c2, d2
9	Distillation	<ul style="list-style-type: none"> <li>- Theory of distillation, definition, uses</li> <li>- type of distillation: <ul style="list-style-type: none"> <li>(a) for miscible liquids,</li> <li>(b) for immiscible liquids,</li> <li>(c) Steam distillation</li> <li>d) fractional distillation.</li> </ul> </li> <li>and ...ect.</li> </ul>	1	3hrs	a1, a2, a3, b1, c1 c2, d2
10	Extraction process	<ul style="list-style-type: none"> <li>- Theory of extraction, definition, uses, factor affecting extraction</li> <li>- Type of extraction: <ul style="list-style-type: none"> <li>- Liquid/ solid extraction</li> <li>- Liquid/ liquid extraction</li> </ul> </li> </ul>	1	3hrs	a1, a2, 3, b1, b2, c1 c2, d1
11	Crystallization	<ul style="list-style-type: none"> <li>- Classification, batch crystallizers, simple vacuum crystallizers.</li> <li>- Nucleation and crystal growth <ul style="list-style-type: none"> <li>- - critical humidity</li> <li>prevention of caking,</li> </ul> </li> </ul>	1	3hrs	a1, a2, a3, b1, b2, c1 c2, d2



		material and energy balances			
12	- Final exam		1	3hrs	a1, a2, a3, b1, b2, c1, c2 and d1
Number of Weeks/and Units Per Semester			14week	42 hr	

#### VI. Teaching Strategies:

- Lectures using data show, video.
- Discussion of Training reportand presentation.

#### VII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Quizzes	5	5	5%	a1, a2, a3, b1, c1, c2
2	Written Test (1) Mid exam	6	30	30%	a1, a2, a3, b1, b2, c1, c2, d1
3	Homework	10	5	5%	a1, a2, a3, b1, c1, c2
4	Final Exam (theoretical)	14	60	60%	a1, a2, a3, b1, b2, c1, c2 and d1
5	Total		100	100%	

#### VIII. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- Badger, WL. and Banchemo, J.T., (1995). Introduction to chemical engineering, McGRAW- HILL book publishing company INC., KOGAKUSHA company, LTD Tokyo.
- 2- Warren McCabe. Julian Smith, Peter Harriot (2000). Unit Operations, McGraw-Hill Publishing science. New Delhi, sixth edition.

##### 2-Recommended Books and Reference Materials.

- 1- Williams and Wilkins (2005).Remington; the Science and Practice of Pharmacy (2first edition). Publisher: Lippincott.



	2- Bhatt NB, Panchal VM, Panchal VM, ( 2005). Machine Drawing. Charotar Publishing House PVT Ltd.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- - McGraw-Hill web site page 2- CD Operation pharmaceutical production machine in different factory

IX. Course Policies: (including plagiarism, academic honesty, attendance etc)	
The University Regulations on academic misconduct will be strictly enforced. Please refer to Al-Nasser University student's regulations handbook	
1	<p>Class Attendance:</p> <ul style="list-style-type: none"> <li>Absence from lectures and/or practical shall not exceed 25 %. Students who exceed the 25% limit without a medical or emergency excuse acceptable to and approved by the Dean of the college shall not be allowed to take the final exam and shall receive a mark of zero for the course.</li> </ul>
2	<p>(Tardy):</p> <p>Students will be allowed to in the class if he/she is late not more than 15 minutes with an acceptable excuse. If the student is late in attending the class for more than three times without an excuse he/she will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.</p>
3	<p>(Exam Attendance/Punctuality):</p> <ul style="list-style-type: none"> <li>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</li> <li>Students will not be allowed to leave the exam room until unless half of the examination time is passed.</li> <li>If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to take the exam as first attempt.</li> <li>If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated as the minimum of 50%.</li> <li>The student will be considered as failed if he broke the regulations and roles of examination.</li> <li>In the practical courses failing in either part is marked as failing in the course and student has to appear in the failing part and the marks will be given as the minimum mark.</li> <li>Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</li> </ul>
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> <li>The students have to submit the assignment or project on time.</li> <li>In late cases student has to provide an acceptable and written excuse to the lecturer before the lecturer has to submit the final marks to the department otherwise the student will not be given the marks of the project.</li> </ul>



5	<p>(Cheating):</p> <ul style="list-style-type: none"><li>• Cheating in examinations or tests is prohibited which may be in the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, papers or cell phones) etc.</li><li>• Midterm Exam cheating results in giving the student a mark of zero</li><li>• Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the cheating occur in the last day of exam the student will be considered as failed in that course and the previous one.</li><li>• If the students repeats cheating in a single examination period he will be discontinued for a full academic year or permanently if he repeated cheating more than twice.</li></ul>
6	<p>(Plagiarism):</p> <p>“To plagiarize is to take ideas or words of another person and pass them off as one’s own”.</p> <ul style="list-style-type: none"><li>• Plagiarism will results in losing the marks of the assignments.</li><li>• If the students personates other at examination time both will be suspended for a full academic year</li></ul>
7	<p>(Other policies):</p> <ul style="list-style-type: none"><li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li><li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li><li>• Eating or drinking is strictly prohibited.</li></ul>

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# First year

## First semester



I. Course Specification of Introduction to Pharmacy Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	HistoryOf Pharmacy and development of pharmacy	-Introduction to history of pharmacy -Symbols: the mortar and pestleandrecipere.Others. -Drug development and discovery of active constituents, -Development of industrial pharmacy. -Role of old civilization; -Egyptian civilization -Greek civilization -Roman civilization -Arabian civilization -Europe civilization	5	10	
2	Pharmaceutical Sciences	-Medicinal chemistry and Pharmacognosy, Pharmacy practice, clinical pharmacy	1	2	
3	Midterm Exam		1	2	



4	pharmaceutical dosage forms	<ul style="list-style-type: none"> <li>-Definitions, examples of pharmaceutical dosage forms.</li> <li>-Dosage form design, selection of the proper dosage forms,</li> <li>-Routes of drug administration.</li> <li>-Types of pharmaceutical dosage forms, advantages and disadvantage.</li> </ul>	3	6	
5	Pharmacopoeia and Pharmacy profession	<ul style="list-style-type: none"> <li>- Definition and types</li> <li>- objective and types</li> <li>- Pharmaceutical abbreviations</li> <li>- Pharmaceutical terminology</li> <li>-Definitions and history.</li> <li>-The field of Pharmacy:</li> <li>-Profession ethics</li> </ul>	1	2	
6	Final exam	exam	1	2	
Number of Weeks)/per semester			12	24	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment	9	5	5%	
2	Quizzes and class activity	all	5	5%	
3	Mid Exam (theoretical)	7	30	30%	
4	Final Exam (theoretical)	13	60	60%	
Total				100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Bond, Christine, (2000). <i>Evidence-based pharmacy</i> .Pharmaceutical Press, Fifth ed. London. 2- Ruth E. Nermire, Karen L. Kier, McGraw Hill, 2009. Pharmacy student Survival Guide, Secondedition.
2-Recommended Books and Reference Materials.	
	1- Arthur J. Winfield, R. Michael E., Richards; 2009. Pharmaceutical practice, Fourthedition, Churchill Livingstone. 2- Williams and Wilkins, 2005. Pharmaceutical calculations, 12thedition, Lippincott. 3- Loyd v. Allen, Nicholas G. Popovich and Haward C. Ansel's, 2004. Pharmaceutical dosage forms and drug delivery Systems, Lippincott Williams and Wilkins.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.ashp.org/doclibrary/bestpractices/managementpositions.aspx">http://www.ashp.org/doclibrary/bestpractices/managementpositions.aspx</a> 2- <a href="http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html">http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html</a> 3- <a href="http://betterpharmacytech.com/about-us/pms/">http://betterpharmacytech.com/about-us/pms/</a>



## Course Specification of General Chemistry I

I. Course Content:					
Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction and Some definitions and Units of Measurements: <ul style="list-style-type: none"> <li>• Matter</li> <li>• Physical and chemical properties physical and chemical changes,</li> <li>• Intensive and extensive properties,</li> <li>• Energy changes.</li> <li>• Units, SI system and Measurements and significant figures:</li> </ul>	<ul style="list-style-type: none"> <li>• atom, element, compound, mixture.</li> <li>• The basic units in SI system. conversion, significant figures, rules of significant figures.</li> </ul>	2	4	
2	Atomic Structure: Atoms and their component Atomic and Mass Number, Isotopes, Mole, Avogadro's number and the Mole and molecular weight <ul style="list-style-type: none"> <li>• Periodic table:</li> <li>• Cations and anions</li> <li>• Writing formula from ions</li> <li>• Naming Chemical Compounds</li> </ul>	<ul style="list-style-type: none"> <li>• Historical, modern periodic table, Groups and Periods</li> <li>• Ionic, Covalent (molecules), and oxoacid compound (Compound containing mono and polyatomic ions.</li> </ul>	2	4	
4	Electronic Structure of Atoms and Periodic Table <ul style="list-style-type: none"> <li>• Electronic structure</li> </ul>		2	4	



	<ul style="list-style-type: none"> <li>• Orbitals and Quantum Numbers:</li> <li>• The Energies of Orbitals</li> <li>• Electron Configuration</li> <li>• Writing Electron Configuration</li> </ul> <p>Electron Configuration and the Periodic Table</p>	<ul style="list-style-type: none"> <li>• Principal quantum number, the azimuthal quantum number, the magnetic quantum number, and the spin quantum number</li> </ul>			
5	Mid Exam		1	2	
6	<p>Periodic Properties of the Elements</p> <ul style="list-style-type: none"> <li>• Explaining The Behavior of Elements Through Atomic Properties</li> </ul> <p>• The Halogens</p>	<ul style="list-style-type: none"> <li>• Atomic Size, Ionization Energy, Electron Affinity, Electronegativity, Metallic Characters</li> <li>• Oxidizing Agents, Acidic, Basic and Amphoteric Properties</li> </ul>	2	4	
7	<p>Chemical Formulas and Chemical Equations</p> <ul style="list-style-type: none"> <li>• Chemical formulas:</li> <li>• Percent composition</li> </ul> <p>Determine the Empirical formula from a percent composition</p> <ul style="list-style-type: none"> <li>• Empirical formula and molecular formula</li> <li>• Balance the chemical equation</li> <li>• Chemical Equations</li> </ul> <p>Calculations based on Chemical Equations</p> <p>Classifying Chemical Reactions</p>	<p>Empirical, molecular, and structure formulas.</p> <p>Reduction, combination, decomposition, displacement and metathesis reactions</p>	2	4	



	<p>Chemical Bonding, Lewis structure and Molecular Geometry</p> <ul style="list-style-type: none"> <li>• Lewis Dot Formulas of Atoms</li> <li>• Formation of Ionic bonding and Covalent Bonding</li> <li>• Lewis Formulas for Molecules and Polyatomic Ions</li> <li>• The Octet Rule</li> <li>• Resonance</li> <li>• Limitations of the Octet Rule for Lewis Formulas</li> <li>• Polar and Nonpolar Covalent Bonds</li> <li>• Dipole Moments</li> <li>• Formula charge</li> <li>• Molecular Structure and Covalent Bonding Theories</li> <li>• Valence Bond (VB) Theory</li> </ul>	<ul style="list-style-type: none"> <li>• Valence Shell Electron Pair Repulsion (VSEPR) Theory</li> <li>• Polar Molecules: The Influence of Molecular Geometry</li> <li>• Valence Bond (VB) Theory</li> </ul>	3	6	
8	Final Exam		1	2	
			15	30	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Identification of Anions: Carbonate and bicarbonate-sulfur salts-Halides-cyanogen salts-arsenic and phosphorous salts-and other miscellaneous salts	2	6	
2	Identification of Cations: Silver group - copper/arsenic group - Iron group - Zinc group - alkaline earth group - alkali group.	3	9	
3	Systematic analysis : of cations and anions in simple inorganic mixtures.	2	6	
4	Systematic analysis: of cations and anions in mixture containing difficulties, e.g. phosphate organic matter,	3	9	



	oxidizing agent, insoluble substances and mixture of related acid radicals.			
	Final Exam	1	3	
Number of Weeks/and Units Per Semester		11	33	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment	ALL	5	5 %	
2	Practical reports	1-10	10	10 %	
3	Exercises and Home works and Quizzes	3, 6, 8, 10	5	5 %	
4	Written Test (1)	7	10	10 %	
5	Final Exam (theoretical)	15	50	50 %	
6	Final Exam (practical)	10	20	20 %	
Total			100	100 %	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>Whitten, Davis, Peck, and Stanley, <i>General Chemistry</i>, Thomson: Brooks Cole; 7th edition (2004)</li> <li>Darrell D. Ebbing and Steven D. Gammon. <i>General Chemistry</i>. 9<sup>th</sup>2009Houghton Mifflin Company, BOSTON NEW YORK</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>Course Notes Handout Texts: Prepared by Satyajit D. Sarker and Lutfun Nahar. <i>Chemistry for Pharmacy Students: General, Organic and Natural Product Chemistry</i>. John Wiley and Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, 2007</li> <li>C.V.S. Subrahmanyam, <i>Essentials of Physical Pharmacy</i>, Published by Vallabh Prakashan (2005).</li> </ol>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<ol style="list-style-type: none"> <li><a href="http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm">http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm</a></li> <li><a href="http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm">http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm</a></li> <li><a href="http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm">http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm</a></li> </ol>



I. Course Specification of English I Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Unit: 1 reading	Preventive medicine	2	4	
2	Unit: 2 Infectious Diseases.	Infection and how they spread.	2	4	
3	Unit : 3 Fight infection and midterm exam	How the body fight infection	3	6	
4	Unit 4: Nutrition	Nutrition and balanced diet	2	4	
5	Unit 5: Malnutrition	Deficiency	2	4	
6	Unit: 6 Immunity	Immunization	2	4	
7	Final Exam		1	2	
Number of Weeks/and Units Per First semester4				28	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Creative writing	6	5	5%	b1-b2, c1, d1-d3
2	Oral Tests	1-12	5	5%	a1-a3, b1-b2, c1, d1-d3
3	Written Test (1)	6	30	30%	a1-a3, b1-b2, c1, d1-d3
4	Final Exam (theoretical)	12	60	60%	a1-a3, b1-b2, c1, d1-d3
5	Totak		100	100%	

III. Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>Amr Al Himairi, (2005), English for medical students, Sana'a University, Sana'a, Republic of Yemen</li> <li>Laquire Blass, (2005), Well read 1, Oxford University press.</li> </ol>
2- Recommended Books and Reference Materials.	



	<ol style="list-style-type: none"><li>1. Jack C. Richard, (2005), Person to Person Starter, Oxford University press.</li><li>2. Mosby's (1989), Medical and Nursing Dictionary, second edition. Glotia Publication Pvt. Ltd.</li></ol>
3- Electronic Materials and Web Sites <i>etc.</i>	

## I قالب توصيف مقرر اللغة العربية I

I. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order م سلسل	Topic/ unit الوحدة / الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسبوع	Contact hours الساعات الفعلية	
1	أهمية تعلم اللغة العربية.	- ماهي اللغة - أهمية اللغة	1	2	
2	مهارات الاستماع وأهميتها وعوائقها.		1	2	
3	مهارات الاستماع تطبيق وتقويم.		1	2	
4	حل بعض التدريبات المتعلقة بهذه المهارة.		1	2	
5	مهارات التحدث وأهميتها وقصص.		1	2	
6	أسس الخطاب الناجح.		1	2	
7	امتحان نصفي		1	2	
8	نماذج لبعض الطلاب الراغبين في الإلقاء.		1	2	
9	الجملة الاسمية وأركانها.	- صور المبتدأ. - صور الخير.	1	2	
10	مراجعة، وتطبيقات على الجملة الاسمية.	أمثلة + تدريب على الإعراب.	1	2	
11	النواسخ كان + إن وأخواتها	حل الأمثلة وتحليلها.	1	2	
12	الأدب في العصر الجاهلي لمحة.		1	2	
13	الأدب في العصر الإسلامي والأموي.		1	2	
14	الأدب في العصر العباسي.		1	2	
15	الأدب في العصر الأندلسي		1	2	
16	امتحان نهائي		1	2	
Number of Weeks/and Units Per Semester عدد الاسبوع او الوحدات في الفصل الدراسي				32	

II. Assessment Tasks: طرق التقييم					
no	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment	

				نسبة الدرجة من الدرجة النهائية	
1	بحث عن المهارات التفصيلية للاستماع الشرود الذهني الأسباب والعلاج.	5, 10	٥	٥%	
2	Quizzes اسئلة قصيرة	3, 6, 9, 14	٥	٥%	
3	Written Test (1) امتحان تحريري	7	٣٠	٣0%	
4	Final Exam (theoretical) امتحان نهائي (نظري)	16	٦٠	٦0%	
5	Total		100	100%	

III. Learning Resources: مصادر التعلم	
1-Required Textbook(s) ( maximum two ). (بحد اقصى ٢).	
	١- مجد الدين الفيروز آبادي، ١٩٩٨، القاموس المحيط، الطبعة الاولى، دار الفكر للطباعة والنشر، بيروت، لبنان. ٢- د.محمد صالح الشنطي، ٢٠١٣م، المهارات اللغوية، الطبعة الاولى، دار الاندلس للنشر والتوزيع حائل، السعودية.
2-Recommended Books and Reference Materials. المراجع الموصي بها.	
	١- د.محمد عبدالله المحجري، ٢٠١٣م، المهارات اللغوية ، الطبعة الأولى، دار الكتب اليمنية للنشر ، صنعاء ، اليمن. ٢- د.صادق الصلاحي، الوجيز في اللغة العربية. (مخطوط)
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت.	
	١- موقع اللغة العربية تعلماً وتعلماً. ٢- فنون اللغة العربية ٣- الموسوعة العربية العالمية دليل المهارات.



I. Course Specification of Medical Physics Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction: Physics and Measurements	<ul style="list-style-type: none"> <li>• Concepts of unit and measurements.</li> <li>• Fundamental and derived units.</li> <li>• Units of length, weight, mass, time.</li> <li>• Matter: properties of solids, liquids and gases</li> <li>• Dimensional Analysis</li> <li>• Conversion of Units</li> <li>• What is Medical Physics</li> </ul>	1	2	
2	Vectors	<ul style="list-style-type: none"> <li>• Coordinate Systems</li> <li>• Vector and Scalar Quantities</li> <li>• Components of a Vector and Unit Vectors</li> <li>• Scalar Product of Vectors</li> <li>• Displacement, Velocity, and Acceleration</li> </ul>	1	2	
3	The Force and Laws of Motion	<ul style="list-style-type: none"> <li>• The Concept of Force</li> <li>• Newton's First Law</li> <li>• Newton's Second Law</li> <li>• Mass and Weight</li> <li>• Newton's Third Law</li> <li>• Free body diagram</li> <li>• Forces of Friction</li> <li>• Forces in and on the body</li> </ul>	1	2	
4	Static Equilibrium and Elasticity	<ul style="list-style-type: none"> <li>• The torque</li> <li>• The Rigid Object in Equilibrium</li> <li>• The Center of Gravity</li> <li>• Examples of Rigid Objects in Static Equilibrium.</li> <li>• Skeletal Muscles and Levers</li> <li>• Static forces in the body</li> <li>• Elastic Properties of Solids</li> </ul>	1	2	



		<ul style="list-style-type: none"> <li>• Stress, Strain, and Elasticity Modulus</li> <li>• Example: Bone Shortening</li> </ul>			
5	Work, Energy, and Power	<ul style="list-style-type: none"> <li>• Work Done by a Constant Force</li> <li>• Kinetic Energy and Potential Energy</li> <li>• Conservation of energy</li> <li>• Power</li> <li>• Energy Changes in the body</li> <li>• Energy from Food</li> <li>• Metabolic rate</li> <li>• Efficiency of the Human body as a machine</li> </ul>	1	2	
6	Fluid Mechanics	<ul style="list-style-type: none"> <li>• Properties of fluids: Density, fluid pressure, Atmospheric pressure, surface tension, capillary, Viscosity.</li> <li>• Measurement of pressures, Measurement of blood pressure.</li> <li>• Buoyant Forces and Archimedes' Principle.</li> <li>• Fluid Dynamics, Blood flow, Continuity equation.</li> <li>• Bernoulli's Equation and its Applications</li> <li>• Effect of gravitational forces on human body.</li> </ul>	2	4	
7	Mid-term Exam		1	2	
8	Temperature and Heat	<ul style="list-style-type: none"> <li>• Temperature</li> <li>• Thermometers and Temperature Scale</li> <li>• Thermal Expansion of Solids and Liquids</li> <li>• An Ideal Gas</li> <li>• Heat and Internal Energy</li> </ul>	1	2	

		<ul style="list-style-type: none"> <li>• The First Law of Thermodynamics</li> <li>• Heat Transfer Mechanisms</li> <li>• Heat losses from the body</li> </ul>			
9	Sound	<ul style="list-style-type: none"> <li>• Sound Waves and its Properties</li> <li>• Intensity of Sound Waves</li> <li>• Sound Level</li> <li>• The Doppler Effect</li> <li>• Ultrasound and Medical Applications: A Scan, B Scan, M Scan</li> </ul>	1	2	
10	Light	<ul style="list-style-type: none"> <li>• The Nature of Light and the Ray Aspect of Light</li> <li>• The Light Reflection and Refraction</li> <li>• Medical uses, Endoscope</li> <li>• Images formed by thin Lenses. The Magnifier, The Microscope.</li> <li>• The Eye, Myopia and correction, Hyperemia</li> </ul>	1	2	
11	Electricity	<ul style="list-style-type: none"> <li>• Electric Charges, Electric Field, Electric Potential</li> <li>• Capacitance, Capacitors, Dielectrics</li> <li>• Electric Current, Resistance, Resistors, Electrical Power</li> <li>• Electrical Safety</li> <li>• Electricity Within the Body, Electromyography (EMG), Electrocardiograph (ECG), Electroencephalograph (EEG)</li> <li>• Flow of electricity in Solids, Electrolytes, Gases and Vacuum</li> </ul>	2	4	
12	Radiation	<ul style="list-style-type: none"> <li>• Some Properties of Nuclei</li> <li>• Radioactivity</li> <li>• The Decay Processes</li> <li>• Natural Radioactivity</li> <li>• Nuclear Magnetic Resonance and Magnetic Resonance Imaging (MRI)</li> </ul>	1	2	



		<ul style="list-style-type: none"> <li>• Radiation Damage</li> <li>• Uses of Radiation in diagnostic and therapy</li> <li>• X-ray</li> <li>• Laser</li> </ul>			
13	FINAL EXAM		1	2	
	Number of Weeks /and Units Per Semester		15	30	

b - Practical Aspect:					
Order	Practical Experiment	Number of weeks	Contact hours		
1	Measurement Tools And Systems	1	3		
2	Determination of Young's modulus by Searle's method	1	3		
3	Experimental verification of Hooke's law	1	3		
4	Experimental determination of viscosity of highly viscous liquids	1	3		
5	Experimental verification Stoke's law	1	3		
6	Midterm examination	1	3		
7	measure the specific heat capacity of a substance	1	3		
8	Determine resistance using a voltmeter and an ammeter	1	3		
9	Experimental verification Ohm's Law	1	3		
10	Experimental verification Pattern of field lines round a bar magnet	1	3		
11	Experimental verification mirror lines	1	3		
12	Final examination	1	3		
Number of Weeks/and Units Per First Second semester			36		
I. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises and Home works and Quizzes	3, 5, 6, 9, 11	5	5%	
2	Practical reports and activities	ALL	10	10%	
3	Assignment	8	5	5%	
4	Written Test (1)	7	10	10%	



5	Final Exam (theoretical)	16	50	50%	
6	Final Exam (practical)	14	20	20%	
	Total		100	100%	

II. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"><li>1. Serway and Faughn, 2012, College Physics, Second Edition, Open Stax College,</li><li>2. Paul Davidovits, 2013, Physics in Biology and Medicine (Complementary Science), 4<sup>th</sup>Revised Academic Press – Elsevier.</li></ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"><li>1. Russell K. Hobbie, Bradley J. Roth, 2009, Intermediate Physics for Medicine and Biology (Biological and Medical Physics, Biomedical Engineering), 4<sup>th</sup>Revised Edition Springer.</li></ol>
3-Electronic Materials and Web Sites <i>etc.</i>	

## Course Specification of of Computer Fundamentals

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	An Overview of Computer Concepts	Definitions, History, Generation, Types,	1	1	
2	Computer Components	Hardware, Software,	1	1	
3	System Units	Memory, CPU, Input/output devices, Storage	1	1	
4	Central Processing Unit (CPU)	Control unit, Registers, Arithmetic Logic Unit	1	1	
5	Memory Unit	Rom Types, Ram, Memory Management	1	1	
6	Storage Devices	Hard disk, Mass storage Devices, Files	1	1	
7	<u>Mid Term Exam</u>		1	1	
8	Input and Output Devices	Input Devices (Keyboards, Mouse, etc., Output Devices (Monitors types, Printers Types, etc.	1	1	
9	Data Representation and Numerical systems	Machine language, Binary numbers, Numbers conversions	1	1	
10	Computer Operating Systems	Graphic User Interface, Different types of OS, Folders and Files	1	1	
11	Basic Computer Networks	Network Types, Network Topology	2	2	
12	Internet, Web and email	Internet Requirement, Web and Google, Email creation and Settings	1	1	
13	Computer Security and Viruses	Users and passwords, Security, Virus definition, Virus types, Anti-virus	1	1	
14	<u>Final Exam</u>		1	2	



Number of Weeks/and Units Per Semester	15	16	
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b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Computer Components (Motherboards, Memory, Hard disk, Monitors)	1	2	
2	Window 7 (Installations, Desktop, Folders, Files, Notepad, etc.)	2	4	
3	Microsoft Word (Documents/new/open/save, update, page/text format, Figures, photos, tables)	2	4	
4	Microsoft Excel (New, Open, Save, Calculation, Graphs types, Pages, Formats)	2	4	
5	Microsoft PowerPoint (slides, formats, slide show, timers, inserts)	3	6	
6	Internet, Web and Email (connections, searching, create email)	2	4	
7	Lab Test	1	2	
Number of Weeks/and Units Per Semester		13	26	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises and Home works and Quizzes	3, 4, 8, 9	5	5%	
2	Assignment	10, 11, 12	5	5%	
3	Practical Tests	6	10	10%	
4	Written Test (1)	7	15	15%	
5	Final Exam (theoretical)	15	50	50%	
6	Final Exam (practical)	13	20	20%	
	Total		100	100%	



III. Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	1- Anita Goel, “Computer Fundamentals”, Pearson Education India, first Edition, 2010. 2- Joan Preppernau and Joyce Cox, “Windows 7 Step by Step”, 2009.
2- Recommended Books and Reference Materials.	
	1- Suzanne Weixel, Jennifer Fulton, Faithe Wempen, Catherine Skintik, “Learning Microsoft Office 2007”, Prentice Hall, 2007. 2- William Stalling, “Computer Organization and Architecture”, Fifth Edition, Prentice Hall, 2000. 3- Jeffrey S. Beasley, Piyasat Nilkaew, “Networking Essentials”, Third Edition, Pearson IT Certification, 2012.
3- Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://en.wikipedia.org/wiki/Computer_science">http://en.wikipedia.org/wiki/Computer_science</a> 2- <a href="http://en.wikipedia.org/wiki/Microsoft_Office">http://en.wikipedia.org/wiki/Microsoft_Office</a> 3- <a href="http://en.wikipedia.org/wiki/Computer_virus">http://en.wikipedia.org/wiki/Computer_virus</a>



I. Course Specification of General Biology Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction	History of evolution	1	2	
2	Macromolecules	carbohydrates, lipids, proteins and nucleic acid	3	6	
3	Cells and midterm	prokaryotes, eukaryotes, cell organelles	4	8	
4	Transport	active, passive, and bulky	2	4	
5	Enzymes	properties, function and composition	2	4	
6	Cell division	mitosis and meiosis in animal cell	2	4	
7	Final Exam		1	2	
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Introduction	1	2	
2	Macromolecules	3	6	
3	Cells and tissues	3	6	
4	Transport	3	6	
5	Enzyme and Cell division	1	2	
6	Animal kingdom	1	2	
7	Final Exam	1	2	
Number of Weeks/and Units Per Semester		13	26	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes



1	Project ( single\group)	2, 8	5	5%	
2	Practical reports	1-10	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
7			100	100%	

III. Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	1.Sylvia/S.Mader 2012, Human Biology, 1 <sup>st</sup> Edition (McGraw-Hill) N.Y.USA. 2.E.Solomon, L.Berg, D.Martin 2008 Biology 8 <sup>th</sup> edition (Thomson Brooks Cole, Belmont.U.S.A College Publishing)
2- Recommended Books and Reference Materials.	
	1.Bruce Albert, Alexander Johnson, Peter Walter (2008), Molecular biology of the cell, Fifth edition, (Garland Science), New York. U.S.A. 2.Cecie Starr (1997), Basic concept in biology Third edition, (International Thomson Publishing Company), Belmont, U.S.A. 3.Shuaa Al-Yousufy (1994), Cell structure and function, (Qatar Publishing Library), Qatar. 4.Aish Zaytoon (1996), Human biology, (National Publishing Library), Jordan.
3- Electronic Materials and Web Sites <i>etc.</i>	
	1- <i>Journal of biology</i> , <a href="http://www.jbiol.com">www.jbiol.com</a> 2- <i>Biology of Reproduction</i> , <a href="http://www.biolreprod.org">www.biolreprod.org</a>

### Course Specification of Medical Terminology

III. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to medical terminology	Importance of medical term- part of medical term - root	1	2	
2	Prefixes	Meaning of Prefixes :color, number, size, location degree ,direction	1	2	
3	Suffixes	Meaning of Suffixes: disease ,surgical procedures , instruments	1	2	
4	Analyzing and defining medical term	- Breaking down a medical term - Rules of defining medical term	1	2	
5	Combining a medical term	- Combining form , Combining vowels - Rules of using Combining vowels	1	2	
6	Cardiovascular tract	Analyzing and defining terms related to Cardiovascular tract	1	2	
7	Mid-term examination		1	2	
8	Respiratory tract	Analyzing and defining terms related to Respiratory tract	1	2	
9	Musculoskeletal term + skin	Analyzing and defining terms related to Musculoskeletal term + skin	1	2	
10	Gastrointestinal tract	Analyzing and defining terms related to Gastrointestinal tract	1	2	
11	Body structure	Direction terms , anatomical planes , body cavity	1	2	
12	Abbreviation	Most uses abbreviation	1	2	
13	Final Exam		1	2	a1- a3, b1-b2, c1-c2, d1
Number of Weeks/and Units Per Semester			13	26	

VI. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Creative writing	6	5	5%	



2	Oral Tests	1-12	5	5%	
3	Written Test (1)	6	30	30%	
4	Final Exam (theoretical)	12	60	60%	
5	Total		100	100%	

IX. Learning Resources:

1- Required Textbook(s) ( maximum two ).

	<ol style="list-style-type: none"><li>1. Amr Al Himairi, (2005), English for medical students, Sana'a University, Sana'a, Republic of Yemen</li><li>2. Laquire Blass, (2005), Well read 1, Oxford University press.</li></ol>
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2- Recommended Books and Reference Materials.

	<ol style="list-style-type: none"><li>1. Medical Terminology and Abbreviations References.</li><li>2. Mosby's Medical and Nursing Dictionary, second edition. Glotia Publication Pvt. Ltd. 1989.</li></ol>
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3- Electronic Materials and Web Sites *etc.*

	<ol style="list-style-type: none"><li>1. <a href="http://www.wow.com/Medical+Terminology">www.wow.com/Medical +Terminology</a></li><li>2. <a href="http://www.webcrawler.com/">www.webcrawler.com/</a></li><li>3. <a href="http://www.amazon.com">www.amazon.com</a></li></ol>
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**First year: second semester**

## Course Specification of General Chemistry II

I.Course Content:					
Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	CILOs
1	<p>Gases and the Kinetic–Molecular Theory</p> <ul style="list-style-type: none"> <li>• Common Properties of Gases</li> <li>• Pressure</li> <li>• Gas Laws:</li> <li>• Determination of Molecular Weights and Molecular Formulas of Gaseous Substances</li> <li>• Dalton’s Law of Partial Pressures</li> <li>• Mass–Volume Relationships in Reactions Involving Gases</li> <li>• The Kinetic–Molecular Theory</li> <li>• Diffusion and Effusion of Gases</li> <li>• Real Gases: Deviations from Ideality</li> </ul>	<ul style="list-style-type: none"> <li>• Boyle’s Law, Charles’s Law, Gay – Lussac’s Law, Standard Temperature and Pressure, Avogadro’s Law, The Combined Gas Law Equation, The Ideal Gas Equation and Graham’s law</li> </ul>	3	6	
2	<p>Liquids and Solids:</p> <ul style="list-style-type: none"> <li>• Kinetic–Molecular Description of Liquids and Solids</li> <li>• Intermolecular Attractions and Phase Changes</li> <li>• Liquid State:</li> <li>• The Solid State: Melting Point, Heat Transfer Involving Solids, Sublimation and the Vapor Pressure of Solids</li> <li>• Phase Diagrams (P versus T)</li> <li>• Amorphous Solids and Crystalline Solids</li> <li>• Structures of Crystals</li> <li>• Bonding in Solids</li> <li>• Band Theory of Metals</li> </ul>	<ul style="list-style-type: none"> <li>• Viscosity, Surface Tension, Capillary Action, Evaporation, Vapor Pressure, Boiling Points and Distillation and Heat Transfer Involving Liquids</li> </ul>	2	4	



3	<p>Chemical Thermodynamics:</p> <ul style="list-style-type: none"> <li>• Heat Changes and Thermochemistry</li> <li>• The First Law of Thermodynamics</li> <li>• Some Thermodynamic Terms</li> <li>• Enthalpy Changes</li> <li>• Calorimetry</li> <li>• Thermochemical Equations</li> <li>• Standard States and Standard Enthalpy Changes</li> <li>• Standard Molar Enthalpies of Formation, <math>\Delta H_f^\circ</math></li> <li>• Hess's Law</li> <li>• Bond Energies</li> <li>• Changes in Internal Energy, <math>\Delta E</math></li> <li>• Relationship of <math>\Delta H</math> and <math>\Delta E</math></li> <li>• Spontaneity of Physical and Chemical Changes</li> <li>• The Two Aspects of Spontaneity</li> <li>• The Second Law of Thermodynamics</li> <li>• Entropy, S</li> <li>• Free Energy Change, <math>\Delta G</math>, and Spontaneity</li> <li>• The Temperature Dependence of Spontaneity</li> </ul>		2	4	
4	Mid Exam		1	2	
5	<p>Chemical Kinetics:</p> <ul style="list-style-type: none"> <li>• The Rate of a Reaction</li> <li>• Factors That Affect Reaction Rates</li> <li>• Nature of the Reactants</li> <li>• Concentrations of Reactants: The Rate-Law Expression</li> <li>• Concentration versus Time: The Integrated Rate Equation</li> <li>• Collision Theory of Reaction Rates</li> <li>• Transition State Theory</li> <li>• Reaction Mechanisms and the Rate-Law Expression</li> <li>• Temperature: The Arrhenius Equation</li> <li>• Catalysts</li> </ul>		2	4	
6	<p>Chemical Equilibrium</p> <ul style="list-style-type: none"> <li>• Basic Concepts</li> <li>• The Equilibrium Constant</li> </ul>				



	<ul style="list-style-type: none"> <li>• Variation of Kc with the Form of the Balanced Equation</li> <li>• The Reaction Quotient</li> <li>• Uses of the Equilibrium Constant, Kc</li> <li>• Factors That Affect Equilibria</li> <li>• The Haber Process: A Practical Application of Equilibrium</li> <li>• Application of Stress to a System at Equilibrium</li> <li>• Partial Pressures and the Equilibrium Constant</li> <li>• Relationship between KP and Kc</li> <li>• Heterogeneous Equilibria</li> <li>• Relationship between <math>\Delta G^0</math> Rxn and the Equilibrium Constant</li> </ul> Evaluation of Equilibrium Constants at Different Temperatures		2	4	
7	Chapter Electrochemistry <ul style="list-style-type: none"> <li>• Electrical Conduction</li> <li>• Electrodes Electrolytic Cells and Faraday's Law of Electrolysis</li> <li>• Faraday's Law of Electrolysis</li> <li>• Commercial Applications of Electrolytic Cells Voltaic or Galvanic Cells</li> <li>• The Standard Hydrogen Electrode</li> <li>• Standard Electrode Potentials</li> <li>• Uses of Standard Electrode Potentials</li> <li>• Standard Electrode Potentials for Other Half-Reactions</li> <li>• Nernst Equation</li> <li>• Using Electrochemical Cells to Determine Concentrations</li> <li>• The Relationship of <math>E^0</math> Cell to <math>\Delta G^0</math> and K Primary Voltaic Cells</li> </ul>		2	4	
8	Final Exam		1	2	
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	CILOs
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1	Density	1	3	
2	Determination of the Value of the Gas Constant	1	3	
3	Determination of viscosity of a liquid	1	3	
4	Determine the Freezing Temperature	1	3	
5	Vapor Pressure and Heat of Vaporization	1	3	
6	Separation of Mixtures by Gravity Filtration and Evaporation	1	3	
7	Heat of Solution and Neutralization	1	3	
8	Determination of equilibrium constant of reaction	1	3	
9	Determination of order of the reaction	1	3	
10	Determination of conductometric of solution	1	3	
11	Final Exam	1	3	
Number of Weeks/and Units Per Semester		11	33	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment	ALL	5	5 %	
2	Practical reports	1-10	10	10 %	
3	Written Test (1) Exercises and Home works Quizzes	7	15	15 %	
4	Final Exam (theoretical)	15	50	50 %	
5	Final Exam (practical)	10	20	20 %	
	total		100	100 %	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>Whitten, Davis, Peck, and Stanley (2004), <i>General Chemistry</i>, Thomson: Brooks Cole; 7th edition.</li> <li>Darrell D. Ebbing and Steven D. Gammon (2009). <i>General Chemistry</i>. 9<sup>th</sup> Edition Houghton Mifflin Company, BOSTON, NEW YORK</li> </ol>
2-Recommended Books and Reference Materials.	

	<ol style="list-style-type: none"> <li>1. Course Notes Handout Texts: Prepared by</li> <li>2. Satyajit D. Sarker and Lutfun Nahar. Chemistry for Pharmacy Students: General, Organic and Natural Product Chemistry. John Wiley and Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, 2007</li> <li>3. C.V.S. Subrahmanyam, Essentials of Physical Pharmacy, Published by Vallabh Prakashan (2005)</li> </ol>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<ol style="list-style-type: none"> <li>4.<a href="http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm">http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm</a></li> <li>5.<a href="http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm">http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm</a></li> <li>6.<a href="http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm">http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm</a></li> </ol>

## II قالب توصيف مقرر اللغة العربية II

I. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order م سلسل	Topic/ unit الوحدة / الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسابيع	Contact hours الساعات الفعالية	
1	مهارات القراءة، أهميتها، أنواعها...		1	2	
2	مهارات القراءة حل أسئلة الكتاب		1	2	
3	مهارات الكتابة	أهميتها وتاريخها	1	2	
4	التلخيص		1	2	
5	الرسائل والسيرة		1	2	
6	قواعد إملائية		1	2	
7	علامات الترقيم		1	2	
8	امتحان تحريري نصفي		1	2	
9	الأدب في النهضة والعصر الحديث	المدرسة الإحيائية	1	2	
10	المدارس الرومانسية		1	2	
11	مدرسة الشعر الحر		1	2	
12	الجملة الفعلية وأركانها		1	2	

13	المفعول به وصوره	1	2	
14	نائب الفاعل	1	2	
15	قواعد العدد	1	2	
16	الامتحان النهائي	1	2	
Number of Weeks/and Units Per Semester الفصل عدد الاسبوع او الوحدات في الفصل الدراسي			32	

II. طرق التقييم: Assessment Tasks					
no	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	
1	المهارات التفصيلية للاستماع الشرود الذهني الأسباب والعلاج.	5, 10	5	5%	
2	Quizzes اسئلة قصيرة	3, 6, 9, 14	5	5%	
3	Written Test (1) امتحان تحريري	7	30	30%	
4	Final Exam (theoretical) امتحان نهائي (نظري)	16	60	60%	
5	Total		100	100%	

III. Learning Resources: مصادر التعلم	
1-Required Textbook(s) ( maximum two ). المراجع المطلوبة (بحد اقصى ٢).	
١-	مجد الدين الفيروز آبادي، ١٩٩٨، القاموس المحيط، الطبعة الاولى، دار الفكر للطباعة والنشر، بيروت، لبنان.
٢-	د.محمد صالح الشنطي، ٢٠١٣م، المهارات اللغوية، الطبعة الاولى، دار الاندلس للنشر والتوزيع حائل، السعودية.
2-Recommended Books and Reference Materials. المراجع الموصي بها.	
١-	د.محمد عبدالله المحجري، ٢٠١٣م، المهارات اللغوية، الطبعة الاولى، دار الكتب اليمنية للنشر، صنعاء، اليمن.
٢-	د.صادق الصلاحي، الوجيز في اللغة العربية. (مخطوط)
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت.	
1-	موقع اللغة العربية تعلماً وتعليماً.
2-	فنون اللغة العربية
3-	الموسوعة العربية العالمية دليل المهارات.

قالب توصيف مقرر ( الثقافة الإسلامية )

I. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order مسلسل	Topic/ unit الوحدة /الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسابيع	Contact hours الساعات الفعالية	
1	مفهوم الثقافة الإسلامية وخصائصها ومصادرها	١- تعريف الثقافة الإسلامية في اللغة والاصطلاح ٢- خصائص الثقافة الإسلامية (الربانية – الشمولية – الوسطية والاعتدال- العمومية والعالمية – حفظ الضروريات الخمس ) ٣- مصادر الثقافة الإسلامية ( القرآن الكريم – السنة النبوية المطهرة)	1	2	
2	أصول العقيدة الإسلامية	١- أهمية دراسة العقيدة الإسلامية ٣-تعريف العقيدة الإسلامية. ٤-أركان العقيدة الإسلامية: الركن الأول : الإيمان بالله. الركن الثاني : الايمان بالملائكة. الركن الثالث : الايمان بالكتب السماوية. الركن الرابع : الايمان بالأنبياء والمرسلين. الركن الخامس : الايمان باليوم الآخر. الركم السادس : الايمان بالقضاء والقدر.	1	4	
3	التكافل الاجتماعي في الإسلام	١- تعريف التكافل في اللغة والاصطلاح. ٢- أسباب وجوب التكافل في الإسلام.. أولاً: القرابة الموجبة للتكافل. ثانياً: أصل مشروعية كفالة الزوجة بالنفقة. ٣-الإصناف التي يستحب كفالتها. ٤-بعض الامور التي تدخل السرور على المسلمين وأجرها عند الله عظيم. ٥-أنواع الكفارات في الاسلام.	1	2	

4	الاسلام والمرأة	<p>١- مقارنة بين ما كانت عليه المرأة في الجاهلية وما هي عليه في الاسلام.</p> <p>٢-مكانة المرأة عند اليهود والنصارى والمجتمع المدني الحديث.</p> <p>٣-مكانة المرأة في الاسلام.</p> <p>٤-بعض مظاهر تكريم الاسلام للمرأة.</p> <p>٥-الحياء والمرأة.</p> <p>٦-الفوارق الشرعية بين الرجل والمرأة وموقف العلم الحديث منها.</p> <ul style="list-style-type: none"> <li>- القوامة.</li> <li>- النبوة والرسالة</li> <li>- والولاية العظمى والعامه.</li> <li>- اختصاص الرجال بكثير من التكاليف دون المرأة.</li> <li>- الطلاق.</li> <li>- نسبة الأولاد.</li> <li>- الميراث.</li> <li>- الدية.</li> <li>- العقيقة.</li> <li>- الشهادة.</li> <li>- تأديب الرجل للمرأة.</li> <li>- تعدد الزوجات.</li> <li>- الحجاب الشرعي وشروطه.</li> <li>-ولباس القوى ذلك خير.</li> </ul>	2	4	
5	موقف الاسلام من تنظيم النسل وبعض القضايا الطبية المعاصرة.	<p>١-تنظيم النسل.</p> <p>٢-الاسباب الداعية لتنظيم النسل.</p> <p>٣-بعض القضايا الطبية المعاصرة:</p> <ul style="list-style-type: none"> <li>- الاستنساخ البشري والحيواني والنباتي.</li> <li>- حكم الاسلام في الاستنساخ البشري</li> <li>- أطفال الأنبيب.</li> <li>- بنوك الأجنة.</li> <li>- حكم الاجهاض في الاسلام.</li> <li>- الترقيع الجلدي وزراعة الأعضاء..</li> <li>- تشريح جثة الميت.</li> </ul>	1	2	
6	كل ما سبق دراسته	الامتحان النصفي	1	2	
7	حقوق الإنسان في الاسلام	<p>١-الاعلان العالمي لحقوق الاسلام.</p> <p>٢-الاسلام وحقوق الانسان:</p> <ul style="list-style-type: none"> <li>- حق الحياة.</li> <li>- حق المساواة.</li> <li>- حق الحرية.</li> </ul>	2	4	

		<ul style="list-style-type: none"> <li>- حق العدالة.</li> <li>- حق الفرد في محاكمة عادلة.</li> <li>- حق الحماية من تعسف السلطة.</li> <li>- حق الحماية من التعذيب.</li> <li>- حق الفرد في حمابة عرضه وسمعته.</li> <li>- حق اللجوء الى ديار المسلمين.</li> <li>- حق حرية التفكير والاعتقاد والتعبير.</li> <li>- حق المشاركة في الحياة العامة.</li> <li>- حق احترام حقوق الاقليات.</li> <li>- حق الحرية الدينية.</li> <li>- حق الدعوة والبلاغ.</li> <li>- حق العمل.</li> <li>- حق بناء الاسرة.</li> <li>- حق التربية الصالحة.</li> <li>- حقوق الزوجة.</li> <li>- حق التنقل.</li> <li>- حق الفرد في حماية خصوصيته.</li> <li>- حق حماية الملكية الفكرية.</li> <li>- حق التمتع بكافة الحقوق الاقتصادية</li> </ul>			
8	الاسلام والوحدة	<ul style="list-style-type: none"> <li>١-الوحدة والأصل في مشروعيتها.</li> <li>٢-مظاهر وحدة الأمة الإسلامية.</li> <li>٣-أهمية وحدة الأمة الإسلامية.</li> </ul>	1	2	
9	الوطن والمواطن	<ul style="list-style-type: none"> <li>١-مفهوم الوطن وأقسامه.</li> <li>٢-تقسيم العالم على مسلمين وذميين ومستأمنين.</li> <li>٣-ماذا يعني انتمائي للوطن.</li> <li>٤-حقوق المواطن:</li> <li>- العدل.</li> <li>- المساواة.</li> <li>- الحرية.</li> <li>- الشورى.</li> <li>- الديمقراطية</li> </ul>	1	4	
10	العلمانية والعولمة	<ul style="list-style-type: none"> <li>١-مفهوم العلمانية ونشأتها ومدة ظهورها في العلم الاسلامي.</li> <li>٢-مفهوم العولمة ونشأتها وأهدافها وأضرارها على العالم الإسلامي.</li> </ul>	1	2	
11	الرأسمالية	<ul style="list-style-type: none"> <li>١-مفهوم الرأسمالية ونشأتها وأهدافها وأضرارها.</li> <li>٢-موقف الإسلام منها.</li> </ul>	1	2	
12	الغزو الفكري	<ul style="list-style-type: none"> <li>١-مفهوم الغزو الفكري وأنواعه ومظاهره واهدافه والمؤسسات التابعة له.</li> <li>٢-موقفاالإسلام منه.</li> </ul>	1	2	

13	التغريب الثقافي والاجتماعي	١- مفهوم التغريب وأنواعه ومظاهره وأهدافه والمؤسسات التابعة له. ٢- موقف الإسلام منه.	1	2		
14	كل ما سبق تدريسه	الامتحان النهائي	1	2		
Number of Weeks/and Units Per Semester الفصل الدراسي				عدد الاسبوع او الوحدات في الفصل الدراسي	32	الإجمالي

### II. Assessment Tasks: طرق التقييم

No	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	
1	Assignment بحث	9	5	5%	
2	Exercises and Home works oral test الاختبار الشفوي والتمارين والواجبات المنزلية	4,6,10	5	5%	
3	Written Test (1) امتحان تحريري (1)	7	30	30%	
4	Final Exam (practical) امتحان نهائي (عملي)	16	60	60%	
			100	100%	

### III. Learning Resources: مصادر التعلم

1-Required Textbook(s) ( maximum two ).(بحد اقصى ٢).	
	<ul style="list-style-type: none"> <li>أ.د/ علي أحمد القاعدي ، مبادئ الثقافة الإسلامية طبعة ١٤٣٤ هـ - ٢٠١٣ م، منشورات المتفوق للطباعة والنشر، صنعاء اليمن.</li> <li>د/ عبدالكريم عثمان، معالم الثقافة الإسلامية، الطبعة الثانية عشر، ١٤٠٦ هـ - ١٩٨٥ م ، مؤسسة الرسالة.</li> </ul>
2-Recommended Books and Reference Materials. المراجع الموصي بها.	
	<ul style="list-style-type: none"> <li>د/ عبدالحكيم السروري، الثقافة الإسلامية، الطبعة الثانية ١٤٣١ هـ - ٢٠١٠ م، دار الفكر.</li> <li>د/ يوسف القرصاوي، ثقافة الداعية، الطبعة الأولى ١٤١٧ هـ - ١٩٩٧ م ، مؤسسة الرسالة بيروت.</li> <li>الثقافة الإسلامية – مجموعة من دكاترة جامعة العلوم – الطبعة الثالثة ٢٠١٤ م – منشورات جامعة العلوم.</li> <li>د/ عبدالله أحمد فروان - المدخل الى الثقافة الإسلامية منشورات الصادق للطباعة والنشر ٢٠١٤ م.</li> </ul>
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت.	



I. Course Specification of English IICourse Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Unit: 7 Smoking	Problems of smoking	2	4	
2	Unit: 8 writing : Definition	Stage 1 writing	2	4	
3	Unit : 9 writing 2. Definition. Part.2 and midterm exam	Structure 2	3	6	
4	Unit 10. Writing 3 exemplification	Stage 1 and 2	2	4	
5	Unit 11.writing.4 classification	Stage 1 and 2	2	4	
6	Unit: 12 Writing 5 classification	Classification part two.	2	4	
7	Final exam		1	2	
Number of Weeks/and Units Per First semester4				28	

VI. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Creative writing and Oral Tests	6	10	10%	
2	Written Test (1)	6	30	30%	
3	Final Exam (theoretical)	12	60	60%	
4	Total		100	100%	

IX. Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	1. Amr Al Himairi, (2005), English for medical students, Sana'a University, Sana'a, Republic of Yemen 2. Laquire Blass, (2005), Well read 1, Oxford University press.
2- Recommended Books and Reference Materials.	
	<ul style="list-style-type: none"> <li>Jack C. Richard (2005), Person to Person Starter, Oxford University press.</li> </ul>





	<ul style="list-style-type: none"><li>• Mosby's (1989), Medical and Nursing Dictionary, second edition. Glotia Publication Pvt. Ltd.</li></ul>
	3- Electronic Materials and Web Sites <i>etc.</i>

## علم نفس

I. Course Content: محتوى المقرر					
1 – Course Topics/Items: مواضيع المقرر					
a – Theoretical Aspect: المواضيع النظرية					
Order مسلسل	Topic/ unit الوحدة/الموضوع	Sub topic العناوين الفرعية	Number of weeks عدد الاسبوع	Contact hours الساعات الفعلية	
1	علم النفس , مدخل مفاهيمي عام	- تعاريف العلم , علم النفس - أهمية واهداف علم النفس - موضوعات علم النفس - العلوم ذات العلاقة بعلم النفس	1	2	
2	مناهج البحث في علم النفس	- تعريف منهج البحث - أنواع مناهج البحث - تقنيات جمع المعلومات في البحوث - سمات واخلاقيات البحث	1	2	
3	مدارس علم النفس	- مدرسة التحليل النفسي - المدرسة السلوكية - المدرسة الإنسانية - المدرسة الإيجابية	1	2	
4	مجالات علم النفس	- مجالات علم النفس النظرية - مجالات علم النفس التطبيقية	1	2	
5	محددات السلوك العصبية والغدية	- الجهاز العصبي والسلوك - جهاز الغدد والسلوك	1	2	
6	محددات السلوك البيئية	- البيئة الطبيعية للسلوك - البيئة الاجتماعية للسلوك	1	2	
7	الامتحان النصفي		1	2	
8	الدافعية Motivation	- تعريف الدافعية, المفاهيم ذات العلاقة - تصنيف الدوافع - العلاقة بين الدافعية والسلوك - قياس الدوافع - تطبيقات دراسة الدافعية في الحياة	1	2	
9	الانفعالات Emotions	- تعريف الانفعالات والمفاهيم ذات العلاقة - تصنيف الانفعالات - بنية الانفعالات - نمو الانفعالات - العلاقة بين الانفعالات والسلوك - قياس الانفعالات	1	2	

10	العمليات العقلية Mental process	- العمليات العقلية , تعريف عام ١- الاحساس ٢- الانتباه ٣- الادراك ٤- التفكير - مسار نمو وبناء المليات العقلية	1	2		
11	الشخصية Personality	- تعريف الشخصية - نظريات الشخصية - العوامل المؤثرة في تكوين الشخصية - قياس الخصية	1	2		
12	الصحة النفسية Health psychology	- مفهوم الصحة , الصحة النفسية علم الصحة النفسية . - اهمية وفلسفة دراسة الصحة النفسية – منهجية دراسة الصحة النفسية - معايير (محكات ) الصحة النفسية - فريق العمل في مجال الصحة النفسية – تعزيز الصحة النفسية	1	2		
13	الاضطرابات النفسية Psychological Disorders	- تعريف عام للاضطرابات النفسية والعقلية - تصنيف للاضطرابات النفسية والعقلية للاضطرابات النفسية والعقلية - اسباب للاضطرابات النفسية والعقلية - تقييم ومواجهة للاضطرابات النفسية والعقلية	1	2		
14		الامتحان النهائي	1	2		
Number of Weeks/and Units Per Semester				14 عدد الاسبوع خمسة عشر اسبوع	28	

II. Assessment Tasks: طرق التقييم					
no	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	
1	عروض الباوربينت تلخيص الموضوعات وتمثيل عليها	4-12	5	%5	
2	Oral Tests شفوي Quizzes اختبار قصيرة اسئلة قصيرة	5-12	5	%5	

3	امتحان تحريري (1) Written Test	7	30	30%	
4	امتحان (نظري) Final Exam (theoretical)	14	60	60%	
	Total		100	100%	

III. مصادر التعلم: Learning Resources	
1-Required Textbook(s) ( maximum two ) (بحد اقصى ٢).	
	1- د محمود فتحي عكاشة و د محمد ابو حلاوة. ٢٠٠٨. مدخل الى علم النفس, جامعة العلوم والتكنولوجيا. اليمن. 2- د طارق محمود رمزي واخرون. ٢٠٠٠. مقدمة في علم النفس, دار الفكر العربي, لبنان.
2-Recommended Books and Reference Materials. المراجع الموصي بها.	
	1- د محيي الدين توفيق ١٩٩٢. المدخل الى علم النفس, دار الفكر للنشر, عمان 2- د فاروق عبد الفتاح موسى. ٢٠٠٤. اساس السلوك الانساني – المدخل الى علم النفس العام مكتبة زهراء الشرق. القاهرة.
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت.	
	1-www.arabpsynet.com/archives/op/OP.khat-jordcons.htm. 2-www.arabpsynet.com/book/samer

I. Course Specification of Pharmacy Management Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Course introduction	.General information about the importance of health management. .define the main topic in this course.	1	2	
2	Health and management	-definition _ Why study management ? _ Management functions _ Management roles _ Types of managers _ Management skills	1	2	
3	Organizational development	-definition -important of organization development(od) -role of od services/ consultant -od services/ techniques -conditions that had to be present if an OD intervention could have any meaningful chance of bringing about the desired change:	1	2	
4	Organizational behavior	-introduction -important of ob -concept of ob -Organizational Citizenship Behavior (OCB)	1	2	
5	Leadership	-definition -introduction -nature of power	1	2	



		-Decision-making authority of leaders -Factors affecting leadership style. -Participative leadership. -Guidelines to make full use of participative approach.			
6	Planning process	-Definition -stage of planning -Type of planning	1	2	
7	Mid-term exam		1	2	
8	Decision making process	-Definition -Steps of DM -Problems in DM -condition of DM -style of DM	1	2	
9	Human Resource Management	-Definition of HRM -HRM process	1	2	
10	Controlling	-Definition -type of controlling.	1	2	
11	Budgeting and financial management	.Issues in Financial Allocation • Methods of Financial Control – Budgeting • Bottom-up • Top down • Zero-based – Auditing • Internal • External	1	2	
12	Strategic management	-Development of Strategic Management -Levels of Strategy -Strategic Management Process -SWOT Analysis -Corporate Portfolio Matrix	1	2	
13	Inventory management	-definition -INTRODUCTION -Function -Method of IM	1	2	



14	Management theory	-Why study management theory? -The evolution of management -The evolution of management theory. -Recent developments in management theory.	1	2	
15	Health care system	- definition -contents of HCS.	1	2	
16	Final exam		1	2	
Number of Weeks/and Units Per Semester			16	32	

## II. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Quiz1	5	5	5%
2	Oral test	10	5	5%
3	Mid Exam (theoretical)	7	30	30%
4	Final Exam (theoretical)	16	60	60%
5	Total		100	100%

## III. Learning Resources:

### 1-Required Textbook(s) ( maximum two ).

- 1- Kreitner. 2002. Foundations of Management: Basics and Best Practices. Robert New York: Thompson
- 2- Robbins and Coulter. 2002. Management, 7th Edition. Prentice and Hall International Inc.

### 2-Recommended Books and Reference Materials.

1. Robbin, S.P.2002. Management Concepts and Practice. Prentice-Hall Inc.New Jersey
2. Shonell, S.M. andKaluzzy, A.D. 2000. Health Care Management : A Text in Organizational Theory and Behavior.John Wiley and Sons, New Jersey, 4nd. Ed.

### 3- Electronic Materials and Web Sites etc.



	<ol style="list-style-type: none"> <li><a href="http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html">http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html</a></li> <li><a href="http://www.chemistanddruggistjobs.co.uk/jobs/pharmacy-manager/">http://www.chemistanddruggistjobs.co.uk/jobs/pharmacy-manager/</a></li> </ol>
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Course Specification of Pharmaceutical Calculation Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Introduction & Roman numerals	<ul style="list-style-type: none"> <li>Introduction of pharmaceutical calculation</li> <li>Type of Roman number and problems</li> </ul>	1	2	
2	System used in the measurement	<ul style="list-style-type: none"> <li>Metric system</li> <li>Apothecary system</li> <li>Avoirdupois system</li> <li>Intersystem conversion</li> <li>Problems</li> </ul>	2	4	
3	Common household & Techniques measures	<ul style="list-style-type: none"> <li>Household measuring devices</li> <li>Techniques of pharmaceutical measurement</li> <li>Problems</li> </ul>	1	2	
4	Quantitative product strength	<ul style="list-style-type: none"> <li>Percentage</li> <li>Ratio strength</li> <li>Dilution and concentration</li> <li>Problems</li> </ul>	2	4	
5	Reducing and enlarging formulas	<ul style="list-style-type: none"> <li>Reducing and enlarging formulas</li> <li>Problems</li> </ul>	1	2	
6		Midterm exam	1	2	
7	Biological fluids and electrolytes	<ul style="list-style-type: none"> <li>Electrolyte solutions and concept of milliequivalent.</li> <li>Buffers and Buffered solutions.</li> <li>Isotonic solutions</li> <li>Problems</li> </ul>	2	4	
8	Drug doses & other subjects	<ul style="list-style-type: none"> <li>Density, Temperature and specific gravity</li> </ul>	2	4	





		<ul style="list-style-type: none"> <li>Allegation methods in pharmaceutical sciences</li> <li>Fundamental concepts of dosage calculations</li> <li>Dosage calculations based on body surface area (BSA)</li> <li>Problems</li> </ul>			
9	Prescription	<ul style="list-style-type: none"> <li>Define, Types , Symbols</li> </ul>	1	2	
10	Final exam		1	2	
Number of Weeks/and Units Per Semester			14	28	

I. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises and Home works and oral test	8, 12	10	10%	
2	Written Test (midterm exam)	6	30	30%	
3	Final Exam (theoretical)	16	60	60%	
4	Total	100	100%		

I. Learning Resources:

1-Required Textbook(s) ( maximum two ).	
1.	M.Savva. (2006). Rational Approach to Pharmaceutical Calculations, V agmaLLC.
2-Recommended Books and Reference Materials.	
1.	H.C .Ansel (2013). Pharmaceutical Calculations. Lippincott Williams & Wilkin 14 <sup>th</sup> ed.
2.	S. Parsons. (2013); Pharmaceutical Calculations. Parsons Printing Pre.
3-Electronic Materials and Web Sites <i>etc.</i>	
	(Also available as open source e-book: <a href="http://pharmaceuticalcalculations.org">http://pharmaceuticalcalculations.org</a> )



### Course Specification of Biostatistics

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	The concept of statistics and its relationship to other sciences.		1	2	
2	Statistical Research and basic steps. Measures of central tendency.		1	2	
3					
4	Measures of dispersion, skewness and Kurtosis		1	2	
5	principles and rules of the possibilities and		1	2	
6	Probability distributions		1	2	
7	MIDTERM		1	2	
8	sampling distributions statistical inference on communities large volume of samples		1	2	
			1	2	
9	Statistical inference on the communities of small size samples - the distribution of t-test		1	2	
10	statistical hypothesis tests using the distribution of chi-square		1	2	
11	variance analysis using a distribution F		1	2	
12	Some statistical methods parametric and nonparametric.		1	2	
13	Statistical methods for quality control.		1	2	
14	Final Exam		1	2	
Number of Weeks/and Units Per Semester				28	

II. Teaching Strategies:	
Lectures Computer for Application on SPSS program	



Group discussion  
Problem solving method

### III. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises and Home works quizzes	8, 12	5	5%	
2	Project	12	5	5%	
3	Written exam(mid term)	6	10	10%	
4	Final Exam (theoretical)	14	30	30%	
5	Total		50	50%	

### IV. Learning Resources:

#### 1-Required Textbook(s) ( maximum two ).

1. Al-Mansoob MA and Masood MS, 2012. Introductory to Statistics and Probability, first edition, Yemen.
2. Chernick and Friser., 2003. Introductory Biostatisticsfor the Health Sciences. Modern Applications Including Bootstrap. California State University Long Beach, California.



## Second year: first semester

## Course Specification of Analytical Chemistry I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to analytical chemistry	Definition and scope. Introduction to analytical chemistry, The Analytical Perspective, Common Analytical Problems, why analytical chemistry?	1	2	
2	Basic Tools of Analytical Chemistry	Numbers in Analytical Chemistry Fundamental Units of Measure Significant Figures Units for Expressing Concentration Molarity and Formality, Normality Molality Weight, Volume, and Weight-to-Volume Ratios Converting Between Concentration Units p-Functions Stoichiometric Calculations Conservation of Mass Conservation of Charge Conservation of Protons Conservation of Electron Pairs	1	2	
3	Qualitative Inorganic Analysis 1	-identification of six groups of Anions : 1- Carbonates and Bicarbonates group 2- Sulphur-containing anions 3- Halides 4- Cyanogen anions 5- Arsinic and phosphorous containing anions 6- Nitrogen- containing anions	3	7	



		- separation of a mixture of Anions			
4	Qualitative Inorganic Analysis 2	<p>identification of five groups of cations:</p> <p>Group 1 : lead(II), mercury(I), and silver(I).</p> <p>Group 2: mercury(II), copper(II), bismuth(III), cadmium (II), tin(II), tin(IV), arsenic(III), arsenic(V), antimony(III), and antimony(V).</p> <p>Group 3: iron(II), iron(III), cobalt(II), nickel(II), manganese(II), chromium(III), aluminium(III), and zinc(II).</p> <p>Group 4: calcium(II), strontium(II), and barium(II).</p> <p>Group 5: Magnesium(II), lithium(I), sodium(I), potassium(I), and ammonium(I) ions.</p> <p>-separation of a mixture of Anions</p>	2	4	
5	Midterm exam		1	2	
6	Acid Base titration :	<p>Modern concepts of acids and base, acid base equilibria, law of mass action, dissociation constants, Common ion effect, Ionic product of water, pH, buffer solutions, theory of acid base titration, neutralization curves, neutralization indicators, mixed and universal indicators. Formal titrations. Pharmaceutical applications</p>	4	8	



7	Non aqueous titration:	Theory, advantages and limitation, non-aqueous solvents, ionization and dissociation in non-aqueous media, titration of weak acids and bases, indicators in non-aqueous titration, preparation of standard solutions, Pharmaceutical applications	3	6	
8	Final exam		1	2	
Number of Weeks/and Units Per First semester				6	
				32	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	
1	Identification of cations	1	2	
2	Separation of mixture of cations	1	2	
3	Separation of mixture of anions	1	2	
4	Calibration of volumetric apparatus	1	2	
5	Preparation and standardization of HCl and NaOH solutions	1	2	
6	Assay of sodium bicarbonate	1	2	
7	Assay of benzoic acid,	1	2	
8	Preparation and standardization of perchloric acid	1	2	
9	Preparation and standardization of sodium methoxide solutions	1	2	
10	Assay of ephedrine	1	2	
11	Assay of Metformin hydrochloride	1	2	
12	Final Exam	1	2	
Number of Weeks/and Units Per First Second semester			24	

II. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project	2, 8	5	5%	
2	Practical reports	1-9	10	10%	
3	Oral Tests	5, 9	5	5%	

4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	10	20	20%	
7			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- Douglas A. Skoog, Donald M. West, F. James Holler and Stanley R. Crouch Fundamentals of Analytical Chemistry, 2004, 8<sup>th</sup> edition, Thomson Brooks/Cole, Belmont, USA.</p> <p>2-F.W. Fifield and D. Kealey, "Principles and Practice of Analytical Chemistry" Fifth Edition, 2000, Blackwell Science, London.</p>
2-Recommended Books and Reference Materials.	
	<p>1- DEAN'S Analytical Chemistry Handbook, 2004, Second edition, McGraw-Hill Handbooks, New York, USA.</p> <p>2- Somenath Mitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada.</p> <p>3- K. Danzer, Analytical Chemistry Theoretical and Metrological Fundamentals, 2007, Springer-Verlag Berlin Heidelberg.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1-The Analytical Abstracts database (<a href="http://www.rsc.org/CFAA/AAsearchPage.cfm">http://www.rsc.org/CFAA/AAsearchPage.cfm</a>)</p> <p>2-The Analytical Forum on ChemWeb (<a href="http://analytical.chemweb.com/search/search.exe">http://analytical.chemweb.com/search/search.exe</a>)</p>
7	<p>(Other policies):</p> <ul style="list-style-type: none"> <li>• Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.</li> <li>• Abnormal behavior is not acceptable and the student will face a punitive proceedings.</li> <li>• Eating or drinking is strictly prohibited.</li> </ul>



## Course Specification of Human Anatomy

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction Anatomical terms	<ul style="list-style-type: none"> <li>Overview of the subject and its different parts</li> <li>Overview of the different body regions and systems</li> <li>Terms related to position</li> <li>Terms related to movement</li> </ul>	1	2	
2	Skin and fascia	<ul style="list-style-type: none"> <li>Structure Skin</li> <li>Functions of skin</li> </ul>	1	2	
3	Anatomy of muscular system	<ul style="list-style-type: none"> <li>Types of muscles</li> <li>Structure of muscles</li> </ul>	1	2	
4	Anatomy of Bone and cartilage	<ul style="list-style-type: none"> <li>Joints, ligaments, bursa, synovial sheath</li> <li>Bones and cartilage</li> </ul>	1	2	
5	Anatomy of blood and lymph	<ul style="list-style-type: none"> <li>Heart and blood vessels</li> <li>lymph vessels and nodes</li> </ul>	2	4	
6	Anatomy of nervous system	<ul style="list-style-type: none"> <li>Central nervous system</li> <li>Peripheral nervous system</li> </ul>	1	2	
7	Anatomy of respiratory system	<ul style="list-style-type: none"> <li>Structure of respiratory organs</li> </ul>	1	2	
8	Midterm exam		1	2	
9	Anatomy of digestive system	<ul style="list-style-type: none"> <li>Alimentary canal</li> <li>Digestive glands</li> </ul>	1	2	
10	Anatomy of genital system	<ul style="list-style-type: none"> <li>Female: <ul style="list-style-type: none"> <li>The uterus</li> <li>The vagina</li> <li>The ovary</li> <li>Anatomy of the breast</li> </ul> </li> <li>Male : <ul style="list-style-type: none"> <li>The testis</li> <li>Scrotum</li> <li>The penis</li> </ul> </li> </ul>	1	2	
11	Anatomy of urinary system	<ul style="list-style-type: none"> <li>The kidney</li> <li>Ureter</li> </ul>	1	2	



		<ul style="list-style-type: none"> <li>Urinary bladder</li> </ul>			
12	Anatomy of Sense Organs :	<ul style="list-style-type: none"> <li>Structure of Skin, Eye, ear, Nose, Tongue.</li> </ul>	1	2	
13	Anatomy of Endocrine System:	<ul style="list-style-type: none"> <li>Thyroid</li> <li>Pancreas</li> <li>Pituitary</li> <li>Adrenal glands</li> <li>Gonads</li> </ul>	1	2	
14	Final exam		Week 15	2	
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	<b>Introduction and terminology</b>	1	2	
2	Anatomy of Bone and cartilage	1	2	
3	Anatomy of blood and lymph	1	2	
4	Anatomy of nervous system	1	2	
5	Anatomy of respiratory system	1	2	
6	Anatomy of digestive system	1	2	
7	Anatomy of genital system	1	2	
8	Anatomy of urinary system	1	2	
9	Anatomy of Sense Organs:	1	2	
10	Anatomy of Endocrine System:	1	2	
11	<b>Final exam</b>	1	2	
Number of Weeks/and Units Per Semester		11	22	

VII. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises & Home works	3	2.5	2.5%	



2	Project ( single\group)	4	2.5	2.5%	
3	Practical reports	1-10	10	10%	
4	Mid Exam	8	15	15%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
7			100	100%	

II. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>1. John A. Gosling, Philip F. Harris (2008). Human anatomy color atlas and textbook Fifth edition. Elsevier, Spain.</li> <li>2. Inderbir Singh (2011). Textbook of Human Histology: With Colour Atlas and Practical Guide. 6<sup>th</sup> edition. Jaypee, Newdelhi, India.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>1. Gerard J. Tortora, Mark Nielsen (2013). Principles of Human Anatomy, 13th Edition. Wiley, UK.</li> </ol>

## Course Specification of Pharmaceutics I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Solubility	<ul style="list-style-type: none"> <li>Determination of solubility</li> <li>Techniques of aqueous solubility determination of non-ionized, ionized and unstable drugs</li> <li>Factors/ parameters affecting solubility</li> <li>Enhancement of solubility</li> <li>Extraction</li> <li>Solubility and partitioning coefficient</li> <li>Preservative action in oil-water systems</li> </ul>	2	4	
2	Principles of dissolution	<ul style="list-style-type: none"> <li>Definition of dissolution and dissolution rate, Noyes-Whitney equation.</li> <li>Dissolution process and its mathematical treatment</li> <li>Dissolution rate determination</li> </ul>	1	2	
3	Diffusion	<ul style="list-style-type: none"> <li>Diffusion definition, mechanisms, pharmaceutical applications.</li> <li>Ficks first law, second law and steady state diffusion.</li> <li>Diffusion controlled drug delivery (reservoir systems).</li> <li>Diffusion controlled drug delivery (matrix systems) and the Higuchi equation</li> </ul>	1	2	
4	Rheology	<ul style="list-style-type: none"> <li>Principles of rheology.</li> <li>Measuring methods in the rheology.</li> <li>Application of rheology in pharmacy</li> </ul>	1	2	
5	Surface tension	<ul style="list-style-type: none"> <li>Concepts of surfaces, interfaces, surface and interfacial tension.</li> <li>Wetting of solid surfaces, spreading of liquids over liquid substrates</li> <li>critical micelle concentration(CMC)</li> <li>Effect of counter ion and temperature on surface tension and temperature on CMC-values</li> <li>Pharmaceutical applications of surfactants</li> </ul>	2	4	
6		Midterm exam	1	2	

7	Adsorption	<ul style="list-style-type: none"> <li>• Adsorption at solid surfaces</li> <li>• adsorption isotherms</li> </ul>	1	2	
8	Micrometrics of powders	<ul style="list-style-type: none"> <li>• Micromeritics and characterization of powders</li> <li>• Shape factors</li> <li>• Angle of repose</li> <li>• Flowability and aging</li> <li>• Effect of glidants compactability</li> <li>• Parenteral powders</li> </ul>	1	2	
9	Complexation	<ul style="list-style-type: none"> <li>• Definition of complexes, donor-acceptor interactions, Lewis acid-base system, types of complexes</li> <li>• Metal ion complexes, chelates and organic molecular complexes</li> <li>• Inclusion complexes, pharmaceutical applications and quantitative analysis of complexation (stoichiometric ratio determination and association constants)</li> </ul>	1	2	
10	Drug and formulation stability	<ul style="list-style-type: none"> <li>• various types and sources of stability problems and procedure/ protocol for carrying out stability studies of drug substances and their formulations with special reference to ICH guidelines</li> <li>• Physical stability testing</li> <li>• Highlights on accelerated/ ambient/ controlled physical stability testing of solutions, disperse systems, aerosols, coated/ uncoated tablets, gelatin capsules, and sustained release products</li> <li>• Degradation mechanisms.</li> <li>• Pharmaceutical stability problems (hydrolysis, oxidation, photodegradation, ...)</li> <li>• First order reactions and second order reactions, integrated rate laws and half-life.</li> <li>• Determination of shelf life and recommended storage conditions.</li> </ul>	3	6	
11	Incompatibility	<ul style="list-style-type: none"> <li>• Type of drug incompatibilities</li> <li>• Causes of drug incompatibilities</li> </ul>	1	2	
12		Final exam	1	2	
Number of Weeks/and Units Per Semester			16	32	

b - Practical Aspect:



Order	Practical Experiment	Number of weeks	Contact hours	
1.	Separation of solid/ liquid by Filtration.	1	2	
2.	Reduction size of solid matter by Grinding and Sieving.	1	2	
3.	Separation of solid/ liquid by Centrifugation.	1	2	
4.	Separation of liquid/ liquid matter by Extraction.	1	2	
5.	Determination the Solubility.	1	2	
6.	Measurement the surface tension.	1	2	
7.	The role of surfactant on the interfacial tension.	1	2	
8.	Determination the Angle of repose.	1	2	
9.	Determination the Chemical drug incompatibility.	1	2	
10.	Determination the physical drug incompatibility.	1	2	
11.	Determination of order of degradation reaction and calculation of shelf life	2	4	
12.	Measurement of viscosity of different fluids	1	2	
13.	Finalexam	1	2	

#### II. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment	9	5	5%	
2	Practical Reports	1-13	10	10%	
3	Quizzes	2, 5, 12	5	5%	
4	Written Test (midterm exam )	8	10	10%	
5	Final Exam (practical)	14	20	20%	
6	Final Exam (theoretical)	16	50	50%	
	Total		100	100%	

#### III. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK.
2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.



2-Recommended Books and Reference Materials.	
	1. Ansel and Loyd Allen (2013). Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems. 10 <sup>th</sup> edition., Williams and Wilkins. Maryland, USA.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.go.jblearning.com/basicphysicalpharmacy">www.go.jblearning.com/basicphysicalpharmacy</a>

## Course Specification of Physiology I

I. Course Contents					
1. Course topics and sub-topics (theoretical and practical) with contact hours and alignment to CILOs					
Topics/Units of Course Contents					
First: Theoretical Aspects					
No.	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours	
1	1-Physiology of the cell. 2-Transport across the cell membrane.	Cell compositions Cell membrane Cytoplasmic organelles Nucleus Movements of molecules across membranes Mechanism of particles and water diffusion across cell membrane	2	4	
2	1-Body fluids, composition, distribution, general functions. 2-Osmosis, tonicity and water balance	Body fluid importance Body fluid compartments Intracellular fluid (ICF) Extracellular fluid (ECF)	2	4	





3	1-Composition and functions of the blood. 2- RBCs, Formation and general functions.	Blood Composition of blood: Plasma Blood elements Red blood corpuscles Most common types of normal and abnormal hemoglobin Anemia: Types of anemia RBCs functions	2	4	
4	Midterm	————	1	2	
5	1- WBCs: structures, classifications and functions 2- Hemostasis and its disorders	White blood cells Types of leucocytes White blood cells functions Platelets Hemostasis and WBCs disorders	2	4	
6	1- Nerve fibers, structures, classifications, functions and properties of nerves. 2- Resting membrane potentials, action potentials and factors affecting them. 3- Conduction of nerve impulse, neuromuscular transmission.	The neuron (Nerve cell) neuron classification, structure and function Resting and action potential Myelin sheath Neuroglia or glial cells General functions of neuroglia Types of neuroglia cells	3	6	



7	1-Autonomic nervous system, origin, organization, distribution. 1-Autonomic ganglia, chemical transmitters and functions of ANS.	Autonomic (involuntary or visceral) nervous system(ANS) Types of autonomic nervous system	2	4	
8	Final exam		1	2	
Total number of weeks and hours			16	32	

2. Practical/Tutorial/Clinical Aspects				
Write up practical/tutorial/clinical topics				
No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours	
1	Separation of the blood	1	2	
2	Measurement of the hemoglobin.	1	2	
3	Erythrocyte sedimentation rate (ESR)	1	2	
4	The hematocrit (H)	1	2	
5	Bleeding time and Clotting time	1	2	
6	Blood groups	1	2	
7	The white blood cells	1	2	
Total number of weeks and hours		7	14	

II. Assignments and projects:				
no	Assignment	CILOs	Week Due	Mark
1	Assignment	a1-a4, b1-b2, d1-d2	9	5



IV. Learning Assessment:					
No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	
1	Assignments	9	5	5%	
2	Quiz Homework	4	5	5%	
3	Midterm Exam	7	10	10%	
4	Practical Report	ALL	10	10%	
5	Final Exam Practical	14	20	20%	
6	Final Exam Theory	16	50	50%	
Total			100	100%	

III. Teaching Strategies
The methodologies and teaching and learning strategies that can be used: 1 - Lectures 2 -Discussions (Seminars)

### Course Specification of First Aid

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1.	Introduction to first aid	- Definitions	1	2	
		- Rules, - Responsibility			
		- Vital signs			
2.	Initial patient assessment	- Forming General impression	1	2	
		- Primary and Second survey			
		- SAMPLE history			
3.	Basic life support	- Adult	2	4	
		- Child and infant			
		- Choking			
		- Near drowning			
4.	Bleeding and shock	- Internal and external	1	2	
5.	Midterm exam		1	2	
6.	Medical emergency and Poisoning	- Management	2	2	
7.	Trauma	- musculoskeletal Injuries( fracture ) - Wounds - Burn	3	6	
8.	Final exam		1	2	
Number of Weeks/and Units Per First Second semester				24	



II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignments	9	10	10%	
2	Written Test (1)	7	30	30%	
3	Final Exam (theoretical)	1	60	60%	
			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-Austen M.2011, First Aid Manual. 9 <sup>th</sup> edition.London
2-Recommended Books and Reference Materials.	
	1. Crouch R. 2009, Emergency nursing hand bookfirst edition.Oxford University press
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-http: www.trauma.org 2-http: BLS.com

### Course Specification of Pharmaceutical Organic Chemistry I

Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to Organic Chemistry	<ul style="list-style-type: none"> <li>➤ The Origins of Organic Chemistry</li> <li>➤ Classification of carbon compounds</li> <li>➤ Classification According to Molecular Framework                             <ul style="list-style-type: none"> <li>▪ Acyclic Compounds</li> <li>▪ Carbocyclic Compounds</li> <li>▪ Heterocyclic Compounds</li> </ul> </li> <li>➤ Classification According to Functional Group</li> <li>➤ Principles of Atomic Structure</li> <li>➤ Bond Formation: The Octet Rule</li> <li>➤ How Electrons are Arranged in Atoms</li> <li>➤ Bonding in organic compounds</li> <li>➤ Ionic Bonding</li> <li>➤ The Covalent Bond</li> <li>➤ Hydrogen Bond</li> <li>➤ Coordinate bonding</li> <li>➤ Carbon and the Covalent Bond</li> <li>➤ Carbon–Carbon Single Bonds</li> <li>➤ Electronegativity and Bond Polarity</li> <li>➤ Arrhenius Acids and Bases</li> <li>➤ Formal Charge</li> <li>➤ Resonance</li> <li>➤ Arrow Formalism</li> </ul>	1	2	
2	Orbitals and Orbital Hybridization	<ul style="list-style-type: none"> <li>➤ Wave Properties of Electrons in Orbitals</li> <li>➤ Molecular Orbitals</li> <li>➤ The Sigma Bond</li> <li>➤ The Pi Bond</li> </ul>	1	2	



		<ul style="list-style-type: none"> <li>➤ Hybridization and Molecular Shapes</li> <li>➤ SP<sup>3</sup> Hybridization</li> <li>➤ SP<sup>2</sup> Hybridization</li> <li>➤ SP Hybridization</li> <li>➤ Drawing Three-Dimensional Molecules</li> <li>➤ General Rules of Hybridization and Geometry</li> <li>➤ Bond Rotation</li> </ul>			
3	Alkanes and Cycloalkanes (Paraffinic Hydrocarbons)	<ul style="list-style-type: none"> <li>➤ The Structures of Alkanes</li> <li>➤ Nomenclature of Organic Compounds</li> <li>➤ IUPAC Rules for Naming Alkanes</li> <li>➤ Alkyl and Halogen Substituents</li> <li>➤ Use of the IUPAC Rules</li> <li>➤ Sources of Alkanes</li> <li>➤ Physical Properties of Alkanes and Nonbonding Intermolecular Interactions</li> <li>➤ Conformations of Alkanes</li> <li>➤ Cycloalkane Nomenclature and Conformation</li> <li>➤ Cis–Trans Isomerism in Cycloalkanes</li> <li>➤ Stabilities of Cycloalkanes; Ring Strain</li> <li>➤ General Methods of Preparation of Alkanes</li> <li>➤ Reactions of Alkanes</li> <li>➤ Oxidation and Combustion; Alkanes as Fuels</li> <li>➤ Halogenation of Alkanes <ul style="list-style-type: none"> <li>▪ The Free-Radical Chain Mechanism of Halogenation</li> </ul> </li> </ul>	2	4	
4	Alkenes and Dienes	<ul style="list-style-type: none"> <li>➤ Definition and Classification</li> <li>➤ Nomenclature</li> <li>➤ Some Facts about Double Bonds</li> <li>➤ The Orbital Model of a Double Bond; the Pi Bond</li> <li>➤ Cis–Trans Isomerism in Alkenes</li> <li>➤ Z–E Isomerism in Alkenes</li> <li>➤ General methods of Synthesis of Alkenes</li> </ul>	3	6	



		<ul style="list-style-type: none"> <li>➤ Synthesis by Elimination of Alkyl Halides               <ul style="list-style-type: none"> <li>▪ Dehydrohalogenation</li> <li>▪ Debromination of a Vicinal Dibromide</li> </ul> </li> <li>➤ Synthesis by Dehydration of Alcohols</li> <li>➤ Addition and Substitution Reactions Compared</li> <li>➤ Addition of Unsymmetric Reagents to Unsymmetric Alkenes; Markovnikov's Rule</li> <li>➤ Addition Reactions</li> <li>➤ Addition of Hydrogen</li> <li>➤ Addition of Halogens</li> </ul>			
5		Midterm exam	1	2	
6	Cont., Alkenes and Dienes	<ul style="list-style-type: none"> <li>➤ Cont., Reactions of Alkenes</li> <li>➤ Addition of Water (Hydration)</li> <li>➤ Addition of Acids</li> <li>➤ Oxidation of Alkenes</li> <li>➤ Oxidation with Permanganate</li> <li>➤ Ozonolysis of Alkenes</li> <li>➤ Mechanism of Electrophilic Addition to Alkenes</li> <li>➤ Markovnikov's Rule Explained with Rearrangement Reactions</li> <li>➤ Hydroboration of Alkenes</li> <li>➤ Additions to Conjugated Systems (Dienes)</li> <li>➤ Addition of Hydrogen</li> <li>➤ Addition of Halogens</li> <li>➤ Addition of Water (Hydration)</li> </ul>	1	2	
7	Alkynes	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Nomenclature of Alkynes</li> <li>➤ Physical Properties of Alkynes</li> <li>➤ Some Facts About Triple Bonds</li> <li>➤ The Orbital Model of a Triple Bond</li> <li>➤ Electronic Structure of Alkynes</li> <li>➤ Commercial Importance of Alkynes</li> <li>➤ Acidity of Alkynes; Formation of Acetylide Ions</li> </ul>	1	2	





		<ul style="list-style-type: none"> <li>➤ Synthesis of Alkynes from Acetylides</li> <li>➤ Synthesis of Alkynes by Elimination Reactions</li> <li>➤ Reactions of Alkynes</li> <li>➤ Addition Reactions of Alkynes</li> <li>➤ Reduction of an Alkyne</li> <li>➤ Keto–Enol Tautomerism</li> <li>➤ Oxidation of Alkynes</li> </ul>			
8	Aromatic Compounds	<ul style="list-style-type: none"> <li>➤ Some Facts About Benzene</li> <li>➤ The Kekulé Structure of Benzene</li> <li>➤ Resonance Model for Benzene</li> <li>➤ Orbital Model for Benzene</li> <li>➤ Symbols for Benzene</li> <li>➤ Nomenclature of Aromatic Compounds</li> <li>➤ The Resonance Energy of Benzene</li> <li>➤ Electrophilic Aromatic Substitution</li> <li>➤ The Mechanism of Electrophilic Aromatic Substitution</li> <li>➤ Halogenation</li> <li>➤ Nitration</li> <li>➤ Sulfonation</li> <li>➤ Alkylation</li> <li>➤ Acylation</li> <li>➤ Ring-Activating and Ring-Deactivating Substituents</li> <li>➤ Ortho, Para-Directing and Meta-Directing Groups</li> <li>➤ Ortho, Para-Directing Groups</li> <li>➤ Meta-Directing Groups</li> <li>➤ Substituent Effects on Reactivity</li> <li>➤ The Importance of Directing Effects in Synthesis</li> </ul>	3	6	
9	Final exam		1	2	
Number of Weeks/and Units Per Semester			14	28	

b – Practical Aspect: **Organic Chemistry I**

Order	Practical Experiment	Number of weeks	Contact hours
1	<ul style="list-style-type: none"> <li>➤ Instruction in the laboratory methods of organic chemistry</li> <li>➤ rules and ethics in laboratory.</li> <li>➤ Purification some organic compounds by Filtration</li> </ul>	1	2
2	<ul style="list-style-type: none"> <li>➤ Purification some organic compounds by Recrystallization</li> </ul>	1	2
3	<ul style="list-style-type: none"> <li>➤ Purification some organic compounds by Sublimation and Simple distillation</li> </ul>	1	2
4	<ul style="list-style-type: none"> <li>➤ Purification some organic compounds by Steam distillation and Determination of Boiling Points</li> </ul>	1	2
5	<ul style="list-style-type: none"> <li>➤ Determination of melting point and mixed melting point</li> </ul>	1	2
6	<ul style="list-style-type: none"> <li>➤ Combustion experiments (benzene and hexane)</li> </ul>	1	2
7	<ul style="list-style-type: none"> <li>➤ Extraction of caffeine from tea</li> </ul>	1	2
8	<ul style="list-style-type: none"> <li>➤ The separation of benzoic acid from p - dichloro benzene</li> <li>➤ Separation of methyl orange for methylene blue using a chromatography column (adsorption)</li> </ul>	1	2
9	<ul style="list-style-type: none"> <li>➤ acetylsalicylic acid extraction of aspirin tablets</li> <li>➤ extraction of R - (+) - limonene from orange peel and grapefruit.</li> </ul>	1	2
10	<ul style="list-style-type: none"> <li>➤ Paper chromatography (the separation of a mixture of sugars - the separation of amino acids). thin-layer chromatography (preparation of slides and the separation of dyes from the extract of spinach leaves).</li> </ul>	1	2
11	<ul style="list-style-type: none"> <li>➤ Final Exam</li> </ul>	1	2
Number of Weeks/and Units Per Semester		11	22

b - Practical Aspect :				
Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	<u>Purification some organic compounds by</u> -Filtration	1	2	a1, c1, c3, d1-3
2	<u>Purification some organic compounds by</u> -Recrystallization	1	2	a2, c1, c3, d2-4
3	-Purification some organic compounds by Sublimation	1	2	a1, c1, c3
4	Purification some organic compounds by Simple distillation	1	2	a1, c1, c3, d4
5	Purification some organic compounds by Steam distillation	1	2	a1, c1, c3, d2
6	-Determination of melting point and mixed melting point	1	2	c1, c3, d1-4
7	Determination of Boiling Points,	1	2	a1, c1, c3, d3
8	Combustion experiments (benzene and hexane)	1	2	a1, c1, c4
9	Lassaigne's test, detection of sulphur,	1	2	a1, c1, c2, d1, d2



10	Detection of halogen.	1	2	c1, c2, d1-4
11	Detection of nitrogen.	1	2	a1, c1, c2
12	Final Exam	1	2	c1-4, d1-4
Number of Weeks/and Units Per Semester		11	22	

I. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	2, 8	5	5%	
2	Practical reports	1-9	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	10	20	20%	
7			100	100%	

II. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6<sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.</p> <p>2- Francis A. Carey and Richard J. Sundberg, Advanced Organic Chemistry; Part B: Reactions and Synthesis, 2001, 4<sup>th</sup>edition, Wiley and Sons., Inc. New York.</p>
2-Recommended Books and Reference Materials.	
	<p>1. I. L. Finar, Organic Chemistry: The Fundamental Principles, 1963, Fourth edition, longman green and company ltd. London.</p> <p>2. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.</p> <p>3. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6<sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey</p> <p>4. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1- <a href="http://www.orgsyn.org">www.orgsyn.org</a></p> <p>2-</p>



3-
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**Second year:  
second semester**

## Course Specification of Pharmaceutical Organic Chemistry II

Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Organic Halogen Compounds	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification</li> <li>➤ Nomenclature</li> <li>➤ Physical Properties</li> <li>➤ Interesting Alkyl Halides</li> <li>➤ The Polar Carbon–Halogen Bond</li> <li>➤ General methods of Synthesis of Organic Halogen Compounds</li> <li>➤ Nucleophilic Substitution Reaction</li> <li>➤ Examples of Nucleophilic Substitutions                             <ul style="list-style-type: none"> <li>▪ The Leaving Group</li> <li>▪ The Nucleophile</li> </ul> </li> <li>➤ Nucleophilic Substitution Mechanisms                             <ul style="list-style-type: none"> <li>▪ The SN2 Mechanism</li> <li>▪ The SN1 Mechanism</li> <li>▪ Stereochemistry of the SN2 and SN1 Reaction</li> <li>▪ The SN1 and SN2 Mechanisms Compared</li> </ul> </li> <li>➤ Elimination Reaction</li> <li>➤ The E2 Mechanism</li> <li>➤ The Zaitsev Rule</li> <li>➤ The E1 Mechanism</li> <li>➤ Stereochemistry of the E2 Reaction</li> <li>➤ Substitution and Elimination in Competition</li> </ul>	3	6	
2	Alcohols, Phenols and Thiols	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification</li> <li>➤ Nomenclature of Alcohols, Phenols and Thiols</li> <li>➤ Hydrogen Bonding in Alcohols and Phenols</li> <li>➤ Physical Properties</li> <li>➤ Acidity and Basicity Reviewed</li> <li>➤ The Acidity of Alcohols and Phenols</li> <li>➤ The Basicity of Alcohols and Phenols</li> <li>➤ Preparation of Alcohols</li> <li>➤ The Grignard Reagent; an Organometallic Compound</li> </ul>	2	4	



		<ul style="list-style-type: none"> <li>➤ General Features—Reactions of Alcohols</li> <li>➤ Dehydration of Alcohols to Alkenes</li> <li>➤ The Reaction of Alcohols with Hydrogen Halides</li> <li>➤ Prepare Alkyl Halides from Alcohols</li> <li>➤ Oxidation of Alcohols to Aldehydes, Ketones, and Carboxylic Acids</li> <li>➤ Alcohols with More Than One Hydroxyl Group</li> <li>➤ Aromatic Substitution in Phenols</li> <li>➤ Oxidation of Phenols</li> <li>➤ Phenols as Antioxidants</li> <li>➤ Thiols, the Sulfur Analogs of Alcohols and Phenols</li> </ul>			
3	Midterm Exam		1	2	
4	Ethers and Epoxides	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification</li> <li>➤ Nomenclature of Ethers</li> <li>➤ Physical Properties of Ethers</li> <li>➤ Ethers as Solvents</li> <li>➤ Preparation of Ethers</li> <li>➤ Reaction</li> <li>➤ Ethers with Strong Acid</li> <li>➤ Epoxides</li> <li>➤ Cleavage of Ethers</li> </ul>	1	2	
5	Aldehydes and Ketones	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Nomenclature of Aldehydes and Ketones</li> <li>➤ Some Common Aldehydes and Ketones</li> <li>➤ Aldehydes and Ketones in Nature</li> <li>➤ The Carbonyl Group</li> <li>➤ Preparation of Aldehydes and Ketones</li> <li>➤ Reactions of Aldehydes and Ketones</li> <li>➤ Nucleophilic Addition to Carbonyl Groups</li> <li>➤ Addition of Alcohols: Formation of Hemiacetals and Acetals</li> <li>➤ Addition of Water; Hydration of Aldehydes and Ketones</li> <li>➤ Addition of Grignard Reagents and Acetylides</li> <li>➤ Addition of Hydrogen Cyanide; Cyanohydrins</li> <li>➤ Addition of Nitrogen Nucleophiles</li> <li>➤ Reduction of Carbonyl Compounds</li> <li>➤ Oxidation of Carbonyl Compounds</li> <li>➤ Keto–Enol Tautomerism</li> </ul>	2	4	



		<ul style="list-style-type: none"> <li>➤ Acidity of <math>\alpha</math>-Hydrogens; the Enolate Anion</li> <li>➤ The Aldol Condensation</li> <li>➤ The Mixed Aldol Condensation</li> </ul>			
6	Carboxylic Acids and Their Derivatives	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification and Structure of Carboxylic Acids and Their Derivatives</li> <li>➤ Nomenclature of Acids</li> <li>➤ Physical Properties of Acids</li> <li>➤ Acidity and Acidity Constants</li> <li>➤ Effect of Structure on Acidity; the Inductive Effect Revisited</li> <li>➤ Conversion of Acids to Salts</li> <li>➤ Preparation of Acids</li>   <li>➤ Oxidation of Primary Alcohols and Aldehydes</li> <li>➤ Oxidation of Aromatic Side Chains</li> <li>➤ Reaction of Grignard Reagents with Carbon Dioxide</li> <li>➤ Hydrolysis of Cyanides (Nitriles)</li> <li>➤ Carboxylic Acid Derivatives</li> <li>➤ Preparation and Reactions of                             <ul style="list-style-type: none"> <li>▪ Esters</li> <li>▪ Acyl Halides</li> <li>▪ Acid Anhydrides</li> <li>▪ Amides</li> </ul> </li> <li>➤ Application: The Mechanism of Action of <math>\beta</math>-Lactam Antibiotics</li> </ul>	2	4	
7	Final Exam		1	2	
Number of Weeks/and Units Per semester			14	28	

b – Practical Aspect: **Organic Chemistry II:**

Order	Practical Experiment	Number of weeks	Contact hours
1	➤ Identification of Alcohols	1	2
2	➤ Identification of aldehyde and ketones	1	2
3	➤ Identification of carboxylic acids	1	2
4	➤ Identification of amines	1	2
5	➤ Fisher method of esterification(preparation of ethylacetate)	1	2
6	➤ Preparation of acetamide	1	2



7	➤ Hydrolysis of acetamide	1	2
8	➤ Detection of halogen and Detection of nitrogen.	2	4
9	➤ Preparation of benzoic acid oxidation of benzyl alcohol	1	2
10	Final exam	1	2
Number of Weeks/and Units Per Semester			22

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Identification of Alcohols	1	2	
2	Identification of aldehyde and ketones	1	2	
3	Identification of carboxylic acids	1	2	
4	Identification of amines	1	2	
5	Fisher method of esterification (preparation of ethylacetate)	1	2	
6	Preparation of acetamide	1	2	
7	Hydrolysis of acetamide	1	2	
8	Introduction to use of stereo models	2	4	
9	Final exam	1	2	
Number of Weeks/and Units Per First semester			20	

I. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	2, 8	5	5%	
2	Practical reports	1-9	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	





6	Final Exam (practical)	10	20	20%	
7			100	100%	

II. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6<sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.</p> <p>2- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook" 2006, Springer-Verlag Berlin Heidelberg, Berlin.</p>
2-Recommended Books and Reference Materials.	
	<p>1. I. L. Finar, Organic Chemistry: The Fundamental Principles, 1963, Fourth edition, longman green and company ltd. London.</p> <p>2. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.</p> <p>3. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6<sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey</p> <p>4. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www.orgsyn.org

## Course Specification of Analytical Chemistry II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Redox titration:	Theory of redox reactions, strength and equivalent weights of oxidizing agents and reducing agents, redox titration curves, redox indicators, titration involving potassium permagnate, cerricsulphate potassium iodate, potassium bromate, titanous chloride, sodium 2, 6-dichlorophenol indophenol. Iodometry and iodimetry, Pharmaceutical application of redox titrations- Pharmaceutical applications	2	4	
2	Potentiometry	Theoretical consideration, Measurement of potential, Instrumentation, Reference and indicator electrodes, ion selective electrodes, potentiometric titrations, location of end point, equipment, analytical application direct measurement of mean concentration, differential curve, determination of solubility product	2	4	
3	Gravimetric Methods of analysis:	Overview of Gravimetry Types of Gravimetric Methods Conservation of Mass Why Gravimetry Is Important Precipitation Gravimetry	3	6	



		<p>Theory and Practice</p> <p>Sparingly soluble substances, Solubility product and common ion effect, factors affecting solubility, fractional precipitation, quantitative precipitation, condition for precipitation, contamination of precipitate-co precipitation and post precipitation, practical aspects of gravimetric analysis-precipitation, digestion, filtration, washing, drying/ignition of precipitate, introduction to thermogravimetry</p> <p>Quantitative Applications</p> <p>Qualitative Applications</p> <p>Volatilization Gravimetry</p> <p>Theory and Practice</p> <p>Quantitative Applications</p> <p>Evaluating Volatilization Gravimetry</p> <p>Particulate Gravimetry</p> <p>Theory and Practice</p> <p>Quantitative Applications</p> <p>Evaluating Precipitation Gravimetry</p>			
4	Midterm		1	2	
5	Precipitation titration:	Theory of precipitation titration, Mohrs method, Volhard's method, Adsorption indicators. Pharmaceutical application	1	2	
6	Complexometric titration:	Concepts of complexation and chelation, Werner's co-ordination number, stability of complexes,	3	6	



		titrants, titration curves, types of complexometric titrations, methods of end point detection, metallochromic indicators, metal ion buffer, titration selectivity - masking and demasking, Applications			
7	Gas analysis:	Principle of gas analysis, Hempel's apparatus, absorbants in gas analysis, applications – assay of oxygen, carbon dioxide, nitrous oxide.	1	2	
8	Final exam		1	2	
Number of Weeks/and Units Per First semester4				28	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Preparation and standardization of potassium permanganate solution	1	2	
2	Preparation and standardization of ceric ammonium sulphate solution	1	2	
3	Preparation and standardization of potassium iodide solution	1	2	
4	Assay of phenol	1	2	
5	Assay of hydrogen peroxide	1	2	
6	Preparation and standardization of ammonium thiocyanate solution.	1	2	
7	Preparation and standardization of a silver nitrate solution.	1	2	
8	Assay of potassium chloride.	1	2	
9	Assay of sodium chloride.	1	2	
10	Preparation and standardization of EDTA solution	1	2	
11	Assay of Calcium lactate	1	2	
12	Final exam	1	2	

Number of Weeks/and Units Per Semester	24
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II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	2, 8	5	5%	
2	Practical reports	1-9	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	10	20	20%	
7			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- Douglas A. Skoog, Donald M. West, F. James Holler and Stanley R. Crouch Fundamentals of Analytical Chemistry, 2004, 8<sup>th</sup> edition, Thomson Brooks/Cole, Belmont, USA.</p> <p>2- F.W. Fifield and D. Kealey, "Principles and Practice of Analytical Chemistry" Fifth Edition, 2000, Blackwell Science, London.</p>
2-Recommended Books and Reference Materials.	
	<p>1- DEAN'S Analytical Chemistry Handbook, 2004, Second edition, McGraw-Hill Handbooks, New York, USA.</p> <p>2- Somenath Mitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada.</p> <p>3- K. Danzer, Analytical Chemistry Theoretical and Metrological Fundamentals, 2007, Springer-Verlag Berlin Heidelberg.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1-The Analytical Abstracts database (<a href="http://www.rsc.org/CFAA/AASearchPage.cfm">http://www.rsc.org/CFAA/AASearchPage.cfm</a>)</p> <p>2- The Analytical Forum on ChemWeb (<a href="http://analytical.chemweb.com/search/search.exe">http://analytical.chemweb.com/search/search.exe</a>)</p>

## Course Specification of Pharmaceutics II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic			
1	Pre- formulation studies	<ul style="list-style-type: none"> <li>• Study of physical properties of drug and its effect on formulation like                             <ul style="list-style-type: none"> <li>○ Physical form</li> <li>○ Particle size</li> <li>○ Shape</li> <li>○ Density and angle of repose</li> <li>○ Wetting</li> <li>○ Dielectric constant</li> <li>○ Solubility</li> <li>○ Dissolution</li> <li>○ Organoleptic properties</li> </ul> </li> <li>• Excipients compatibility</li> <li>• Selection of solvent</li> <li>• Common solvents used in pharmacy.</li> </ul>			
2	Solution	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Classification of pharmaceutical solution</li> <li>• Aqueous solution</li> <li>• Non aqueous solution</li> <li>• Formulation ( vehicles used and additives)</li> <li>• Isotonicity</li> <li>• Stability of solution</li> <li>• Manufacture of solution</li> </ul>			
		Midterm exam			
3	Suspension	<ul style="list-style-type: none"> <li>• Advantages and disadvantages</li> <li>• Pharmaceutical application of suspension</li> <li>• Types of suspensions</li> <li>• Formulation of suspension</li> <li>• Difference between Flocculation, deflocculation.</li> <li>• Factors affecting sedimentation rate of suspension.</li> <li>• Formulation of various types of suspensions.                             <ul style="list-style-type: none"> <li>○ flocculating agents</li> <li>○ Viscosity modifiers</li> </ul> </li> </ul>			



		<ul style="list-style-type: none"> <li>○ Formulation additives</li> <li>● Stability testing of suspension</li> </ul>			
4	Emulsion	<ul style="list-style-type: none"> <li>● Emulsion types</li> <li>● Emulsion uses</li> <li>● Identification of emulsion type</li> <li>● Emulsion formulation</li> <li>● Choice of emulsion type, and oil phase</li> <li>● Emulsion consistency</li> <li>● Choice of emulsifying agent</li> <li>● Preparation of emulsion</li> <li>● Classification of emulsifying agents</li> <li>● Stability of emulsion</li> <li>● Stability testing of emulsion</li> </ul>			
5		Final exam			
Number of Weeks/and Units Per Semester					

Order	Practical Experiment	Number of weeks	Contact hours	
1	Weights and measures, Containers, closures and Labeling	1	2	
2	Preparation Lugol's solution/ Potassium permanganate 0.2%	1	2	
3	Preparation Paracetamol elixir	1	2	
4	Preparation sodium bicarbonate Ear drops/ chloramphenicol eye drops	1	2	
5	Midterm exam	1	2	
6	Preparation Simple syrup/ cough syrup	1	2	
7	Starch mucilage.	1	2	
8	Preparation of Calamine lotion	1	2	
9	Preparation of chloramphenicol suspension	1	2	
10	Preparation of mineral oil emulsion/ Liquid paraffin emulsion.	1	2	
11	Preparation Castor oil emulsion/ Cod liver oil emulsion.	1	2	
12	Final exam	1	2	
Number of Weeks/and Units Per Semester			24	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment	9	5	5%	



2	Practical Reports	7	10	10%	
3	Quizzes	2, 5, 12	5	5%	
4	Written Test (midterm exam )	8	10	10%	
5	Final Exam (practical)	14	20	20%	
6	Final Exam (theoretical)	16	50	50%	
	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK.</li> <li>2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>2. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup>edition., Williams and Wilkins. Maryland, USA.</li> </ol>
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www.go.jblearning.com/basicphysicalpharmacy



## Course Specification of Physiology II

I. Course Contents					
Topics/Units of Course Contents					
First: Theoretical Aspects					
No	Course Topics/Units	Sub-topics	No. of Weeks	Contact Hours	
1	1- Introduction to cardiovascular system 2- Heart and its properties 3- Blood pressure	<ul style="list-style-type: none"> <li>- Physiological anatomy, pulmonary and systemic circulation</li> <li>- Properties of cardiac muscle, introduction to ECG.</li> <li>- Heart sounds, cardiac cycle and cardiac output.</li> <li>- Blood pressure and factor</li> </ul> Determining and maintaining it.	3	6	
2	Lymph system	Lymph and lymphatic: formation and functions.	1	2	
3	1- Introduction to respiratory system.	<ul style="list-style-type: none"> <li>- Mechanism of respiration and lung compliance.</li> <li>- Exchange and transport of gases, regulation of respiration and hypoxia.</li> </ul>	2	4	
4	Midterm		1	2	



5	The kidney and its units	Functional anatomy of the kidneys. Mechanisms of urine formation. Renal clearance and glomerular filtration rate (GFR). Regulation of acid-base balance by the kidneys.	2	4	
6	Endocrine system	Introduction to endocrine system: endocrine glands and their functions.	2	4	
7	Reproductive system	Introduction to reproductive: male and female reproductive system. Menstrual cycle	2	4	
	Central nervous system	Introduction to central nervous system. Physiology of pain.	1	2	
8	Final exam		1	2	
Total number of weeks and hours			15	30	

### Second: Practical/Tutorial/Clinical Aspects

Write up practical/tutorial/clinical topics

No.	Practical/Tutorial/Clinical topics	No. of Weeks	Contact Hours	
1	Puke Rate+ Respiration	1	2	
2	Blood Pressure	1	2	
3	Measurement of temperature + hearing	1	2	
4	Blood Glucose Test	1	2	
5	Vision.	1	2	
6	ECG	1	2	
7	Enzyme	1	2	



8	Bile Juice	1	2	
9	Final Exam	1	2	
Total number of weeks and hours		9	18	

II. Learning Assessment:					
No.	Assessment Tasks	Week due	Mark	Proportion of Final Assessment	Aligned CILOs
1	Assignments	3, 6, 8, 11	5	5%	
2	Midterm Exam Quizzes and Homework	7	10	15%	
3	Practical Reports	All	10	10%	
4	Final Exam Practical	14	20	20%	
5	Final Exam Theory	16	50	50%	
Total			100	100%	

III. Learning Resources :	
(Author, (Year), Book Title, Edition, Publisher, Country of publishing)	
Textbooks-not more than 2	
1- Text book of medical physiology, Guyton and Hall, 12 <sup>th</sup> Ed 2010, Mississippi Medical Center, Jackson, Mississippi, USA 2- Essentials of Human Physiology for Pharmacy, Laurie Kelly first Ed. 2005, CRC Press, Pharmacy Education series	
Essential References-not less than 4	
1- Textbook: Human Physiology, 13 <sup>th</sup> Ed. Stuart Ira Fox 2- Anatomy and Physiology, Fifth Ed. Thibodeahandpatton 1999. 3- A-Z of Haematology first Ed. Barbara J. Bain and Rajeev Gupta, Blackwell Publishing Ltd. London 2003.	



- 4- Textbook of Anatomy and Physiology. William Arnould-Taylor and Nelson Thornes, 1998)
- 5- Human Anatomy and Physiology 13<sup>th</sup> Ed. David Shier 2012

#### Electronic Materials and Web Sites

1. [www.csun.edu/science/biology/anatomy/anatomy.html](http://www.csun.edu/science/biology/anatomy/anatomy.html)
2. [www.cliffsnotes.com](http://www.cliffsnotes.com)
3. [www.innerbody.com](http://www.innerbody.com)
4. [www.anatomyandphysiology.com/](http://www.anatomyandphysiology.com/)
5. [www.mhhe.com/biosci2/anatomyrevealed](http://www.mhhe.com/biosci2/anatomyrevealed)
6. [www.le.ac.uk/pa/teach/va/anatomy](http://www.le.ac.uk/pa/teach/va/anatomy)

### Course Specification of Histology

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	Microscopy and Microtechniques		1	2	
2	Epithelial tissue	Simple epithelium	2	4	
		Stratified epithelium			
		Glandular epithelium			
		Neuroepithelium			
3	Connective tissue	Connective tissue proper	2	4	
		Cartilage			
		Bone			
4	Blood	Granular leukocyte	1	2	
		Non granular leukocyte			
		Platelet			
		Heamopoiesis			
5	Mild term exam		1	2	
6	Muscular tissue	Skeletal muscle	1	2	
		Cardiac muscle			
		Smooth muscle			
7	Nervous tissue	Neuron	1	2	
		Peripheral nervous system			
8	Circulatory system	The blood vessels	1	2	
9	Lymphatic and macrophage system	Lymphatic vessels	1	2	
		Lymph node			
		The spleen			



		The tonsils			
		The thymus			
		The macrophage system			
10	Integumentary system	Skin Thick skin Thin skin Skin appendages	1	2	
11	Revision		1	2	
12	Final exam		1	2	
Number of Weeks/and Units Per Semester				28	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
1	Microscopy and Microtechniques	1	2	
2	Epithelial tissue	1	2	
3	Connective tissue	1	2	
4	Blood	1	2	
5	Muscular tissue	1	2	
6	Nervous tissue	1	2	
7	Circulatory system	1	2	
8	Lymphatic and macrophage system	1	2	
9	Integumentary system	1	2	
10	Revision	1	2	
11	Final exam	1	2	
Number of Weeks /and Units Per Semester			22	

VIII. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Exercises & Home works	3	2.5	2.5%
2	Project ( single\group)	4	2.5	2.5%
3	Practical reports	1-10	10	10%



4	Mid Exam	8	15	15%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
7			100	100%	

II. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	-Histology and cell biology for medical students part 1 and part 2, 2013 staff members of histology department faculty of medicine Cairo university. 2- Anthony Mescher 2013. Basic Histology: Text and Atlas, Thirteenth Edition: 9780071780339, 2013.
2-Recommended Books and Reference Materials.	
	1- Functional histology 2- Histological techniques
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.histology.com">www.histology.com</a>

### Course Specification of Botany

I.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	The Plant Kingdom ; Seedless Plants	There Are Four Major Groups Of Plants	1	2	
2	Plant Structure, Growth, And Differentiation	Roots, Stems, Leaves, Flowers, And Fruits Made Up The Plant Body. Is Composed Of Cells And Tissues	2	4	
3	Leaf Structure And Function	The Leaf Consists Of An Epidermis, Ground Tissue, And Vascular Tissue. Leaf Structure Differs In Dicots And Monocots.	2	4	
4	Stems And Plant Transport and midterm	-Water And Minerals Are Transported In Xylem, While Sugars Are Transported In Phloem.	3	6	
5	Roots And Mineral Nutrition	-There Are Two Basic Types Of Root Systems	2	4	
6	Reproduction In Flowering Plants	Fertilization Is Followed By Seed And Fruit Development	2	4	





7	Growth Responses And Regulation Of Growth	External And Internal Factors Affect Germination And Early Growth	2	4	
8	Final Exam		1	2	
Number of Weeks/and Units Per Semester			15	30	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	
1	The plant kingdom ; seedless plants	2	4	
2	Plant structure, growth, and differentiation	2	4	
3	Leaf structure and function	2	4	
4	Stems and plant transport	2	4	
5	Roots and mineral nutrition	2	4	
6	Reproduction in flowering plants	2	4	
7	Final exam	1	2	
Number of Weeks/and Units Per Semester		13	26	

II. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	2, 8	5	5%	
2	Practical reports	1-10	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
7			100	100%	



III.Learning Resources:	
1- Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"><li>1. Sylvia/S.Mader 2012, Human Biology, 1<sup>st</sup> Edition (McGraw-Hill) N.Y.USA.</li><li>2. E.Solomon, L.Berg, D.Martin 2008 Biology 8<sup>th</sup> edition (Thomson Brooks Cole, Belmont.U.S.A College Publishing)</li></ol>
2- Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"><li>1. Bruce Albert, Alexander Johnson, Peter Walter (2008), Molecular biology of the cell, Fifth edition, (Garland Science), New York. U.S.A.</li><li>2. Cecie Starr (1997), Basic concept in biology Third edition, (International Thomson Publishing Company), Belmont, U.S.A.</li><li>3. Shuaa Al-Yousufy (1994), Cell structure and function, (Qatar Publishing Library), Qatar.</li><li>4. Aish Zaytoon (1996), Human biology, (National Publishing Library), Jordan.</li></ol>
3- Electronic Materials and Web Sites <i>etc.</i>	
	<ol style="list-style-type: none"><li>1. Power Point Lectures for Biology, concepts and connections 6<sup>th</sup> edition by Campbell, Reece, Taylor, Simon and Dickey 2012.</li></ol>



## Third year: first semester

### Course Specification of Pharmaceutics III

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Parenteral preparation	<ul style="list-style-type: none"> <li>• Route of administration of injection</li> <li>• Types of Water for injection</li> <li>• Pyrogenicity</li> <li>• Non-aqueous vehicles</li> <li>• Isotonicity and methods of adjustment</li> <li>• Formulation of injection ( the vehicles, osmotic pressure, pH, specific gravity, suspension for injection, emulsion for injection)</li> <li>• Containers and closures selection</li> <li>• Methods of Sterilization</li> </ul>	3	6	
2	Ophthalmic preparation	<ul style="list-style-type: none"> <li>• Principles of ocular drug absorption.</li> <li>• Ophthalmic solution.</li> <li>• Ophthalmic suspension.</li> <li>• Ophthalmic ointments.</li> <li>• Ocuserts (ophthalmic inserts)</li> <li>• Examples of drugs used to treat certain eye diseases.</li> </ul>	1	2	
3	Therapeutic aerosols	<ul style="list-style-type: none"> <li>• Definition and uses of therapeutic aerosols.</li> <li>• Instability of aerosols</li> <li>• Deposition of aerosols in the human respiratory tract.</li> <li>• Formulation and generation of aerosols</li> <li>• Pressurized packages</li> <li>• Type of propellants</li> <li>• Containers</li> <li>• Formulation aspects</li> <li>• Performance of pressurized packages as inhalation aerosol generators</li> <li>• Air-blast nebulizers</li> <li>• Dry powder generators</li> <li>• Methods of preparation</li> <li>• Evaluation methods                             <ul style="list-style-type: none"> <li>○ Leaking and pressure testing of containers.</li> </ul> </li> </ul>	2	4	

		○ Output, drug concentration and dose delivered and particle Size analysis			
4		Midterm exam	1	2	
5	Semisolid dosage forms	<ul style="list-style-type: none"> <li>• Skin anatomy and physiology</li> <li>• Percutaneous absorption and factors affecting it.</li> <li>• Ointments</li> <li>• Classification of ointment bases</li> <li>• Additives included in ointment bases</li> <li>• Methods of Preparation of ointments and packaging.</li> <li>• Some examples of medicated ointments</li> <li>• Creams</li> <li>• definition</li> <li>• Classification of creams</li> <li>• Some examples of medicated creams</li> <li>• Pastes</li> <li>• Definition</li> <li>• Composition</li> <li>• Examples of medicated pastes</li> <li>• Gels</li> <li>• Composition and uses</li> <li>• Evaluation of drug release from ointment and cream bases.</li> </ul>	4	8	
6	Suppositories	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Advantages and disadvantages</li> <li>• Anatomy and physiology of rectum</li> <li>• Factors affecting rectal drug absorption.</li> <li>• Shapes and size of suppositories.</li> <li>• Types of suppository bases.</li> <li>• Methods of Preparation of suppositories.</li> <li>• Displacement value</li> <li>• Calibration of suppository mold with bases .</li> </ul>	2	4	
7		Final exam	1	2	
Number of Weeks/and Units Per Semester			14	28	

b - PracticalAspect:

Order	Practical Experiment	Number of weeks	Contact hours	
1	Yellow Simple ointment (ointment base)	1	2	
2	Preparation of emulsifying ointment	1	2	



3	Preparation of white field/cetrimide ointment	1	2	
4	Preparation of atropine sulfate eye ointment 1%	1	2	
5	Preparation of Absorption ointment Base	1	2	
6	Preparation of W/O Emulsion ointment Base (Cold Cream type base)	1	2	
7	Preparation of O/W Emulsion Base (Hydrophilic Ointment)	1	2	
8	Preparation of Water Soluble Base (PEG)	1	2	
9	Aqueous cream/ Sulfur and salicylic acid cream.	1	2	
10	Zinc gelatin paste (Unna's paste).	1	2	
11	Calibration of suppository mold using different bases Calculation of displacement value	1	2	
12	Preparation of acetaminophen suppositories	1	2	
13	Final exam	1	2	
Number of Weeks/and Units Per First semester3			26	

## II. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment	9	5	5%	
2	Practical Reports	1-12	10	10%	
3	Quizzes	2, 5, 12	5	10%	
4	Written Test (midterm exam )	8	10	10%	
5	Final Exam (practical)	14	20	20%	
6	Final Exam (theoretical)	16	50	50%	
Total			100	100%	

## III. Learning Resources:

### 1-Required Textbook(s) ( maximum two ).

1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK.
2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.

### 2-Recommended Books and Reference Materials.

1. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10<sup>th</sup>edition., Williams and Wilkins. Maryland, USA.

### 3-Electronic Materials and Web Sites *etc.*



1- <a href="http://www.joblearning.com/basicphysicalpharmacy">www.joblearning.com/basicphysicalpharmacy</a>
2-
3-

### Course Specification of Biochemistry I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to Biochemistry	1. Definition and importance of biochemistry 2. Cell types and structure	1	3	
2	Carbohydrate biochemistry	1. Definition, classification and properties 2. Isomerism 3. Monosaccharides 4. Oligosaccharides 5. Polysaccharides	3	9	
3	Protein biochemistry and Midterm exam (1)	1. Definition, importance, classification and properties 2. Amino acids 3. Peptides 4. Proteins (simple, conjugated, derived) 5. Protein structure and denaturation	3	9	
4	Lipid biochemistry	1. Definition, importance, classification and properties 2. Fatty acids 3. Waxes 4. Compound lipids (phospholipids, glycolipids, 5. Derived lipids (cholesterol, steroids and bile acids)	3	9	
5	nucleic acid biochemistry	1. Definition, importance, classification and properties 2. Purines and pyrimidines 3. Nucleotides and nucleosides 4. DNA structure, properties and types 5. RNA structure, properties and types	2	6	



6	vitamins biochemistry	1. Definition, importance, classification and properties 2. Fat soluble vitamins (sources, roles, deficiencies and RDA) 3. Water soluble vitamins (sources, roles, deficiencies and RDA)	1	3	
7	Enzymes	1. Definition, importance, classification and properties 2. Enzyme inhibition	1	3	
8	Final exam		1	3	
Number of Weeks/and Units Per Semester			15	54	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Introduction to lab safety and Qualitative analyses of carbohydrate	3	9	
2	Qualitative analyses of lipids	3	9	
3	Qualitative analyses of proteins	3	9	
4	Qualitative analyses of nucleic acids	1	3	
5	Qualitative analyses of vitamins	1	3	
6	Final exam	1	3	
Number of Weeks/and Units Per First Second semester			36	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment ( single\group)	10	5	5%	
2	Quizzes	3, 5, 9, 11	5	5%	
3	Written Test	7	10	10%	





4	Practical reports	All	10	10%	
5	Final Exam (practical)	12	20	20%	
6	Final Exam (theoretical)	14	50	50%	
			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>MALLIKARJUNA RAO, (2008). Medical Biochemistry. Second edition, New Age International Limited Publisher, New Delhi, India.</li> <li>John Baynes and Marek Dominiczak, 2014. Medical Biochemistry With STUDENT CONSULT Online Access. Fourth edition, Elsevier limited, China.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>Chatterjea MN and Shinde R, (2007). Textbook of Medical Biochemistry, 7th edition, JAYPEE BROTHERS, New Delhi, India.</li> <li>Champe PC, Harvey RA, Ferrier DR (2008). Lippincott's Reviews of Biochemistry, Fourth edition, Lippincott William and Wilkins, London, UK.</li> </ol>
3-Electronic Materials and Web Sites etc.	
	<ol style="list-style-type: none"> <li><a href="http://bcs.whfreeman.com/biochem5/default.asp">http://bcs.whfreeman.com/biochem5/default.asp</a></li> <li><a href="http://www.biochemistry.org/">http://www.biochemistry.org/</a></li> <li><a href="http://www.wiley.com/college/boyer/0470003790/animations/animations.htm">http://www.wiley.com/college/boyer/0470003790/animations/animations.htm</a></li> <li><a href="http://www.wiley.com/college/fob/anim/">http://www.wiley.com/college/fob/anim/</a></li> </ol>

### Course Specification of Pharmaceutical Microbiology I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	<i>Introduction in microbiology</i>	- <i>Importance of microorganisms</i> - <i>Medical terms in microbiology</i>	1	3	
2	<i>Prokaryotes and Eukaryotes</i>	- <i>Comparison</i>	1	3	
3	<i>Bacterial structure</i>	- <i>Components</i> - <i>Function</i>	1	3	
4	<i>Classification of bacteria</i> <i>Morphology of bacteria</i>		1	3	
5	<i>Bacterial metabolism</i>	<i>Growth requirements</i>	1	3	

6	<i>Bacterial Pathogenicity</i>	<i>The virulence factors Transmission routes of bacterial infection</i>	1	3	
7	<i>Middle exam</i>		1	3	
8	<i>Bacterial infections</i>	<i>- Common bacterial diseases - Stages of infection</i>	1	3	
9	<i>Normal bacterial flora</i>	<i>- Types - Function</i>	1	3	
10	<i>Antimicrobial agents</i>	<i>- Sources of antibacterial agents - Types of antibiotics</i>	1	3	
11	<i>Antimicrobial agents</i>	<i>- Mechanisms of action of antibiotics - Resistance of bacteria to antibiotics</i>	1	3	
12	<i>Antimicrobial agents</i>	<i>MIC, MBC</i>	1	3	
13	<i>Fungi</i>	<i>- General Characteristics and - Importance</i>	1	3	
14	<i>Fungi</i>	<i>-Morphology of fungi</i>		3	
15	<i>Mycoses</i>	<i>-Classification - Pathology, - Clinical significance, - Treatment</i>	1	3	
16	<i>Final exam</i>		1	3	
<b>Number of Weeks/and Units Per Semester</b>				<b>48</b>	

**b - Practical Aspect:**

Order	Practical Experiment	Number of weeks	Contact hours	C-ILOs
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1	<i>Infection control polices in microbiology lab</i>	1	2	
2	<i>Preparation and sterilization of culture media</i>	1	2	
3	<i>Inoculation and incubation of culture media</i>	1	2	
4	Examination of culture <i>Preparation of smear</i>	1	2	
5	<i>Gram staining</i>	1	2	
6	Microscopic examination of isolates	1	2	
7	Biochemical tests	1	2	
8	Antimicrobial susceptibility test	1	2	
9	Antimicrobial susceptibility test	1	2	
10	Determiation of the minimal inhibitory concentration (MIC) and minimum bactericidal concentration (MBC)	1	2	
11	<i>Media, techniques, and incubation used for culturing fungi</i>	1	2	
12	<i>Microscopic examination of fungi</i>	1	2	
13	<i>Collection of specimens and diagnosis of dermatophytoses</i>	1	2	
14	<i>Final exam</i>	1	2	
Number of Weeks/and Units Per Semester			28	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises and Home works, Quizzes	2	5	5%	
2	Project	4	5	5%	
3	Practical Reports	All	10	10%	
4	Written Test	6	10	10%	
5	Final Exam (theoretical)	16	50	50%	
6	Final Exam (practical)	15	20	20%	
7			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"><li>1. Harvey RA, Champe PA, Strol WA, Rouse h, Fisher BD. Lippincott's Illustrated Reviews Microbiology (2001). Lippincott Williams and Wilkins. Philadelphia.</li><li>2. Kar A. Pharmaceutical Microbiology. (2008). New age international publisher. New Delhi.</li></ol>
2-Recommended Books and Reference Materials.	
	<ul style="list-style-type: none"><li>• Winn W, Allen S, Janda W, Koneman E, Procop G, Schreckenberger P, and Woods G. Koneman's Color Atlas and Textbook of Diagnostic Microbiology. (2006)6th edition.Lippincott Williams and Wilkins.</li><li>• Cheesbrough M. Medical laboratory manual for tropical countries. ELBS with Butterworth-Heinemann, University press, Cambridge, UK. Vol. II. Microbiology.</li></ul>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p><a href="http://www.ncbi.nlm.nih.gov/books/NBK7627/">www.ncbi.nlm.nih.gov/books/NBK7627/</a> <a href="http://www.cdc.gov/">www.cdc.gov/</a> <a href="http://www.textbookofbacteriology.net/">www.textbookofbacteriology.net/</a> <a href="http://www.wsmicrobiology.com">www.wsmicrobiology.com</a> <a href="http://www.microbiologyonline.org.uk">www.microbiologyonline.org.uk</a> <a href="http://www.asm.org">www.asm.org</a></p>

### Course Specification of Pharmacognosy I

I.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to pharmacognosy	-Definition and importance of pharmacognosy. - Nomenclature and classification of crude drugs. - Cultivation and collection of Medicinal drugs.	1	3	
2	Production of drugs:	- Drying, preservation and protection of crude drugs. - Adultration of drugs.	1	3	
3	Chemistry of crude drugs	- The food storage products and the products of metabolism.	1	3	
4	Leaves	- Introduction to morphological and anatomical description of the leaves - Study of Digitalis, Senna, Guava, Eucalptus leaves	1	3	
		- Study of Stramonium, Belladonna, Egyptian henbane, Buchu and Boldo leaves	1	3	
		- Study of Coca, Jaborandi, Uva-Ursi, Ivy, Tea and Henna leaves.	1	3	
5		Mid exam	1	3	
6	Barks	- Introduction to morphological and anatomical description of the barks - Study of Cinchona, Cinnamon, Cassia, Cascara barks.	1	3	
7		- Study of Frangula, Quillaia, Pomegranate, Hamamelis baks and Galls	1	3	



8	Subterranean organs	- Introduction to subterranean organs (roots, rhizomes, bulbs, corms, tubers) - study of Rauwolfia, Liquorice, Ipecacuanha and Senega	1	3	
		- Study of Ginger, Valerian, Filix-mas, Jalap and Aconite	1	3	
		- Study of Colchicum, Rhubarb, Squill, Curcuma and Podophylum.	1	3	
9	Herbs	- Introduction herbs. - Study of Ergot, Indian hemp, Catharanthus, Lobelia, peppermint and thyme herbs	1	3	
10		Final exam	1	3	
Number of Weeks/and Units Per First semester4				30	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Introduction, Laboratory safety measures - The use of light microscope and study types of stomata	1	2	
2	Microscopical identification of starch (Potato, Maiz and Wheat)	1	2	
3	Morphology - microscopical identification of Senna, Stramonium and Egyptian henbane leaves	1	2	
4	Morphology - microscopical identification of Henna, Ivy and Guava leaves	1	2	
5	Morphology - microscopical identification of	1	2	



	Eucalyptus and Tea leaves			
6	Morphology - microscopical identification of Cassia and Cinnamon.	1	2	
7	Morphology - microscopical identification of Pomegranate and Galls	1	2	
8	Morphology - microscopical identification of Liquorice and Rhubarb	1	2	
9	Morphology - microscopical identification of Ginger and Curcuma	1	2	
10	Morphology - microscopical examination of medicinal herbs;Peppermint and Thyme herbs Indian hemp herbs	1	2	
11	Final Exam	1	2	
Number of Weeks/and Units Per First semester1			22	

## II. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Seminar and project	5, 9, 11	5	5%	
2	Practical Reports	1-10	10	10%	
3	Quizzes	4, 6, 10	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (practical)	11	20	20%	
6	Final Exam (theoretical)	14	50	50%	

## III. Learning Resources:

### 1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York
- 2- Singh, G.K and Bhandari, A. "Textbook of Pharmacognosy" (2000); first ed., reprint (2008).CBS publisher and Distributers, New Delhi, India.

### 2-Recommended Books and Reference Materials.

- 1- Sharma, V.D. and Pandey, S.K. "Pharmacognosy Practical Notebook" (2007); first ed. CBS publisher and Distributers, New Delhi, Bangalore, India.
- 2- Raje, V.N. "Pharmacognosy" (2010); first ed. CBS publisher and Distributers Pvt Ltd., New Delhi, Bangalore, Pune, Kochi, Chennai.



### 3-Electronic Materials and Web Sites *etc.*

- 1-<http://pages.intnet.mu/webpam/Pharmacognosy.htm>
- 2- <http://www.phcog.org/>
- 3- <http://www.botanical.com>



### Course Specification of Pharmacology I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	C-ILOs
1	General Introduction of Pharmacology	Introduction to Pharmacology	3	9	
		Pharmacokinetics			
		Pharmacodynamics			
2	Autonomic Nervous System first part	Introduction	5	15	
		Sympathomimetic Drugs			
		Sympatholytic Drugs			
		Para-sympathomimetic Drugs			
		Para-sympatholytic Drugs			
		Autonomic Ganglia			
3	Midterm Exam		1	2	
4	Anti-inflammatory Drugs	Introduction	2	6	
		Non-Steroidal Anti-inflammatory Drugs			
5	Autacoids	Histamine and its antagonists	1	3	
		Serotonin and its antagonists			
6	Final Exam		1	3	
Number of Weeks/and Units Per First semester5				45	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment/ Presentation	6	5	5%	



2	Quizzes	4 - 8	5	5%	
3	Written Test (1)	7	30	30%	
4	Final Exam (theoretical)	15	60	60%	
	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009)Lippincott's Illustrated Reviews of Pharmacology, <i>11th edition</i>, Lippincott's Williams and Wilkins, Philadelphia.</p> <p>2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012)Basic and Clinical Pharmacology, <i>Fifth edition</i>, Mc Graw Hill Lange, U.S.A.</p>
2-Recommended Books and Reference Materials.	
	<p>1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale's Pharmacology, <i>6th edition</i>, Churchill Livingstone Elsevier, Philadelphia.</p> <p>2- Lectures notes.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1- <a href="http://www.who.int">www.who.int</a></p> <p>2- <a href="http://www.drugs.com">www.drugs.com</a></p>

### Course Specification of Instrumental Analysis

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction	Instrumental methods of analysis, advantages and comparison with classical methods of analysis	1	3	
2	Physical methods	<u>Polarimetry</u> : optical and specific rotation, instrumentation and applications. <u>Refractometry</u> : refractive index, molar refraction, instrumentation and applications..	1	3	
3	Spectrochemical methods:	Electromagnetic radiation: nature of electromagnetic radiation, the interaction between energy and matter, electromagnetic spectrum, absorption and emission of radiant energy by atoms and molecules.	1	3	
4	UV-Visible spectroscopy:	Absorption spectrophotometry, Beer-Lambert's law, methods of color development. Instrumentation, single-beam and double-beam spectrophotometers, single component analysis. Simultaneous spectrophotometry, derivative spectrophotometry and	2	6	



		applications in pharmaceutical analysis.			
5	<b>Fluorescence Spectroscopy</b>	Fluorescence and phosphorescence, excitation and emission spectra, factors affecting the fluorescence intensity, instrumentation and applications.	1	2	
6		Midterm	1	2	
7	<b>Flame Photometry and Atomic Absorption Spectroscopy</b>	<u>Flame photometry</u> : Introduction, theory, instrumentation and applications.  <u>Atomic absorption spectroscopy</u> : Introduction, theory, instrumentation and applications.	1	3	
8	<b>Electroanalytical Methods</b>	Introduction <u>Potentiometric methods</u> : theory, instrumentation and applications. <u>Voltammetry</u> : introduction, theory, instrumentation, polarography and applications.	2	6	
9	<b>Separation Methods</b>	Introduction <u>Solvent extraction</u> : distribution law, the distribution ratio, calculations of the percent extracted. <u>Chromatography</u> : principles of chromatographic separations, classification of chromatographic techniques, theory of column efficiency in chromatography and resolution in chromatography	2	6	
13	Final Exam		1	2	
	Total		13	37	



II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project	2, 8	5	5%	
2	Oral Tests and homework	5, 9	5	5%	
3	Written Test (1)	7	20	20%	
4	Final Exam (theoretical)	14	70	70%	
5			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Lena Ohannesian, Anthony J Streeter, handbook of pharmaceutical analysis. 2002, V.117, Marcel Dekker, Inc. New York. 2- B.D. Mistry., A Handbook of Spectroscopic Data CHEMISTRY (UV, JR, PMR, JCNMR and Mass Spectroscopy), 2009, Oxford Book Company, Jaipur.
2-Recommended Books and Reference Materials.	
	1- Francis Rouessac and AnnickRouessac, Chemical Analysis; Modern Instrumentation Methods and Techniques, 2007, 2NDEdition, John Wiley andSons Ltd, Chichester, West Sussex, England. 2- S Ahuja, N Jespersen, modern instrumental analysis, 2006, first edition, Elsevier B.V. Oxford, UK.
3-Electronic Materials and Web Sites <i>etc.</i>	

### Course Specification of Pharmaceutical Organic Chemistry III

Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Amines and Related Nitrogen Compounds	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification and Structure of Amines</li> <li>➤ Nomenclature of Amines</li> <li>➤ Physical Properties and Intermolecular Interactions of Amines</li> <li>➤ The Basicity of Amines</li> <li>➤ Comparison of the Basicity and Acidity of Amines and Amides</li> <li>➤ Preparation of Amines</li> <li>➤ Alkylation of Ammonia and Amines</li> <li>➤ Reduction of Nitrogen Compounds</li> <li>➤ Reaction of Amines with Strong Acids; Amine Salts</li> <li>➤ Chiral Amines as Resolving Agents</li> <li>➤ Acylation of Amines with Acid Derivatives</li> <li>➤ Quaternary Ammonium Compounds</li> <li>➤ Aromatic Diazonium Compounds</li> <li>➤ Diazo Coupling; Azo Dyes</li> </ul>	2	4	
2	Stereochemistry	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Classification of Isomers</li> <li>➤ Chirality and Enantiomers</li> <li>➤ Stereogenic Centers; the Stereogenic Carbon Atom</li> <li>➤ Configuration and the R-S Convention</li> <li>➤ The E-Z Convention for Cis–Trans Isomers</li> <li>➤ Polarized Light and Optical Activity</li> <li>➤ Properties of Enantiomers</li> <li>➤ Fischer Projection Formulas</li> </ul>	2	4	



		<ul style="list-style-type: none"> <li>➤ Compounds with More Than One Stereogenic Center; Diastereomers</li> <li>➤ Resolution of a Racemic Mixture</li> <li>➤ Meso Compounds; the Stereoisomers of Tartaric Acid</li> <li>➤ Physical Properties of Stereoisomers</li> <li>➤ Chemical Properties of Enantiomers</li> </ul>			
3	Polynuclear Aromatic Compounds :	<ul style="list-style-type: none"> <li>➤ Definition</li> <li>➤ Bonding in Polynuclear Aromatic Compounds</li> <li>➤ Nomenclature and Physical and Chemical Properties</li> <li>➤ Naphthalene</li> <li>➤ Anthracene</li> <li>➤ Phenanthrene</li> <li>➤ Chemical Properties of Naphthalene</li> <li>➤ Substitution reactions</li> <li>➤ Halogenation</li> <li>➤ Nitration</li> <li>➤ Sulphonation</li> <li>➤ Friedel-Craft's Reactions</li> <li>➤ The Mechanism of Substitution in Naphthalene,</li> <li>➤ Addition Reactions,</li> <li>➤ Reduction,</li> <li>➤ Oxidation,</li> <li>➤ Orientation of Substitution in Naphthalene and Its Derivatives</li> <li>➤ Effect of Activating and Deactivating Groups</li> </ul>	2	4	
4	Midterm Exam		1	2	
5	Heterocyclic Compounds	<ul style="list-style-type: none"> <li>➤ Rules for Nomenclature of three, four, five, six and seven membered heteroatoms.</li> <li>➤ Definition, properties, preparations, reactions, aromaticity</li> <li>➤ Monocyclic five membered Rings Containing One heteroatom</li> <li>➤ Pyrrole</li> <li>➤ Furan</li> </ul>	4	10	



		<ul style="list-style-type: none"> <li>➤ Thiophen</li> <li>➤ Monocyclic five membered Rings Containing two heteroatoms</li> <li>➤ Imidazole</li> <li>➤ Oxazole</li> <li>➤ Thiazole</li> <li>➤ Pyrazole</li> <li>➤ Monocyclic six membered Rings Containing One or More Heteroatoms</li> <li>➤ Pyrrolone</li> <li>➤ Pyrrolidine</li> <li>➤ Pyridine,</li> <li>➤ Pyrimidine</li> <li>➤ Six-membered Heterocyclic Compounds with One Oxygen as a Heteroatom</li> <li>➤ Pyran,</li> <li>➤ Pyrone and Their Derivatives),</li> <li>➤ Nomenclature of Bicyclic Rings Containing One or More Heteroatoms</li> <li>➤ Purine</li> <li>➤ Quinoline</li> <li>➤ Isoquinoline</li> <li>➤ Indole</li> <li>➤ Acridine</li> <li>➤ Carbazole</li> </ul>			
6	Final Exam		1	2	
Number of Weeks/and Units Per semester				28	

b – Practical Aspect: **Organic Chemistry III:**

Order	Practical Experiment	Number of weeks	Contact hours
1	Synthesis of hexamine	1	2
2	Synthesis of aspirin	1	2
3	Preparation of salicylamide	1	2





4	Preparation of acetanilide	1	2
5	Nitration of acetanilide	1	2
6	<b>Preparation of p-nitroaniline</b>	1	2
7	<b>Preparation of p-bromoaniline</b>	1	2
8	<b>Preparation of naphthalene picrate</b>	1	2
9	<b>Preparation of Anthracene picrate</b>	1	2
10	<b>Acylation of <math>\beta</math>-naphthol</b>	1	2
11	<b>Final exam</b>	1	2
Number of Weeks/and Units Per Semester			22

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	
1	Synthesis of hexamine	1	2	
2	Synthesis of aspirin	1	2	
3	Preparation of salicylamide	1	2	
4	Preparation of acetanilide	1	2	
5	Nitration of acetanilide	1	2	
6	Bromination of acetanilide	1	2	
7	Preparation of p-nitroaniline	1	2	
8	Preparation of p-bromoaniline	1	2	
9	Preparation of sulfanilic acid	1	2	
10	Preparation of benzoic acid oxidation of benzyl alcohol	1	2	
11	Final exam	1	2	
Number of Weeks/and Units Per Semester			22	

I. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project	2, 8	5	5%	
2	Practical reports	1-10	10	10%	
3	Oral Tests	5, 9	5	5%	



4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
			100	100%	

<b>II. Learning Resources:</b>	
<b>1-Required Textbook(s) ( maximum two ).</b>	
	<p>1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6<sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.</p> <p>2- Dohn D Hepworth, David R Waringand Micheal J Waring. "Aromatic Compounds "2002, The Royal Society of Chemistry, Cambridge.</p>
<b>2-Recommended Books and Reference Materials.</b>	
	<p>1. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.</p> <p>2. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6<sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey</p> <p>3. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.</p>
<b>3-Electronic Materials and Web Sites <i>etc.</i></b>	
	1-www.orgsyn.org



## Third year: second semester

### Course Specification of Pharmaceutics IV

I.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
	Powder	<ul style="list-style-type: none"> <li>• Types of powders</li> <li>• Advantages and disadvantages of powders,</li> <li>• Cachets and Tablet triturates .</li> <li>• Preparation of different types of powders encountered in prescriptions .</li> <li>• Weighing methods, possible errors in weighing</li> <li>• Minimum weighable amounts and weighing of material below the minimum weighable amount</li> <li>• Powder Problems</li> <li>• Geometric dilution and proper usage and care of dispensing balance.</li> </ul>	2	4	
1	Granules	<ul style="list-style-type: none"> <li>• Definition and importance</li> <li>• Methods of granulation</li> <li>• Effervescent granules                             <ul style="list-style-type: none"> <li>○ Formulation</li> <li>○ preparation</li> </ul> </li> </ul>	1	2	
2	Capsule	<ul style="list-style-type: none"> <li>• Introduction</li> <li>• Types of capsules</li> <li>• Hard gelatin capsules                             <ul style="list-style-type: none"> <li>○ Advantages and disadvantages</li> <li>○ Composition of capsule shell</li> <li>○ Selection of capsule size.</li> <li>○ Excipients used in hard gelatin capsule formulation.</li> <li>○ Enteric coating of capsules.</li> <li>○ Capsule filling process.</li> <li>○ Storage of hard gelatin capsules.</li> </ul> </li> <li>• Soft gelatin capsules                             <ul style="list-style-type: none"> <li>○ Advantage and disadvantages.</li> <li>○ Capsule shell composition.</li> <li>○ Shapes and sizes.</li> </ul> </li> </ul>	3	6	



		<ul style="list-style-type: none"> <li>○ Soft gelatin capsule formulation.</li> <li>○ Soft gelatin capsule filling process.release from ointment and cream bases.</li> </ul>			
3		Midterm exam	1	2	
4	Tablet	<ul style="list-style-type: none"> <li>● Introduction</li> <li>● Advantages and disadvantages.</li> <li>● Types of tablets.</li> <li>● Tableting methods <ul style="list-style-type: none"> <li>○ Direct compression</li> <li>○ Dry granulation</li> <li>○ Wet granulation</li> </ul> </li> <li>● Tablet excipients</li> <li>● Tablet press machines</li> <li>● Problems encountered during tablet formulation.</li> <li>● Standards quality control tests for tablets.</li> <li>● Tablet coating <ul style="list-style-type: none"> <li>○ Types of coating</li> <li>○ Film forming materials</li> </ul> </li> <li>○ Common polymers used for tablet coating.</li> <li>○ Formulation of coating solution</li> <li>○ Equipments for coating <ul style="list-style-type: none"> <li>○ Coating process evaluation of coated tablets.</li> </ul> </li> <li>○ QC test for tablet</li> </ul>	6	12	
5		Final exam	1	2	
Number of Weeks/and Units Per Semester			14	28	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Study of physical properties of powder ( flow, size, density)	1	2	
2	Preparation of Magnesium trisilicate powder.	1	2	
3	Preparation of Oral rehydration powder.	1	2	
4	Preparation of Dusting powder.	1	2	
5	Preparation of Effervescent granule base by wet method	1	2	
6	Preparation of Effervescent granule base by dry method	1	2	



7	Preparation of tablets by Direct compression for (dry method)	1	2	
8	Preparation of tablets by Dry granulation method (slugging method)	1	2	
9	Preparation of tablets by Wet granulation method	1	2	
10	Determination of capsule size	1	2	
11	Filling of hard gelatin capsules (punch method) & (capsule machine)..	1	2	
12	Final exam	1	2	
Number of Weeks/and Units Per Semester			24	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment	9	5	5%	
2	Practical Reports	1-12	10	10%	
3	Quizzes	2, 5, 12	5	5%	
4	Written Test (midterm exam )	8	10	10%	
5	Final Exam (practical)	14	20	20%	
6	Final Exam (theoretical)	16	50	50%	
Total			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1. Michael E. Aulton, FAAPS, Kevin M.G.(2007).Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third ed. Elsevier.London, UK. 2. Remington (2005). The Science and Practice of Pharmacy, 2first Edition, Williams and Wilkins. Maryland, USA.
2-Recommended Books and Reference Materials.	
	1. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10 <sup>th</sup> edition., Williams and Wilkins. Maryland, USA.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www.go.jblearning.com/basicphysicalpharmacy

## Course Specification of Biochemistry II

I.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks		
1	Introduction to Bioenergetics	3. Free energy concept 4. Biologic oxidation 5. Introduction to metabolism	1		
2	Carbohydrate metabolism	6. Digestion and absorption 7. Glycolysis and citric acid cycle 8. Hexose monophosphate shunt 9. Gluconeogenesis 10. Glycogen metabolism 11.Hexoses metabolism	3		
3	Proteinmetabolism and midterm exam	1.Digestion and absorption 2.Catabolism of amino acids 3.Urea formation 4.Metabolic disturbances of amino acids 5.Protein biosynthesis	3		
4	Lipid metabolism	1.Digestion and absorption 2.Fatty acid oxidation and biosynthesis 3.Lipogenesis 4.Phospholipids metabolism 5.Cholesterol metabolism 6.Ketone bodies metabolism 7.Lipoprotein metabolism	4		
5	Nucleic acids metabolism	1. Digestion and absorption 2. Formation and metabolism of Purines and metabolic disturbances 3. Formation and metabolism of Pyrimidins and metabolic disturbances	2		
6	Final Exam		1		
Number of Weeks/and Units Per Semester			15		



Order	Practical Experiment	Number of weeks	Contact hours	
1	Estimation of glucose (random and fasting)	1	3	
2	Estimation of amylase and Estimation of lactate dehydrogenase	2	3	
3	Lipid profile	2	3	
4	Estimation of total protein and Estimation of albumin	2	3	
5	Estimation of creatinine	1	3	
6	Estimation of uric acid and urea	1	3	
7	Estimation of iron	1	3	
8	Estimation of ALT and AST	1	3	
9	Final Exam	1	3	
Number of Weeks/and Units Per First Second semester			36	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	Aligned Course Learning Outcomes
1	Assignment	10	5	5%	
2	Quizzes and homework	3, 5, 9, 11	5	5%	
3	Written Test	7	10	10%	
4	Practical reports	All	10	10%	
5	Final Exam (practical)	12	20	20%	
6	Final Exam (theoretical)	14	50	50%	
			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>MALLIKARJUNA RAO, (2008). Medical Biochemistry. Second edition, New Age International Limited Publisher, New Delhi, India.</li> <li>John Baynes and Marek Dominiczak, 2014. Medical Biochemistry With STUDENT CONSULT Online Access. Fourth edition, Elsevier limited, China.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>Chatterjea MN and Shinde R, (2007). Textbook of Medical Biochemistry, 7th edition, JAYPEE BROTHERS, New Delhi, India.</li> <li>Champe PC, Harvey RA, Ferrier DR (2008). Lippincott's Reviews of Biochemistry, Fourth edition, Lippincott William and Wilkins, London, UK.</li> </ol>
3-Electronic Materials and Web Sites <i>etc.</i>	





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|  | <ol style="list-style-type: none"><li>1- <a href="http://bcs.whfreeman.com/biochem5/default.asp">http://bcs.whfreeman.com/biochem5/default.asp</a></li><li>2- <a href="http://www.biochemistry.org/">http://www.biochemistry.org/</a></li><li>3- <a href="http://www.wiley.com/college/boyer/0470003790/animations/animations.htm">http://www.wiley.com/college/boyer/0470003790/animations/animations.htm</a></li><li>4- <a href="http://www.wiley.com/college/fob/anim/">http://www.wiley.com/college/fob/anim/</a></li></ol> |
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## Course Specification of Pharmaceutical Microbiology II

I.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Viruses	Structure, viral replication	1	3	
2	Viruses	Viral diseases, clinical manifestation, transmission routes,	1	3	
3	Viruses	Control of the disease, diagnosis and treatment	1	3	
4	Immunity	Innate immunity	1	3	
5	Immunity	Adaptive immunity	1	3	
6	Immunity	Immune system disorders	1	3	
7	Introduction to pharmaceutical microbiology		1	3	
8	Middle exam		1	3	
9	Sterilization and Disinfection		1	3	
10	Sterilization and Disinfection		1	3	
11	Microbiological aspects of pharmaceutical processing		1	3	
12	Microbial spoilage and preservation of pharmaceutical products		1	3	
13	Contamination of non-sterile pharmaceutical in hospital	Nosocomial infection	1	3	
14	Factory and hospital hygiene and good manufacturing practice		1	3	
15	Factory and hospital hygiene and good manufacturing practice		1	3	
16	Final exam		1	2	
Number of Weeks/and Units Per Semester				47	

b - Practical Aspect:



Order	Practical Experiment	Number of weeks	Contact hours	
1	<i>Infection control polices in microbiology lab</i>	1	2	
2	<i>Laboratory diagnosis of viruses</i>	1	2	
3	<i>Laboratory diagnosis of viruses</i>	1	2	
4	Serological techniques for the diagnosis of infectious diseases.	1	2	
5	Serological techniques for the diagnosis of infectious diseases.	1	2	
6	Sterilization and disinfection techniques	1	2	
7	Sterilization and disinfection techniques	1	2	
8	Sources of microbial contamination	1	2	
9	Sterility testing of pharmaceutical products	1	2	
10	Sterility testing of pharmaceutical products	1	2	
11	Final exam	1	2	
Number of Weeks/and Units Per Semester			22	

## II. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises and Home works Quizzes	2	5	5%	
2	Project	4	5	5%	
3	Practical Reports	5	10	10%	
4	Written Test	6	10	10%	
5	Final Exam (theoretical)	16	50	50%	
6	Final Exam (practical)	15	20	20%	
7			100	100%	

## III. Learning Resources:

1-Required Textbook(s) ( maximum two ).



	<ol style="list-style-type: none"><li>1. Harvey RA, Champe PA, Strol WA, Rouse H, Fisher BD. Lippincott's Illustrated Reviews Microbiology (2001). Lippincott Williams and Wilkins. Philadelphia.</li><li>2. Kar A. Pharmaceutical Microbiology. (2008). New age international publisher. New Delhi.</li></ol>
<b>2-Recommended Books and Reference Materials.</b>	
	<ul style="list-style-type: none"><li>• Winn W, Allen S, Janda W, Koneman E, Procop G, Schreckenberger P, and Woods G. Koneman's Color Atlas and Textbook of Diagnostic Microbiology (2006). 6th edition. Lippincott Williams and Wilkins.</li><li>• Cheesbrough M. Medical laboratory manual for tropical countries. ELBS with Butterworth-Heinemann, University press, Cambridge, UK. Vol. II. Microbiology.</li></ul>
<b>3-Electronic Materials and Web Sites <i>etc.</i></b>	
	<p><a href="http://www.ncbi.nlm.nih.gov/books/NBK7627/">www.ncbi.nlm.nih.gov/books/NBK7627/</a> <a href="http://www.cdc.gov/">www.cdc.gov/</a> <a href="http://www.textbookofbacteriology.net/">www.textbookofbacteriology.net/</a> <a href="http://www.wsmicrobiology.com">www.wsmicrobiology.com</a> <a href="http://www.microbiologyonline.org.uk">www.microbiologyonline.org.uk</a> <a href="http://www.asm.org">www.asm.org</a></p>

## Course Specification of Pharmacognosy II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Flowers	- Introduction, morphology and anatomy characters, inflorescence and placentation of flowers	1	3	
		- Study of Clove, Chamomile, Pyrethrum and Arnica flowers	1	3	
		- Study of Tilia, Santonica, Lavender and Saffron flowers	1	3	
2	Fruits	- Introduction, classification microscopical examination, macroscopical characters of fruits - Study of Ammi visnaga and Ammi majus	1	3	
		- Study of Anise, Fennel caraway, Cumin and Capsicum fruits	1	3	
		- Study of Star-anise, Coriander, vanilla pods and Senna pods fruits	1	3	
3		Mid exam	1	3	
4	Seeds	- Introduction microscopical examination, macroscopical characters of seeds - Study of Cardamom and Colchicum seeds.	1	3	
		- Study of Nux-vomica, Linseed, and (black and white) seeds.	1	3	

		- Study of Nutmeg, Fenugreek, Calabar and Nigella seeds	1	3	
5	Unorganized drugs	- Definition, classification, chemical and physical properties - Study of resin and resin combination (Colophony, Myrrh, Olibaum and Dragon's blood)	1	3	
		- Study of medicinal gums (Gum Arabic and Tragacanth) - Study of Medicinal latex (Opium)	1	3	
		- Study of Medicinal juice (Aloe and Kino). - Study of medicinal extracts (Agar and Gelatin).	1	3	
6		Final exam	1	3	
Number of Weeks/and Units Per First semester				4	
				42	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Morphology - microscopical identification of Clove and Chamomile flowers	1	2	
2	Morphology - microscopical identification of Pyrethrum and Arnica flowers	1	2	
3	Morphology - microscopical identification of Ammi visnaga, Anise, Fennel caraway and Cumin fruits	1	2	
4	Morphology - microscopical identification of Capsicum Coriander, and Senna pods fruits	1	2	
5	Morphology - microscopical identification of	1	2	



	Cardamom, Nux-vomica and Linseed seeds.			
6	Morphology - microscopical identification of (black and white) and Nigella seeds.	1	2	
7	Morphology - microscopical identification of Myrrh, Olibaum and Dragon's blood	1	2	
8	Morphology - microscopical identification of Gum Arabic and Tragacanth	1	2	
9	Morphology - microscopical identification of Opium and others	1	2	
10	Morphology - microscopical identification of Aloe and others	1	2	
11	Final Exam	1	2	
Number of Weeks/and Units Per Semester				

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Seminar and project	5, 9, 11	5	5%	
2	Practical Reports	1-10	10	10%	
3	Quizzes	4, 6, 10	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (practical)	11	20	20%	
6	Final Exam (theoretical)	14	50	50%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York 2- Singh, G.K and Bhandari, A. "Textbook of Pharmacognosy" (2000); first ed., reprint (2008).CBS publisher and Distributers, New Delhi, India.
2-Recommended Books and Reference Materials.	
	1- Sharma, V.D. and Pandey, S.K. "Pharmacognosy Practical Notebook" (2007); first ed. CBS publisher and Distributers, New Delhi, Bangalore, India. 2- Raje, V.N. "Pharmacognosy" (2010); first ed. CBS publisher and Distributers Pvt Ltd., New Delhi, Bangalore, Pune, Kochi, Chennai.
3-Electronic Materials and Web Sites <i>etc.</i>	



1- <a href="http://pages.intnet.mu/webpam/Pharmacognosy.htm">http://pages.intnet.mu/webpam/Pharmacognosy.htm</a> 2- <a href="http://www.phcog.org/">http://www.phcog.org/</a> 3- <a href="http://www.botanical.com">http://www.botanical.com</a>
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### Course Specification of Pharmaceutical Organic Chemistry IV

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Principles of Spectroscopy	<ul style="list-style-type: none"> <li>➤ Spectroscopy and Electromagnetic Radiations</li> <li>➤ Characteristics of Electromagnetic Radiations</li> <li>➤ Electromagnetic Spectrum</li> <li>➤ Absorption and Emission Spectra</li> <li>➤ Hydrogen index deficiency</li> </ul>	1	2	
2	Infrared Spectroscopy	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Instrumentation</li> <li>➤ Sample Handling</li> <li>➤ Theory (Origin) of Infrared Spectroscopy</li> <li>➤ Number of Fundamental Vibrations</li> <li>➤ Factors Affecting Vibrational Frequencies</li> <li>➤ Characteristic Absorptions in Common Classes of Compounds</li> <li>➤ Fingerprint Region</li> <li>➤ Applications of Infrared Spectroscopy</li> <li>➤ Interpretation of Infrared Spectra</li> <li>➤ Some Solved Problems</li> </ul>	3	4	
3	<sup>1</sup> H NMR Spectroscopy	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Theory</li> <li>➤ Instrumentation</li> <li>➤ Sample Handling</li> <li>➤ Shielding, Deshielding and Chemical Shift</li> <li>➤ Measurement of Chemical Shift: NMR Scale</li> <li>➤ Factors Affecting chemical Shift</li> <li>➤ Number of PMR Signals: Equivalent and Nonequivalent Protons</li> <li>➤ Peak Area and Proton counting</li> <li>➤ Spin-Spin Splitting: Spin-Spin coupling</li> <li>➤ coupling constant (J)</li> </ul>	3	6	





		<ul style="list-style-type: none"> <li>➤ Analysis (Interpretation) of NMR Spectra</li> <li>➤ Nomenclature of Spin Systems</li> <li>➤ Magnetic Equivalence</li> <li>➤ Spin-Spin coupling of Protons with Other Nuclei</li> <li>➤ Protons on Heteroatoms: Proton Exchange Reactions</li> <li>➤ Simplification of complex NMR Spectra</li> <li>➤ Applications of PMR Spectroscopy</li> <li>➤ continuous Wave (eW) and Fourier Transform (FT) NMR Spectroscopy</li> <li>➤ Some Solved NMR Problems</li> <li>➤ Some Solved NMR + IR Problems</li> </ul>			
4	<b>Midterm Exam</b>		1	2	
5	<b><sup>13</sup>C NMR Spectroscopy</b>	<ul style="list-style-type: none"> <li>➤ Introduction and Theory</li> <li>➤ Sample Handling</li> <li>➤ Common Modes of Recording Be Spectra</li> <li>➤ Chemical Shift Equivalence</li> <li>➤ Be ehemical Shifts</li> <li>➤ Factors Affecting <sup>13</sup>C ehemical Shifts</li> <li>➤ Be ehemical Shifts (ppm from TMS) of Some compounds</li> <li>➤ Spin-Spin eoupling</li> <li>➤ Effect of Deuterium Substitutionon CMR Signals</li> <li>➤ Use of Shift Reagents</li> <li>➤ Applications of CMR Spectroscopy</li> <li>➤ Some Solved Problems</li> </ul>	1	2	
6	<b>Visible and Ultraviolet Spectroscopy</b>	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Absorption Laws and Molar Absorptivity</li> <li>➤ Instrumentation</li> <li>➤ Sample Handling</li> <li>➤ Theory (Origin) of UV- Visible Spectroscopy</li> <li>➤ Electronic Transitions</li> <li>➤ Formation of Absorption Bands</li> <li>➤ Designation of Absorption Bands</li> <li>➤ Transition Probability: Allowed and Forbidden Transitions</li> <li>➤ Certain Terms Used in Electronic Spectroscopy: Definitions</li> <li>➤ Conjugated Systemsand Transition Energies</li> <li>➤ Solvent Effects</li> <li>➤ Woodward-Fieser Rules for Calculating <math>\lambda_{max}</math> in</li> <li>➤ Conjugated Dienes and Trienes</li> <li>➤ Polyenes and Poly-yenes</li> </ul>	2	4	



		<ul style="list-style-type: none"> <li>➤ Woodward- Fieser Rules for Calculating <math>\lambda_{\max}</math> in <math>\alpha,\beta</math>-Unsaturated Carbonyl Compounds</li> <li>➤ Some Solved Problems</li> </ul>			
7	Mass Spectrometry	<ul style="list-style-type: none"> <li>➤ Introduction</li> <li>➤ Ionization Methods</li> <li>➤ Molecular and Fragment Ions</li> <li>➤ Instrumentation</li> <li>➤ Double Focusing Mass Spectrometers</li> <li>➤ Mass Spectrum and the Base Peak</li> <li>➤ Recognition of the Molecular Ion (Parent) Peak and Detection of Isotopes</li> <li>➤ Confirmation of the Recognized Molecular Ion Peak</li> <li>➤ Multiply Charged Ions</li> <li>➤ Metastable Ions or Peaks</li> <li>➤ Applications of Mass Spectroscopy</li> <li>➤ Representation of Fragmentation Processes</li> <li>➤ Factors Governing General Fragmentation Processes</li> <li>➤ Examples of General Fragmentation Modes</li> <li>➤ Fragmentation Modes of Various Classes of Organic Compounds</li> <li>➤ Some Solved Problems</li> </ul>	2	4	
8	Final exam		1	2	
Number of Weeks/and Units Per semester				28	

I. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	2, 8	5	5%	
2	Oral Tests	5, 9	5	5%	
3	Written Test (1)	7	20	20%	
4	Final Exam (theoretical)	14	70	70%	
5	Total		100	100%	

II. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	



	<ol style="list-style-type: none"><li>1- Louis D. Quin, John A. Tyrell, Fundamentals of Heterocyclic Chemistry, 2010, John Wiley and Sons, Inc. Hoboken, New Jersey.</li><li>2- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6<sup>th</sup> edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.</li></ol>
<b>2-Recommended Books and Reference Materials.</b>	
	<ol style="list-style-type: none"><li>1. John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.</li><li>2. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6<sup>th</sup> edition, John Wiley and Sons, Inc., Hoboken, New Jersey</li><li>3. Janice Gorzynski Smith." Organic Chemistry", 2011, Third Edition, McGraw-Hill, a business unit of The McGraw-Hill Companies, New York.</li></ol>
<b>3-Electronic Materials and Web Sites <i>etc.</i></b>	
	1-www.orgsyn.org

## Course Specification of Pharmacology II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Cardiovascular System	Introduction	5	10	
		Antihypertensive Drugs			
		Antianginal Drugs			
		Anti-arrhythmia			
		Anti- Congestive Heart Failure			
2	Drug Affecting Blood I	Antianaemic Drugs	1	2	
3	Midterm Exam		1	2	
4	Drug Affecting Blood II	Antihyperlipoprotein	2	4	
		Management of Haemostatic Disorders			
5	Respiratory System	Anti-Asthmatic Drugs	2	4	
		Anti-cough			
6	Renal System	Diuretics	2	4	
		Renal disorders			
7	Final Exam		1	2	
Number of Weeks/and Units Per First semester4				28	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	



1	Process of organ isolation	2	6	
2	In vivo effects of drugs	6	18	
3	In vitro effects of drugs	5	15	
4	Final Exam	1	3	
Number of Weeks/and Units Per First semester4			28	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Presentation	6	5	5%	
2	Practical Reports	All	10	10%	
3	Quizzes and Exercises and Home works	4-8	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	15	50	50%	
6	Final Exam (practical)	14	20	20%	
	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009) Lippincott's Illustrated Reviews of Pharmacology, 11th edition, Lippincott's Williams and Wilkins, Philadelphia. 2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012) Basic and Clinical Pharmacology, Fifth edition, Mc Graw Hill Lange, U.S.A.



2-Recommended Books and Reference Materials.	
	1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) <i>Rand and Dale's Pharmacology, 6th edition</i> , Churchill Livingstone Elsevier, Philadelphia.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.who.int">www.who.int</a> 2- <a href="http://www.drugs.com">www.drugs.com</a>

**Fourth year: first semester**



### Course Specification of Medicinal Chemistry I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to medicinal chemistry	Terminology related to medicinal chemistry and its orientation	1	2	
2	Physicochemical properties	Hydrophobicity, electronic effect and steric effect	1	2	
3	Application of QSAR	calculation of $p_c$ , Craig plot, topless scheme and Hansch equation	1	2	
4	Drug-receptor interaction	Types of bond in drug receptor interaction Application of D-R interaction	1	2	
5	Drug design	sources of lead compound, strategies of drug design, introduction to graph theory, applications of quantum mechanics. Computer Aided Drug Designing (CADD), brief introduction to combinatorial chemistry. types of drug design	1	2	



6	Prodrug and drug latenation	Types of prodrug Objectives of prodrug Examples of prodrug	1	2	
7	Midterm exam		1	2	
8	Drug metabolism	Site of drug biotransformation, <u>pathways of drug metabolism</u> : phase I (oxidation, reduction and hydrolysis) Phase II (conjugation with glucuronic acid, sulfate, amino acids and glutathione, acylation, methylation )	2	4	
9	Sympathomimetic	Classification, SAR, biosynthesis, synthesis metabolism	1	2	
10	Sympatholytic	Classification, synthesis metabolism	1	2	
11	Parasympathatic	Classification, SAR, biosynthesis, synthesis metabolism	1	2	
12	parasympatholytic	Classification, SAR, synthesis metabolism	1	2	
13	Final exam		1	2	
Number of Weeks/and Units Per First semester4				28	

b - PracticalAspect:

Order	Practical Experiment	Number of weeks	Contact hours	
1	Limit Test For Chloride	1	3	
2	Limit Test For Sulphate	1	3	
3	Limit Test For iron	1	3	
4	limit test for sulphate in sod thiosulphate	1	3	
5	limit test for chloride in potassium bromide	1	3	





6	limit test for chloride in colored compound ( potassium permanganate)	1	3	
7	limit test in sodium salicylate	1	3	
8	Limit test for cl, SO4 and salicylic acid in aspirin	2	3	
9	Final exam	1	3	
Number of Weeks/and Units Per Semester			30	

#### VI. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project	2, 8	5	5%	
2	Practical reports	1-9	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
	Total		100	100%	

#### VII. Learning Resources:

##### 1-Required Textbook(s) ( maximum two ).

- 1- John M. Beale, Jr. and John H. Block, "Text book of Organic Medicinal and Pharmaceutical Chemistry", 2011, 12th Edition, Wilson and Gisvold, Lippincott Williams and Wilkins, A Wolters Kluwer Company, Philadelphia.
- 2- Graham L. Patrick, "An Introduction to Medicinal Chemistry", 2009, Fourth Edition, Oxford University Press Inc., New York

##### 2-Recommended Books and Reference Materials.

- 1- Thomas Nogrady, Donald F. Weaver. Medicinal Chemistry A Molecular and Biochemical Approach, 2005, Third edition, Oxford University Press, Inc., New York.
- 2- Donald J. Abraham, " BURGER'S Medicinal Chemistry and Drug Discovery" 6<sup>th</sup> edition, A John Wiley and Sons, Inc., Virginia.
- 3- Thomas L. Lemke, Victoria F. Roche, David A. Willaiams and S. William Zito "Foye's Principles of Medicinal Chemistry", 2008, 6<sup>th</sup>, Edition, Lippincott Williams and Wilkins, a Wolters Kluwer business, Philadelphia.



	<p>4- PovlKrogsgaard-Larsen, TommyLiljefors andUlf Madsen, "Textbook of Drug Design andDiscovery".2002, Third edition, Taylor and Francis, London.</p> <p>5- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook"2006, Springer-Verlag Berlin Heidelberg, Berlin.</p>
<b>3-Electronic Materials and Web Sites <i>etc.</i></b>	
	<p>1- <a href="http://www.chemaxon/marvin">http://www.chemaxon/marvin</a></p> <p>2-<a href="http://www.webmolecules.com">http://www.webmolecules.com</a></p> <p>3-<a href="http://www.acdlabs.com">http://www.acdlabs.com</a></p> <p>4-PASSPrediction of Activity Spectra for Substance) (<a href="http://www.ibmh.msk.su/PASS">http://www.ibmh.msk.su/PASS</a>).</p>

### Course Specification of Pharmacology III

V. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Central Nervous System I (C.N.S)	Introduction	6	12	
		Anesthetics			
		Antidepressant Drugs			
		Sedatives ,Anxiolytics and Hypnotics			
		C.N.S Stimulants			
		Opioid Analgesics			
2	Midterm Exam		1	2	
3	Central Nervous System II(C.N.S)	Anti-Epilepsy	2	4	
		Anti-Parkinson's			
4	Skeletal Muscle Relaxants		1	2	
5	Local Anesthetics		1	2	
6	Gastro-Intestinal Tract	Anti-Peptic Ulcer	3	6	
		Anti-Constipation			
		Anti-Diarrhea			
7	Final Exam		1	2	
Number of Weeks/and Units Per First semester5				30	

b - PracticalAspect:



Order	Practical Experiment	Number of weeks	Contact hours	
1	Handling of experimental animals	2	6	
2	Process of organ isolation	3	9	
3	In vivo effects of drugs	4	12	
4	In vitro effects of drugs	4	12	
5	Final Exam	1	3	
Number of Weeks/and Units Per First semester4			28	

VI. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignment/ Presentation	6	5	5%	
2	Practical Reports	All	10	10%	
3	Quizzes and Exercises and Home works	4-8	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	15	50	50%	
6	Final Exam (practical)	14	20	20%	
	total		100	100%	

VII. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009)Lippincott's Illustrated Reviews of Pharmacology, 11th edition, Lippincott's Williams and Wilkins, Philadelphia.



	2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012) Basic and Clinical Pharmacology, <i>Fifth edition</i> , Mc Graw Hill Lange, U.S.A.
2-Recommended Books and Reference Materials.	
	1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale's Pharmacology, <i>6th edition</i> , Churchill Livingstone Elsevier, Philadelphia.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.who.int">www.who.int</a> 2- <a href="http://www.drugs.com">www.drugs.com</a>

### Course Specification of Biopharmaceutics and Pharmacokinetics I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to Biopharmaceutics	<ul style="list-style-type: none"> <li>• Definition of some terms used in biopharmaceutics</li> <li>• Aims of studying of biopharmaceutics and Pharmacokinetics</li> <li>• Plasma –time level curve</li> <li>• Routes of Drug Administration, Bioavailability, Advantages and Disadvantages</li> <li>• Transport of Drugs Across Biological Membranes</li> </ul>	2	4	
2	GIT absorption of drugs	<ul style="list-style-type: none"> <li>• Definition</li> <li>• Bio-pharmaceutics hurdles in drug development, approaches to overcome them</li> <li>• Mechanism of drug absorption</li> <li>• Physiological factors affecting oral absorption</li> <li>• Physical-Chemical factors affecting oral absorption</li> <li>• Effect of Food on drug Absorption</li> <li>• Formulation factors affecting oral absorption</li> <li>• Techniques for the GIT absorption assessment</li> </ul>	4	8	
3		Midterm exam	1	2	
4	Biopharmaceutics study of Drug distribution	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Factors affecting drug distribution</li> <li>• Volume of distribution</li> <li>• Binding to plasma proteins</li> <li>• Factors affecting protein binding</li> <li>• Drug distribution to special tissue <ul style="list-style-type: none"> <li>○ Brain</li> <li>○ Placenta</li> </ul> </li> <li>• Drug interaction in protein binding</li> </ul>	2	4	

5	Biopharmaceutics study of Drug metabolism	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Role of drug metabolism</li> <li>• Drug metabolism sites</li> <li>• Metabolic pathway</li> <li>• Metabolism enzymes</li> <li>• Metabolism phases</li> <li>• Factors affecting drug metabolism</li> <li>• Drug interaction in metabolism</li> <li>• Extrahepatic metabolism</li> <li>• Prodrugs</li> </ul>	2	4	
6	Biopharmaceutics study of Drug excretion	<ul style="list-style-type: none"> <li>• Definitions</li> <li>• Role and pathway of excretion</li> <li>• Types of excretion               <ul style="list-style-type: none"> <li>○ Renal excretion</li> <li>○ Non-renal excretion                   <ul style="list-style-type: none"> <li>▪ Biliary excretion</li> <li>▪ Mammary excretion</li> <li>▪ Salivary excretion</li> <li>▪ Skin excretion</li> <li>▪ Pulmonary excretion</li> <li>▪ GIT excretion</li> <li>▪ Genital excretion</li> </ul> </li> </ul> </li> <li>• Factors Affecting Renal Excretion</li> <li>• Drug interaction</li> </ul>	2	4	
7	Bioavailability and bioequivalence	<ul style="list-style-type: none"> <li>• Historical aspects.</li> <li>• Definitions.</li> <li>• Objectives and significance of BA/BE studies.</li> <li>• Factors affecting Bioavailability.</li> <li>• Measurement of Bioavailability.</li> <li>• Methods for enhancing Bioavailability.</li> <li>• Introduction to Bioequivalence.</li> <li>• Limitations of BA/BE studies</li> <li>• Protocol design of bioavailability assessment.</li> <li>• Methods of bioequivalence determination</li> </ul>	2	4	
8		Final exam	16	2	
Number of Weeks/and Units Per Semester			16	32	





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Ministry of Higher Education & Scientific Research  
AL-NASSER UNIVERSITY



الجمهورية اليمنية  
وزارة التعليم العالي والبحث العلمي  
جامعة الناصر

### Course Specification of Pathology

I.Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction		1	3	
2	Disease management - Cell and tissue injury, heat injury, degeneration, necrosis, apoptosis		1	3	
3	Acute inflammation	causes, types	1	3	
4	Chronic inflammation	causes and types Granulation tissue	1	3	
5	Tissue repair		1	3	
6	Circulatory disorders	ischemia, congestion, gangrene, edema.	2	6	
7	Mid Term Exam		1	3	
8	Immune disorders	hypersensitivity reactions, auto-immune diseases	1	3	
9	Genetic disorders		1	3	
10	Growth Disorders		1	3	



	Genetic basis and tests for tumors				
11	Neoplasia	Causes and types of tumors	2	4	
12	Malignant tumors		1	3	
13	Final exam		1	3	
Number of Weeks/and Units Per Semester				45	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Exercises and Home works and Quizzes	All	5	5%	
2	Project ( single\group)	4	5	5%	
3	Midterm Exam	7	30	30%	
4	Final Exam (theoretical)	14	60	60%	
	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Kumar Abbas and Fausto Mitchel 2007. Robbins basic pathology 8th edition Philadelphia, PA 19103-2899. 2- Robin Reid, Fiona Robertand Elaine Macduff 2011. Pathology Illustrated 7th edition ISBN 9780702033766 Churchill Livingston.
2-Recommended Books and Reference Materials.	
	1- Lecture notes on general pathology 2-lecture notes on systemic pathology
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.google">www.google</a> general pathology 2- <a href="http://www.google">www.google</a> systemic pathology

## Course Specification of Community Health

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1.	Introduction to community health	- Definitions and concepts	1	2	
		- Level of prevention			
2.	assessment community health problems	- Factors affecting community health	1	2	
3.	community health services	- Structure and Function	2	4	
		- Environmental health			
		- Rural health			
		- Occupational health			
4.	Epidemiology in community health care	- Concepts basic to epidemiology - Epidemiological rates	3	6	
5.	Communicable disease	- Concepts - chain of infection - Control	2	4	
6.	Populations with development needs	- Maternal and child - School health	2	4	
7	Communities in crises	- Disaster, violence	1	2	
8	Med -term exam		1	2	
9	Theoretical exam		1	2	
Number of Weeks/and Units Per First semester				28	

II. Assessment Tasks:
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no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Micro- assignment	9	5	5%	
2	Quizzes	5, 10	5	5%	
3	Written Test (midterm exam)	7	30	30%	
4	Final Exam (theoretical)	14	60	60%	
			100	100%	

III.Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-Mc kenzei, James, RebertR.Pinger and Jerome ketecki (2008).An introduction to community health.6 <sup>th</sup> edition.Jones andBartlett publishing USA
2-Recommended Books and Reference Materials.	
	2. Cassens B, (1992). Preventive medicine and public health.Secondeditionvania pennsyHarwal publishing Co. USA.
3-Electronic Materials and Web Sites <i>etc.</i>	

### Course Specification of Phytochemistry I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Chromatography	- Introduction, classification, and general concepts (adsorption and partition chromatography) - Separation techniques	1	3	
2		Types of chromatographic methods: Column chromatography (CC), Paper chromatography, Thin layer chromatography (TLC).	1	3	
3		Types of chromatographic methods: Gas chromatography (GC), High performance liquid chromatography (HPLC), Ion exchange chromatography and Gel chromatography.	1	3	
4	Alkaloids	Definition, classification, distribution, functions, function in plant, properties, extraction, uses. Phenylalkylamine alk.; Ephedra, khat. Capsicum.	1	3	
5		Tropolone alk.; Colchicum, Pyridine and piperidine; tobacco, Pepper, Pomegranate Tropane alk.; Belladonna, Coca, Quinoline alk; cinchona alk	1	3	
6		Isoquinoline alk; opium alk, (Phenanthrene): morphine, Codeine, thebaine; benzylisoquinoline alk: papaverine; phthalidisoquinoline; ipecacuanha alk.	1	3	
7		Mid exam	1	3	
8	Alkaloids	Indol alk; phystostigma, ergot, Nux vomica, Vinca, Rauwolfia	1	3	

		Purine alk.; caffeine, theophylline, theobromine imidazol alk; pilocarpus alk, Terpenoid alk; aconitine, taxol alk			
9	Terpenoids	Definition, classification, distribution, extraction, functions Monoterpenes; Classification, extraction and characterization, plant containing regular monoterpene, valerian, olea europae, Irregular monoterpene, pyrethrum.	1	3	
10		Sesquiterpene; Structure, chemical and biological properties; gossypol compound, sesquiterpene lactones; arnica, sweet wormwood Diterpene Structure, chemical and biological properties; yews, coleus.	1	3	
11		Triterpenes ;Classification, structures, cucurbitacines Tetraterpenoids: Biological origin, distribution, uses, drug containing teteraterpenoids	1	3	
12	Steroids	Definition, Classification, Structures, Sterols, Vitamin D, Bile acids: Sources, structure, action, clinical uses.	1	3	
13		Steroid hormones: (sex hormones and adrenocortical hormones)	1	3	
14		Final exam	1	3	
Number of Weeks/and Units Per First semester4				42	

b - PracticalAspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Adsorption chromatography; column chromatography (column packaging)	1	2	
2	Separation of plant pigments (Extraction by column chromatography)	1	2	

3	Partition chromatography; paper chromatography	1	2	
4	Partition chromatography; Thin layer chromatography	1	2	
5	Extraction and identification of alkaloids derived from Phenylalkylamine (khat, capsicum)	1	2	
6	Extraction and identification of alkaloids derived from piperidine (Pomegranate)	1	2	
7	Extraction and identification of alkaloids derived from tropane (Stramonium)	1	2	
8	Extraction and identification of alkaloids derived from purine (caffeine)	1	2	
9	Extraction and identification of alkaloid derived from phthalidisoquinoline (ipecacuanha)	1	2	
10	Extraction and identification of terpenoids (Colocynth)	1	2	
	Final Exam	1	2	
Number of Weeks/and Units Per First semester1			22	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Seminar and project	3, 5, 9, 11-13	5	5%	
2	Practical Reports	1-10	10	10%	
3	Quizzes	4, 6, 8, 10	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (practical)	12	20	20%	
6	Final Exam (theoretical)	14	50	50%	
	Total		100	100%	

### III. Learning Resources:

#### 1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York
- 2- Jarald E.E. and Jarald S. E., "Textbook of Pharmacognosy and Phytochemistry" (2009); CBS Publishers and Distributors, New Delhi

#### 2-Recommended Books and Reference Materials.





	<p>1- Steven M. Colegate and Russell J. Molyneux. "Bioactive natural products : detection, isolation, and structural determination" (2008); Seconded, editor.</p> <p>2- Cordell G.A. "The alkaloids: Chemistry and Biology" (2002); Volume 59, Elsevier, New York</p>
<p>3-Electronic Materials and Web Sites <i>etc.</i></p>	
	<p>1- <a href="http://www.Phytomania.org">http://www.Phytomania.org</a>.</p> <p>2- <a href="http://www.medicalbotanyintroduction.html">http://www.medicalbotanyintroduction.html</a>.</p> <p>3- <a href="http://www.botanical.com">http://www.botanical.com</a></p>



## Fourth year: second semester

## Course Specification of Medicinal Chemistry II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Cardiovascular drug I	Antihypertensive agents	1	2	
2	Cardiovascular drug II	Antiarrhythmic drugs	1	2	
3	Cardiovascular drug III	Antiarrhythmic drugs and Antihyperlipidemic agents.	1	2	
4	Cardiovascular drug IV	Anti-coagulant, Haemostatics and Cardiotonics.	1	2	
5	Diuretics	CAI, Thiazides, Osmotics, Loop and K-Sparing Diuretics.	1	2	
6	CNS Drugs I	Sedatives and hypnotics	1	2	
7	Midterm Exam		1	2	
8	CNS Drugs II	Skeletal Muscle Relaxants and anticonvulsants	1	2	
9	CNS Drugs III	Anti-psychotic drugs [Neuroleptics] [Major tranquilizer]	1	2	
10	CNS Drugs IV	Antidepressants agents and antiparkinsonism	1	2	
11	Anti-inflammatory agents	Salicylates, anthranilates, acetic acid, arylpropionic acid, pyrazolidinones, oxicams, cox-II inhibitor, analgesics, antipyretics and antigout	2	4	



12	Opioids and local anesthetics	<u>Opioids</u> classification, opioid receptor SAR, <u>local anesthetics</u> ester local anesthetic, amide local anesthetic, synthesis, SAR	1	2	
13	antihistamines	<u>H1- antihistamines</u> <u>SAR</u> first generation, Secondgeneration <u>H2- antihistamines</u>	2	4	
14	Final Exam		1	2	
Number of Weeks/and Units Per Semester				32	

b - Practical Aspect:

Order	Practical Experiment	Number of weeks	Contact hours	
1	Identification of aspirin	1	3	
2	Assay of aspirin	1	3	
3	Qualitative and quantitative analysis of chloral hydrate	1	3	
4	Synthesis of aspirin	2	6	
5	Assay of naproxen	1	3	
6	Assay of ibuprofen tab	1	3	
7	Identification of ranitidine	1	3	
8	Assay of ranitidine	1	3	
9	Identification of Propranolol	1	3	
10	Assay of Propranolol	1	3	
11	Final Exam	1	3	
Number of Weeks/and Units Per Semester			36	

II. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	2, 8	5	5%	
2	Practical reports	1-9	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
7			100	100%	

### III. Learning Resources:

#### 1-Required Textbook(s) ( maximum two ).

- 1- John M. Beale, Jr. and John H. Block, "Text book of Organic Medicinal and Pharmaceutical Chemistry", 2011, 12th Edition, Wilson and Gisvold, Lippincott Williams and Wilkins, A Wolters Kluwer Company, Philadelphia.
- 2- Graham L. Patrick, "An Introduction to Medicinal Chemistry", 2009, Fourth Edition, Oxford University Press Inc., New York

#### 2-Recommended Books and Reference Materials.

- 1- Thomas Nogrady, Donald F. Weaver. Medicinal Chemistry A Molecular and Biochem Approach, 2005, Third edition, Oxford University Press, Inc., New York.
- 2- Donald J. Abraham, " BURGER'S Medicinal Chemistry and Drug Discovery" 6<sup>th</sup> edition, A John Wiley and Sons, Inc., Virginia.
- 3- Thomas L. Lemke, Victoria F. Roche, David A. Willaiams and S. William Zito "Foye's Principles of Medicinal Chemistry", 2008, 6<sup>th</sup>, Edition, Lippincott Williams and Wilkins, a Wolters Kluwer business, Philadelphia.
- 4- PovlKrogsgaard-Larsen, TommyLiljefors andUlf Madsen, "Textbook of Drug Design andDiscovery".2002, Third edition, Taylor and Francis, London.
- 5- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook"2006, Springer-Verlag Berlin Heidelberg, Berlin.

#### 3-Electronic Materials and Web Sites *etc.*

- 1- <http://www.chemaxon/marvin>
- 2-<http://www.webmolecules.com>
- 3-<http://www.acdlabs.com>
- 4-PASSPrediction of Activity Spectra for Substance) (<http://www.ibmh.msk.su/PASS>).

## Course Specification of Biopharmaceutics and Pharmacokinetics II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to pharmacokinetics	<ul style="list-style-type: none"> <li>• Terminology and definitions</li> <li>• Rates and orders</li> <li>• Kinetic of drug absorption</li> <li>• Compartment models                             <ul style="list-style-type: none"> <li>○ Definition</li> <li>○ Basis of Classification</li> <li>○ Model selection criteria</li> </ul> </li> </ul>	2	4	
2	One compartment open model	<ul style="list-style-type: none"> <li>• Calculation of the following parameters ( for each model)                             <ul style="list-style-type: none"> <li>○ Volume of Distribution</li> <li>○ Elimination Rate Constant</li> <li>○ Clearance</li> <li>○ Elimination half life</li> <li>○ AUC</li> <li>○ Concentration at zero time.</li> </ul> </li> <li>• One Compartment I.V Bolus                             <ul style="list-style-type: none"> <li>○ Assumptions</li> <li>○ First-order kinetics</li> <li>○ Plasma data</li> <li>○ Area under the Curve</li> <li>○ Half-life</li> </ul> </li> <li>• Pharmacokinetics of Oral Administration                             <ul style="list-style-type: none"> <li>○ Differential Equation</li> <li>○ Integrated Equation</li> <li>○ Absorption Rate Constant (K)                                     <ul style="list-style-type: none"> <li>▪ Wagner nelson</li> <li>▪ Method of residual</li> </ul> </li> <li>○ Extent of Absorption</li> </ul> </li> <li>• Calculation of Bioavailability Parameters:                             <ul style="list-style-type: none"> <li>○ Calculation of Ka</li> </ul> </li> </ul>	4	8	



		<ul style="list-style-type: none"> <li>○ Calculation of F</li> <li>● Intravenous Infusion:               <ul style="list-style-type: none"> <li>○ Continuous infusion – steady state</li> <li>○ Combined infusion and bolus administration</li> <li>○ Combined slow and fast infusion</li> <li>○ Post infusion</li> </ul> </li> </ul>			
3	Midterm exam		1	2	
4	Two compartment open model with first order elimination kinetics	<ul style="list-style-type: none"> <li>● Pharmacokinetics of single dose as oral and intravenous (rapid/bolus.)</li> <li>● Intravenous infusion</li> <li>● Multiple oral and intravenous administrations.</li> <li>● Pharmacokinetic of sustained releases formulation</li> </ul>	2	4	
5	Non-linear pharmacokinetics(dose dependent kinetics)	<ul style="list-style-type: none"> <li>● Michaels- Menten's kinetics</li> <li>● Pharmacokinetic characteristics.</li> <li>● In-vivo estimation of Km and Vm</li> </ul>	2	4	
6	Multiple Administration:	<ul style="list-style-type: none"> <li>● Multiple I.V Bolus Dose               <ul style="list-style-type: none"> <li>○ Independent doses</li> <li>○ Accumulating doses</li> <li>○ Development of general equation</li> <li>○ C<sub>pmax</sub> and C<sub>pmin</sub> equations</li> </ul> </li> <li>● Multiple Oral Dose Administration:               <ul style="list-style-type: none"> <li>○ C<sub>pmin</sub> equation</li> <li>○ Average C<sub>p</sub> equation</li> </ul> </li> </ul>	2	4	
7	Dosage regimen design	<ul style="list-style-type: none"> <li>● Calculation the dose</li> <li>● Calculation dosing interval</li> <li>● Average concentration</li> </ul>	2	4	
8		Final exam	1	2	
Number of Weeks/and Units Per Semester			16	32	

II. Assessment Tasks:



No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Practical Reports	6	10	10%	
2	Oral Tests	12	5	5%	
3	Quizzes	2, 5, 12	5	5%	
4	Written Test (midterm exam )	8	10	10%	
5	Final Exam (practical)	14	20	20%	
6	Final Exam (theoretical)	16	50	50%	
	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
1.	1. Leon Shargel Andrew (2012). Applied Biopharmaceutics and Pharmacokinetics, Sixth edition, lippincotts and William, Philadelphia.
1.	1. Michel E. Winter ( 2011). Basic clinical pharmacokinetics, Fifth edition, lippincotts and William, San Fransisco.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.boomer.org">www.boomer.org</a>



## Course Specification of Phytochemistry II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Glycosides	Definition, distribution, properties, classification and nomenclature, Cardiac glycosides; definition, structures, cardenolides, bufadienolids, structure of sugar moiety, structure activity relationship, Biogenesis of card. Gly.,	1	3	
2		Cardiac gly; physicochemical properties, hydrolysis of card. Gly., isolation, pharmacological properties, mechanism of action Chemical test of card. Gly., drug containing card. Gly.; digitalis purpurea, digitalis lanata. Bufadienolids,	1	3	
3		Saponin gly.; ; definition, classification, distribution, extraction, chemical and physical properties, characterization biological and pharmacological properties, drugs as expectorant and antitusive, anti-exudative, adaptogens and diuretic.	1	3	
4		Anthracen gly; definition, classification, distribution, extraction, chemical and physical properties, characterization biological and pharmacological properties, drugs as Senna, Rhabarub, Aloe.	1	3	

5		Flavonoid gly; classification, chemical structure, physico-chemical properties, extraction, characterization, biological properties, rutin, hesperidin, flavonoid containing drugs.	1	3	
6		Cyanogenic gly; cyanogenesis, distribution, structure, properties, detection, extraction, pharmacological activities, cyanogenetic plants. Glucosinolates; definition, distribution, structure, biogenesis, hydrolysis, toxicity and drug containing glucosinolates	1	3	
7		Mid exam	1	3	
8		Definition, distribution, physical properties, method of isolation, chemical composition, Pharmacological properties,	1	3	
9	Volatile oils	Drugs containing v.o. used as counter irritant agents, drug containing v.o. used as expectorants,	1	3	
10		Drugs containing v.o. used as diuretic, drug containing v.o. used as stomachic and carminative.	1	3	
11	Tannins	Definition, classification, structure, hydrolysable- and condensed-, complex and pseudo-tannins, distribution, biosynthesis, physico-chemical properties, extraction, characterization, biological properties, drug containing tannin	1	3	

12	Phenylpropanoids	Definition, classification, biosynthesis, phenols and phenolic acids:, structure, physico-chemical properties, characterization, extraction, biological properties, drug containing phenols and phenolic acids.	1	3	
13		cumarins;definition, structure classification, biosynthesis, physico-chemical properties, characterization, extraction, biological properties, uses, Drug containing cumarins, furocoumarin, pyranocoumarines. Lignans; definition, classification, biological properties, uses, drug containing lignans. Lignin: definition, structure, biological and pharmacological properties of some lignins	1	3	
14		Final exam	1	3	
Number of Weeks/and Units Per Semester			14	42	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Extraction and identification of cardiac gly. (Oleander)	1	2	
2	Extraction and identification of saponin gly. (Christ's thorn, Fenugreek)	1	2	
3	Extraction and identification of anthracene gly. (Senna, Aloe)	1	2	
4	Extraction and identification of flavonoids (Orange, Ruta)	1	2	
5	Extraction and identification of cyanogenic gly (Linseed)	1	2	
6	Extraction and identification of glucosinolates gly (Mustard seeds)	1	2	
7	Extraction and identification of volatile oils (1)(Thyme)	1	2	
8	Extraction and identification of volatile oils (2) (Cinnamon)	1	2	

9	Extraction and identification of tannins (Tea, Galls)	1	2	
10	Extraction and identification of phenylpropanoids (Ammi visnaga)	1	2	
11	Final exam	1	2	
Number of Weeks/and Units Per First semester1			22	

## II. Assessment Tasks:

No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Seminar and project	3, 5, 9, 11-13	5	5%	
2	Practical Reports	1-10	10	10%	
3	Quizzes	4, 6, 8, 10	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (practical)	12	20	20%	
6	Final Exam (theoretical)	14	50	50%	
	Total		100	100%	

## III. Learning Resources:

### 1-Required Textbook(s) ( maximum two ).

- 1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York
- 2- Jarald E.E. and Jarald S. E., "Textbook of Pharmacognosy and Phytochemistry" (2009); CBS Publishers and Distributors, New Delhi

### 2-Recommended Books and Reference Materials.

- 1- Steven M. Colegate and Russell J. Molyneux. "Bioactive natural products : detection, isolation, and structural determination" (2008); Seconded, editor.
- 2- Cordell G.A. "The alkaloids: Chemistry and Biology" (2002); Volume 59, Elsevier, New York

### 3-Electronic Materials and Web Sites *etc.*

- 1- <http://www.Phytomania.org>.
- 2- <http://www.medicalbotanyintroduction.html>.
- 3- <http://www.botanical.com>

## Course Specification of Toxicology

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	General principles of toxicology:	- Toxicity, hazard, risk. - Branches of toxicology: Occupational, Environmental, Ecotoxicology, Analytical and Clinical.	1	2	
2	Poisons:	- Types of exposure and toxic responses. - Spectrum of toxicity. - Evaluation of safety of chemicals and drugs.	1	2	
3	Prevention and management of poisoning:	- Poisoning episodes: Accidental, Suicidal, Homicidal, Non-accidental, Maintenance of vital functions	1	2	
		- Antidotes: non-specific and specific Prevention of absorption of poisons, Enhanced elimination of poisons, Supportive management	1	2	
4	Poisoning with common drugs:	- Selected OTC Products: Aspirin, Paracetamol, Iron.	2	4	
		- CNS Depressants: Barbiturates and Benzodiazepines.			
		- CNS Stimulants: Amphetamine and Cocaine.			



5	Corrosive acids:	- Sulphuric acid, hydrochloric acid, nitric acid (Characters, fatal dose and fatal period, mode of poisoning and picture of poisoning).	1	2	
6	Irritant poisons & Corrosive alkalies:	- Arsenic, lead, mercury and iron (Characters, sources, fatal dose and fatal period, mode of poisoning and picture of poisoning). Mode of poisoning - Picture of poisoning - Fatal dose and fatal period	1	2	
7	Midterm exam		1	2	
8	Pesticides & Plant poisons:	Halogenated and cholinesterase inhibitor insecticides Rodenticides, Herbicides, Fungicides Atropine, opium, nicotine, cannabis, and cocaine (Source, fatal dose and fatal period, mode of poisoning and picture of poisoning).	1	2	
9	Gas and volatile poisons: Animal poison:	- Cyanide, ethyl alcohol and methyl alcohol (Characters, fatal dose and fatal period, mode of poisoning and picture of poisoning).  - Carbon monoxide (CO-Hb) (detection, and Met-Hb – detection) - Snake bite and scorpion sting. (Fatal dose and fatal period, mode of poisoning and picture of poisoning).	1	2	



10	Teratogenic and toxic effects of drugs and chemicals on reproduction:	- Possible site of action of teratogens: Effects on father, mother, fetal-placental unit and fetus. Principles of teratology as applied to man: Stages of pregnancy, drug dosage, placental transfer, use of drugs during pregnancy.	1	2	
11	Final Exam		1	2	
Number of Weeks/and Units Per Semester				24	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Introduction to the different ways and techniques for identification of different toxic substances (extraction and detection) Supportive measures in poisoned patients (Gastric lavage, induction of emesis, ....etc)	1	2	
2	Detection of corrosive acids Detection of corrosive alkalis	1	2	
3	Detection of carbolic acid (phenols) Detection of heavy metals	1	2	
4	Detection of some analgesic drugs (aspirin and paracetamol) Detection of sedatives and hypnotics (barbiturates and benzodiazepines)	1	2	
5	Detection of CNS depressants (opioids) Detection of CNS stimulants (amphetamine)	1	2	
6	Detection of pesticides Detection of volatile poisons	1	2	
7	Final Exam	1	2	
Number of Weeks/and Units Per Semester			14	



II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Practical reports	1-12	10	10%	
2	Written Med-term Test	8	15	15%	
3	Final Exam (practical)	14	20	20%	
4	Project	12	5	5%	
5	Final Exam (theoretical)	16	50	50%	
6	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Curtis Klaassen (2013), Casarett and Doull's Toxicology: Basic Science of Poisons. 8 <sup>th</sup> Edition, McGraw Hill, New York.
2-Recommended Books and Reference Materials.	
	1- Ernest Hodgson (2010), A Textbook of Modern Toxicology, Fourth Edition. WILEY interscience.  2- Kent Olson (2011), Poisoning and Drug Overdose, Sixth Edition McGraw Hill Professional
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://toxnet.nlm.nih.gov/">http://toxnet.nlm.nih.gov/</a> 2- <a href="http://www.ncbi.nlm.nih.gov/entrez/query.fcgi">http://www.ncbi.nlm.nih.gov/entrez/query.fcgi</a> 3- <a href="http://www.PubMed.com">http://www.PubMed.com</a>



### Course Specification of Parasitology

Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Schistosomiasis	S. mansoni S. haematobium S. japonicum	1	2	
2	Fasciolasis	F. hepatica F. gigantica	1	2	
3	Taeniasis	T. saginata T. solium Cysticercosis	1	2	
4	Hymenolepis and Diphyllbothriasis	H. nana H. diminuta	1	2	
5	Ascaris lumbricoides, Enterobius vermicularis & Trichuris		1	2	
6	Hook worm & Filariasi	1. Wuchereria bancrofti 2. W. malayi 3. Onchocerca volvulus 4. Loa loa 5. Mansonella ozzardi 6. M. perstans 7. Dracunculus medinensis	1	2	
7	Mid Exam		1	2	
8	Amebiasis	Entamoeba histolytica	1	2	
9	Gardia & Trichomonads	1. T. vaginalis 2. T. hominis	1	2	
10	Trypanosomiasis	1. T. rhodiensi 2. T. gambiensi 3. T. cruzi	1	2	
11	Leishmaniasis	1. L. tropica 2. L. braziliensis 3. L. donovani	1	2	
12	Malaria		1	2	
13	Final Exam		1	2	



Number of Weeks/and Units Per First semester5	26	
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b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Schistosomiasis	2	4	
2	Fascioliasis	1	2	
3	Taeniasis	2	4	
4	Hymenolepis	1	2	
5	Diphyllobothrium latum	1	2	
6	Diphyllobothrium mansoni	1	2	
7	Echinococcus granulosus	2	4	
8	Dipylidium caninum	1	2	
9	Laboratory diagnosis	1	2	
10	Prevention and control	1	2	
11	Final Exam	1	2	
Number of Weeks /and Units Per Semester 15			28	

I. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single or group)	2,8	2.5	2.5%	
2	Practical reports	1-10	10	10%	
3	Oral Tests	5,9	2.5	2.5%	
4	Written Test (1)	7	15	15%	
5	Final Exam (theoretical)	14	50	50%	
6	Final Exam (practical)	11	20	20%	
7			100	100%	



II. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-David T, William P Marell and Voges. Medical Parasitology 9 <sup>th</sup> edition, 2006 Saunders Eieevier, PA, USA 2. Monica Cheesbrough, Medical Laboratory Manual For tropical countries, vol I 2004Butter worth, Heinemann Ltd Oxford Britain
2-Recommended Books and Reference Materials.	
	1-RamnikSood, Medical laboratory technology 6 <sup>th</sup> Edition 2009, Jaypee Brothers Medical Publisher New Delhi - India.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1-www. Wiley short course Parasitology.com 2- www. Jaypeebrothers Parasitology.com

### Course Specification of Research Methodology

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to Research	<ul style="list-style-type: none"> <li>• Research phase</li> <li>• Choosing research subjects</li> <li>• Defining and selecting research interest</li> </ul>	1	2	
2	Information Search	<ul style="list-style-type: none"> <li>• Information search - the library</li> <li>• Information search -the internet</li> </ul>	1	2	
3	Overview of Research Design	<ul style="list-style-type: none"> <li>• Type of research design</li> <li>• Cross-sectional study</li> <li>• Case-control study</li> <li>• Cohort study</li> <li>• Experimental studies/Clinical Trial</li> <li>• Quasi-experimental studies</li> <li>• Qualitative research method</li> </ul>	1	2	
4	Literature review	<ul style="list-style-type: none"> <li>• Information storage</li> <li>• Writing quotations and references – UKM Style, Vancouver, Harvard</li> <li>• How to avoid plagiarism?</li> </ul>	1	2	
5	Research Process	<ul style="list-style-type: none"> <li>• Steps in medical research</li> <li>• Objectives</li> <li>• Research hypothesis and variables</li> <li>• Writing objectives and hypothesis</li> <li>• Problems framework</li> </ul>	1	2	
6	Questionnaire Design	<ul style="list-style-type: none"> <li>• Type of questions and questionnaire format</li> <li>• Questionnaire implementation – interview technique</li> </ul>	1	2	
7	• Mid Exam		1	2	



8	Research Management	<ul style="list-style-type: none"> <li>Research organization and time table</li> <li>Research budget</li> <li>How to get research budget</li> </ul>	1	2	
9	Research Ethics	<ul style="list-style-type: none"> <li>Getting ethical approval</li> </ul>	1	2	
10	<ul style="list-style-type: none"> <li>Final Exam</li> </ul>		1	2	
10 Number of Weeks/and Units Per Semester				20	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	8	5	5%	
2	Quizzes	4	5	5%	
3	Mid Exam	6	10	10%	
4	Final Exam	10	30	30%	
5	Total		50	50%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"> <li>Polgar Colton, T. 2000. <i>Statistics in Medicine</i>. Little Brown and Co. Boston. Fourth Ed.</li> <li>Dawson, B. and Trapp, R.G. 2001. <i>Basic and Clinical Biostatistics</i>. Third Edition Prentice-Hall International Inc.</li> </ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"> <li>Geoffrey, R. M., David, D. and David, F. 2005. <i>Essentials of Research Design and Methodology</i>. Essentials of Behavioral Science. Prentice Hall Inc.</li> <li>John, W. C. 2002. <i>Research Design Qualitative, Quantitative, and Mixed Methods Approaches</i> (Second Edition), Sage Publications.</li> <li>Geoffrey, R. and David, L. S. 2000. <i>Biostatistics: The Bare Essentials</i>, Second Edition</li> </ol>
3 -Electronic Materials and Web Sites etc.	
	1- <a href="http://link.springer.com/chapter/10.1007/0-387-23273-7_3#page-1">http://link.springer.com/chapter/10.1007/0-387-23273-7_3#page-1</a>

### Course Specification of Pharmacology IV

I. Course Content:						
1 – Course Topics/Items:						
a – Theoretical Aspect:						
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours		
1	Endocrine System	Hypothalamic and Pituitary Hormones	5	15		
		Thyroid and Antithyroid Agents				
		Adrenocorticosteroids and Adrenocortical Antagonist				
		Gonadal Hormones and Inhibitors				
		Pancreatic Hormones and Antidiabetic Agents				
2	Chemotherapeutic Drugs I	Introduction to Antimicrobial Drugs	1	3		
3	Midterm Exam		1	3		
4	Chemotherapeutic Drugs II	Folate Antagonist	7	21		
		Inhibition of Cell Wall Synthesis				
		Inhibition of Protein Synthesis				
		Quinolones				
		Antimycobacterial Drugs				
		Antifungal, Anti-protozoal, Anti-malarial				
		Anthelmintic Drugs				
		Anticancer				
		Vitamins				
5	Final Exam		1	3		
Number of Weeks/and Units Per First semester				5	45	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	



1	Presentation	6	5	5%	
2	Quizzes and Exercises and Home works	4-8	5	5%	
3	Written Test (1)	7	30	30%	
4	Final Exam (theoretical)	15	60	60%	
5	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- M.A. Clark, R. Finkel, J.A. Rey, K. Whalen (2009) Lippincott's Illustrated Reviews of Pharmacology, <i>11th edition</i>, Lippincott's Williams and Wilkins, Philadelphia.</p> <p>2- B.G. Katzung, S.B. Masters, A.J. Trevor (2012) Basic and Clinical Pharmacology, <i>Fifth edition</i>, Mc Graw Hill Lange, U.S.A.</p>
2-Recommended Books and Reference Materials.	
	<p>1- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale's Pharmacology, <i>6th edition</i>, Churchill Livingstone Elsevier, Philadelphia.</p> <p>2- Lectures notes.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1- <a href="http://www.who.int">www.who.int</a></p> <p>2- <a href="http://www.drugs.com">www.drugs.com</a></p>



Fifth year: first semester



### Course Specification of Medicinal chemistry III

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Antibacterial agents	Sulfonamides	1	2	
2	Antibiotics I	Penicillins	1	2	
3	Antibiotics II	Cephalosopins	1	2	
4	Antibiotics III	Tetracyclines, Aminoglycosides	1	2	
5	Antibiotics IV	Lincosamide, macrolide andchlormphenicol	1	2	
6	Quinolones	Ist generation Secondgeneration and 3dr generation	1	2	
7	midterm exam		1	2	
8	Anti mycobacterial agents	<u>Anti T.B:</u> first line Secondline <u>antileprosy</u>	1	2	
9	Antifungal agent	Antibiotics, azoles, allylamines and morpholines, antimetabolites, fatty acids and dyes	1	2	



10	Antiviral agent	Medically significant viruses, DNA viral replication, The building blocks of DNA nucleosides, Agents interfere with viral nucleic acid replication Anti-Retroviral [AntiHIV] Agents Agents inhibit the uncoating process, Neuraminidase Inhibitors, Non-Nucleoside Reverse Transcriptase [RT] Inhibitors HIV Protease Inhibitors	1	2	
11	Anticancer I	Types of Neoplasm Mechanism of Cancer formation <i>Chemotherapeutic Agents</i> Alkylating agents. Anti-metabolites [ Specific S ]	1	2	
12	Anticancer II	DNA intercalating agents. Antibiotics. Antimitotic agents [ Specific M ]. Hormones. Miscellaneous compounds.	1	2	
13	Antimalarial agents	Life cycle of the parasite, naturally occurring compounds, quinolone		2	



		derivatives, aminoacridine, tetrahydrofolate synthesis inhibitors, biguinides, polycyclic antimalarial agents	1		
14	final exam		1	2	
Number of Weeks/and Units Per Semester				24	

b - Practical Aspect:				
Order	Practical Experiment	Number of weeks	Contact hours	
1	Qualitative analysis of nicotinic acid	1	3	
2	Quantitative analysis of nicotinic acid	1	3	
3	Quantitative estimation of nalidixic acid	1	3	
4	Quantitative estimation of cyclophosphamide	1	3	
5	Quantitative estimation of busulfan	1	3	
6	Quantitative estimation of penicillin capsules	1	3	
7	Identification of tetracyclines	1	3	
8	Identification and assay of chloroquine	1	3	
9	Identification of gresoflavins	1	3	
10	Final Exam	1	3	
Number of Weeks/and Units Per Semester			33	

II. Assessment Tasks:					
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project ( single\group)	2, 8	5	5%	
2	Practical reports	1-9	10	10%	
3	Oral Tests	5, 9	5	5%	
4	Written Test (1)	7	10	10%	
5	Final Exam (theoretical)	14	50	50%	



6	Final Exam (practical)	11	20	20%	
7			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- John M. Beale, Jr. and John H. Block, "Text book of Organic Medicinal and Pharmaceutical Chemistry", 2011, 12th Edition, Wilson and Gisvold, Lippincott Williams and Wilkins, A Wolters Kluwer Company, Philadelphia.</p> <p>2- Graham L. Patrick, "An Introduction to Medicinal Chemistry", 2009, Fourth Edition, Oxford University Press Inc., New York</p>
2-Recommended Books and Reference Materials.	
	<p>1- Thomas Nogrady, Donald F. Weaver. Medicinal Chemistry A Molecular and Biochemical Approach, 2005, Third edition, Oxford University Press, Inc., New York.</p> <p>2- Donald J. Abraham, " BURGER'S Medicinal Chemistry and Drug Discovery" 6<sup>th</sup> edition, A John Wiley and Sons, Inc., Virginia.</p> <p>3- Thomas L. Lemke, Victoria F. Roche, David A. Willaiams and S. William Zito "Foye's Principles of Medicinal Chemistry", 2008, 6<sup>th</sup>, Edition, Lippincott Williams and Wilkins, a Wolters Kluwer business, Philadelphia.</p> <p>4- PovlKrogsgaard-Larsen, TommyLiljefors andUlf Madsen, "Textbook of Drug Design andDiscovery".2002, Third edition, Taylor and Francis, London.</p> <p>5- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook"2006, Springer-Verlag Berlin Heidelberg, Berlin.</p>
3-Electronic Materials and Web Sites <i>etc.</i>	
	<p>1- <a href="http://www.chemaxon/marvin">http://www.chemaxon/marvin</a></p> <p>2- <a href="http://www.webmolecules.com">http://www.webmolecules.com</a></p> <p>3- <a href="http://www.acdlabs.com">http://www.acdlabs.com</a></p> <p>4- PASSPrediction of Activity Spectra for Substance) (<a href="http://www.ibmh.msk.su/PASS">http://www.ibmh.msk.su/PASS</a>).</p>

### Course Specification of Community Pharmacy

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Community pharmacy services	<ul style="list-style-type: none"> <li>• Self-care and self-medication .</li> <li>• Drug use in special populations</li> <li>• Activities of the community pharmacist</li> <li>• Prescription and over-the counter (OTC) medications</li> <li>• Assessment of patient</li> <li>• Physical assessment skills</li> </ul>	2	6	
2	OTC For treatment ofGIT disorders	<ul style="list-style-type: none"> <li>• Mouth ulcers</li> <li>• Heart burn</li> <li>• Indigestion</li> <li>• Nausea and vomiting</li> <li>• Constipation</li> <li>• Diarrhea</li> <li>• Haemorrhoids</li> </ul>	2	6	
3	OTC For treatment ofrespiratory disorders	<ul style="list-style-type: none"> <li>• Cold and flu</li> <li>• Cough</li> <li>• Sore throat</li> <li>• Allergic rhinitis</li> </ul>	2	6	
		Midterm exam	1	3	
4	OTC For treatment ofskin disorders	<ul style="list-style-type: none"> <li>• Eczema/dermatitis/common childhood rashes</li> <li>• Acne</li> <li>• Athlete’s foot</li> <li>• Warts and verrucae</li> <li>• Hair loss</li> <li>• Dandruff</li> </ul>	3	9	



		<ul style="list-style-type: none"> <li>• Psoriasis</li> <li>• Cold sores</li> <li>• Warts and verrucas</li> <li>• Corns and calluses</li> <li>• Fungal infections</li> </ul>			
5	OTC For treatment of pain and headache & OTC For treatment of Eye and ear disorders	<ul style="list-style-type: none"> <li>• Headache and migraine</li> <li>• Dental pain</li> <li>• Musculoskeletal problems</li> <li>• Ear problems <ul style="list-style-type: none"> <li>○ Earache</li> <li>○ Ear wax</li> <li>○ Otitis externa</li> </ul> </li> <li>• Eye conditions <ul style="list-style-type: none"> <li>○ Conditions of the cornea</li> <li>○ Conditions of the eyelid</li> <li>○ Other eye problems</li> </ul> </li> </ul>	1	3	
6	OTC For treatment of Women's conditions & OTC For treatment of Infestations	<ul style="list-style-type: none"> <li>• Cystitis</li> <li>• Dysmenorrhoea</li> <li>• Premenstrual syndrome (PMS)</li> <li>• Vaginal thrush</li> <li>• Head lice</li> <li>• Scabies</li> <li>• Threadworm</li> </ul>	1	3	
7	Community role	<ul style="list-style-type: none"> <li>• The role of the pharmacist in family planning</li> <li>• Smoking cessation</li> </ul>	1	3	
8		Final exam	1	3	
Number of Weeks/and Units Per Semester			14	42	

## II. Assessment Tasks:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Oral Tests	5, 10	5	5%	
2	Quizzes	6, 9	5	5%	
3	Written Test (midterm exam )	7	30	30%	
4	Final Exam (theoretical)	16	60	60%	
Total			100	100%	

## III. Learning Resources:

1-Required Textbook(s) ( maximum two ).



	<ol style="list-style-type: none"><li>1- Alan Nathan (2008). Managing symptoms in pharmacy. Second edition Pharmaceutical press. London.</li><li>2- Paul Rutter (2008). Community Pharmacy: Symptoms, Diagnosis and Treatment, second edition, Elsevier, London.</li></ol>
<b>2-Recommended Books and Reference Materials.</b>	
	<ol style="list-style-type: none"><li>1. Daniel L. Krinsky, Rosemary R. Berardi, Stefanie P. Ferreri, Anne L. Hume, Gail D. Newton, Carol J. Rollins, Karen J. Tietze (2011). Handbook of Non-Prescription drugs, 17th edition. American pharmaceutical association. Washington.</li></ol>
<b>3-Electronic Materials and Web Sites <i>etc.</i></b>	

### Course Specification of Clinical Pharmacy I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
4	Case-studies on ischemic heart disease	1	2		
5	Case-studies on acute coronary syndrome	1	2		
6	Case-studies on heart failure	1	2		
7	Case-studies on strokes	1	2		
8	Case-studies on dysrhythmias	1	2		
9	Case-studies on venous thromboembolism	1	2		
10	Case-studies on bronchial asthma	1	2		
11	Case-studies on chronic obstructive pulmonary disease.	1	2		
12	Case-studies on upper respiratory infections	1	2		
13	Case-studies on peptic ulcer disease	1	2		
14	Final Practical exam	1	2		
Number of Weeks/and Units Per Semester			28		

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Practical reports	1-13	10	10%	
2	Assignments	all	5	5%	
3	Written Test (1) homework and oral test	8	15	15%	
4	Final Exam (theoretical)	16	50	50%	
5	Final Exam (practical)	15	20	20%	
6	Total		100	100%	





III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1-Dipiro et al, Pharmacotherapy Handbook, 7th edition 2008, McGraw Hill 2-Koda-Kimble and Young's, Applied therapeutics "the clinical use of drugs", 10th edition 2013, Lippincott Williams and Wilkins.
2-Recommended Books and Reference Materials.	
	1- Dipiro et al, Pharmacotherapy A pathophysiologic Approach, 7th edition 2008, McGraw Hill. 2- Dipiro et al, Pharmacotherapy Principles and Practice, 7th edition 2008 McGraw Hill.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.dynamed.ebscohost.com">www.dynamed.ebscohost.com</a> 2- <a href="http://www.drugs.com">www.drugs.com</a> 3- <a href="http://www.drugdigest.com">www.drugdigest.com</a> 4- <a href="http://www.pharmacistletter.com">www.pharmacistletter.com</a> 5- <a href="http://www.rxlist.com">www.rxlist.com</a>

### Course Specification of Industrial Pharmacy I

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Good Manufacture Practice (GMP)	<ul style="list-style-type: none"> <li>- Introduction.</li> <li>- Quality, principles, quality assurance, GMP and quality control</li> <li>- Quality management and total quality management.</li> </ul>	١	3hr	
2	Current Good Manufacture Practice (cGMP)	<ul style="list-style-type: none"> <li>- Premises (location of factory, design and different areas in factory (weighing area, sampling area, storage area, maintenance area, ancillary area, production area and quality control area</li> </ul>	٢	6hr	
3	Good Manufacture Practice (cGMP)	<ul style="list-style-type: none"> <li>- Personnel and training: principles, training and hygiene.</li> <li>- Key persons</li> <li>- Documentation: principles, specification, records and batch (SOP).</li> </ul>	١	3hr	
4	Good Manufacture Practice (cGMP)	<ul style="list-style-type: none"> <li>- Manufacture: principles, validation, contamination, starting and intermediate materials, packaging material and finished product.</li> <li>- Master-formula</li> <li>- Recovered materials, complaints procedures and product recall. Good laboratory practices</li> </ul>	٢	6hr	

5	Exam		١	3hr	
6	Sterile Products	<ul style="list-style-type: none"> <li>- Introduction</li> <li>- Types of sterile products</li> <li>- Parenterals.</li> <li>- Advantages and disadvantages.</li> <li>- Total parenteral nutrition - (TPN)</li> <li>- Powders for injection.</li> <li>- Pyrogens.</li> <li>- Vehicles.(Purified water preparation)</li> <li>- Added substances (preservatives, antioxidants, solubilizer. suspending agents, buffers, stabilizers etc.)</li> </ul>	١	3hr	
7	Sterilization	Sterilization techniques; moist heat and dry heat sterilization, radiation, gaseous, filtration, etc.	١	3hr	
8	Sterile preparation (continue)	<ul style="list-style-type: none"> <li>- Design of Sterile Area.</li> <li>- Sterile area and its classification;</li> <li>- Air control, (Laminar flow etc).</li> <li>- Air locks, environmental monitoring methods.</li> </ul>	١	3hr	
9	Sterile preparation (continue)	<ul style="list-style-type: none"> <li>- Filling/ packaging (plastic and glass containers).</li> <li>- Validation of equipment; e.g autoclave filters, etc.</li> <li>- Validation of filling and packing machines.</li> </ul>	١	3hr	
10	Packaging Technology	<ul style="list-style-type: none"> <li>- Influence of packaging materials, Type of pharmaceutical packaging, Manufacturing packaging, Problems of packaging, Advantage and disadvantage of packaging materials.</li> </ul>	٢	6hr	
11	- Final exam		١	٣	
Number of Weeks/and Units Per Semester			14	42	

II. Assessment Tasks:



No	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Quizzes	8	10	10%	
2	Written Test (1) Mid exam	6	30	30%	
3	Final Exam (theoretical)	14	60	60%	
5	Total		100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Michael E. Aulton; (2006). Pharmaceutics; the Science of Dosage Form Design. 2- Jhon Sharp;(2006). Good pharmaceutical manufacture practice, rational and compliance.
2-Recommended Books and Reference Materials.	
	1- Williams and Wilkins (2005). Remington; the Science and Practice of Pharmacy (2first edition). Publisher: Lippincott. 2- Patrick J. Sinko (2006). Martin's Physical Pharmacy and Pharmaceutical Sciences.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.Pharmaceutical manufacturing process.com">www. Pharmaceutical manufacturing process.com</a> 2- CD production lines and Quality control in different factory

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IV. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of Weeks	Contact hours	
1	Introduction an overview of marketing	<ul style="list-style-type: none"> <li>- Definition</li> <li>- Simple marketing systems</li> <li>- Marketing value</li> </ul>	1	2	
2	Marketing functions	<ul style="list-style-type: none"> <li>- Marketing relationship</li> <li>- Customer value</li> <li>- Customer relationship management</li> </ul>	1	2	
3	Marketing environment	<ul style="list-style-type: none"> <li>- External Forces that effect on marketing environment</li> <li>- Internal forces that impact on organizations</li> <li>- Micro environment and macro environment</li> </ul>	1	2	
4	Marketing process	<ul style="list-style-type: none"> <li>- Analyzing marketing opportunities</li> <li>- Method of selecting target market</li> <li>- Developing marketing mix</li> <li>- Managing marketing efforts</li> </ul>	1	2	
5	Consumer behavior	<ul style="list-style-type: none"> <li>- Model of buyer behavior</li> <li>- Characteristics affecting consumer behavior</li> <li>- Buying decision process</li> </ul>	1	2	
6	Market segmentation	<ul style="list-style-type: none"> <li>- Segmentation definition</li> <li>- Target marketing</li> <li>- Market positioning</li> </ul>	1	2	
7	Mid-term examination		1	2	
8	Marketing mix ( product strategies )	<ul style="list-style-type: none"> <li>- Define four marketing activities</li> <li>- Product definitions</li> <li>- Product classification</li> <li>- Product decisions</li> <li>- Brand strategies</li> </ul>	1	2	

9	Pricing strategies	<ul style="list-style-type: none"> <li>- Price definition</li> <li>- Factors affecting price decisions</li> <li>- Consumer perception of price and value</li> <li>- Pricing policies</li> </ul>	1	2	
10	Place strategies (distributions)	<ul style="list-style-type: none"> <li>- Distribution definitions</li> <li>- Marketing channel</li> <li>- Marketing intermediaries</li> <li>- Distribution channel functions</li> <li>- Channel behavior and conflict management</li> <li>- Franchising</li> </ul>	1	2	
11	Promotion strategies (marketing communications)	<ul style="list-style-type: none"> <li>- Promotion definition</li> <li>- Promotion goals</li> <li>- Marketing communication mix</li> <li>- Communication process</li> <li>- Marketing communications objectives</li> <li>- Steps in developing effecting communication.</li> </ul>	1	2	
12	Marketing strategy planning	<ul style="list-style-type: none"> <li>- Strategic Planning and Marketing Process</li> <li>- Characteristics of a Strategic Plan</li> <li>- SWOT Analysis</li> <li>- <b>Setting Company Objectives and Goals</b></li> <li>- Portfolio Analysis</li> <li>- Developing the marketing Mix plans</li> <li>- Managing the marketing effort</li> </ul>	1	2	
13	Final Exam		1	2	
Number of Weeks/and Units Per Semester			13	26	

I. Assessment Tasks: طرق التقييم

No	Assessment Method طريقة التقييم	Week Due الاسبوع	Mark الدرجة	Proportion of Final Assessment نسبة الدرجة من الدرجة النهائية	
1	Exercises and Home works التمارين والواجبات المنزلية	10, 3	5	5%	
2	Project مشروع	9	5	5%	



3	Midterm	7	30	30%	
4	Final Exam (theoretical) امتحان نهائي (نظري)	14	60	60%	
5	Total		100	100%	

II. Learning Resources: مصادر التعلم	
1-Required Textbook(s) ( maximum two ). (بحد اقصى ٢) . المراجع المطلوبة (بحد اقصى ٢) .	
	1- principles of marketing by Philip Kotler and Gary Armstrong . 2- Fundamentals of marketing by Stanton . Etzel and Walker 3- Marketing by Jorl R. Evans and Barry Berman.
2-Recommended Books and Reference Materials. المراجع الموصى بها.	
	١ . نظام سويدان، ٢٠٠٨، التسويق مفاهيم معاصرة.
3-Electronic Materials and Web Sites etc. المراجع الالكترونية ومواقع النت .	

### Course Specification of Applied Pharmacognosy I

I. Course Content:				
1 – Course Topics/Items: Applied pharmacognosy				
a – Theoretical Aspect:				
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours
1	Traditional medicine	-Main fields of traditional medicine, herbal medicine, virtues and shortcomings of phytotherapy, the scientific basis of herbal medicine.	1	2
		-Treatment of constipation, asthma, inflammation and peptic ulcer and therapeutic effects of ginseng.	1	2
		-synergism and antagonism in the phytopharmacology	1	2
		-Renewed interest in some old remedies.	1	2
		-Factors influencing the activity of medicinal plant; ecological, allelopathy, biological and polyploidy.	1	2
		-Standardization of phytopharmaceuticals	1	2
2		Mid exam	1	2
3	Evaluation of herbal drugs	Intruduction, methods of evaluating the herbal drug; organoleptic and microscopical methods	1	2
		Physicochemical and chromatographic methods in evaluation of herbal drug	1	2
		Immunological and Microbiological quality of medicinal plants methods	1	2
4	Plant tissue culture	Introduction and materials of plant tissue cultures	1	2
		Methods of plants tissue culture	1	2





		Phytopharmaceutical produced by plant tissue culture	1	2
5		Final exam	1	2
Number of Weeks/and Units Per Semester				28

II. Assessment Tasks:				
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	3-11	5	5%
2	Exercises and Home works Quizzes	3, 6, 11	5	5%
3	Written Test (1)	7	30	30%
4	Final Exam (theoretical)	14	60	60%
5	Total		100	100%

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York. 2- Steven M. Colegate and Russell J. Molyneux. "Bioactive natural products: detection, isolation, and structural determination" (2008); Seconded, editor.
2-Recommended Books and Reference Materials.	
	1- Paul M. Dewick. "Medicinal Natural Products. (A Biosynthetic approach)" (2001). 2- Silverstein and Webster. "Spectroscopic Identification of organic compounds" (1996); 6th Ed.
3-Electronic Materials and Web Sites <i>etc.</i>	
	http://pages.intnet.mu/webpam/Pharmacognosy.htm-1 2- <a href="http://www.phcog.org/">http://www.phcog.org/</a> 3- <a href="http://www.botanical.com">http://www.botanical.com</a>



**Fifth year: second semester**

### Course Specification of Quality Control

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction to quality control	Definitions of quality, basic principle of quality control. Component of Quality Control, General Quality System Requirements, The main part of the ISO standard is made up of three separate standards, Pharmaceutical Quality Control System, Control Charts,	2	6	
2	Documentation	The purposes of documentation, Good documentation in QA system, Types of documentation for QA.	1	3	
3	Sampling	Types, Handling the Sample in the Laboratory, the information that may be taken in consideration during sampling, Sampling Procedures And Errors, sampling of solid, liquid and gas,  <u>Sample preservation:</u>  Why Sample preservation? Common steps in sample preservation  <u>Sample preparation</u>	1	3	
4	Errors In Pharmaceutical Analysis	Meaning of errors, Classification of Errors.	2	6	



5	Midterm exam		1	3	
6	Method Validation	Meaning, method of validation Validation approaches, Method of validation according to USP or ICH, Some Important Terminology	1	3	
7	Drug stability and stability indication	Definition, Purpose of stability testing, The type of stability studies depends on the different phases of drug and use, Degradation and stability of drugs, Routes of drug instability in dosage form, Chemical degradation routes, Stability Indicating Assay Methods (SIAMs),	1	3	
8	Physicochemical properties	Physicochemical properties of drug Spectroscopic method for analysis	1	3	
9	Chromatographic		1	3	
10	Application of QC	Quality control of raw, material and pharmaceutical dosage forms	1	3	
11	Final exam		1	3	
Number of Weeks/and Units Per Semester				39	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project	2, 8	5	5%	
2	Oral Tests	5, 9	5	5%	
3	Written Test (1)	7	30	30%	
4	Final Exam (theoretical)	14	60	60%	
			100	100%	



III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<ol style="list-style-type: none"><li>1- SomenathMitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada.</li><li>2- Satinder Ahuja, Stephen Scypinski, Handbook Of ModernPharmaceutical Analysis, 2001, Academic Press, San Diego, USA.</li></ol>
2-Recommended Books and Reference Materials.	
	<ol style="list-style-type: none"><li>1- J. Ermer and J. H. McB. Miller, Method Validation in Pharmaceutical Analysis, 2005, WILEY-VCH Verlag GmbH and Co. KGaA, Weinheim.</li><li>2- Robert A. Nash, Alfred H. Wachter, Pharmaceutical Process Validation, Volume 129, Marcel Dekker Inc.</li><li>3- Andrew J Fletcher, Lionel D Edward, Anthony W Fox Peter Stonie, Princible and practice of medicine, 2002, John Wiley and Sons Ltd. London, UK</li></ol>
3-Electronic Materials and Web Sites <i>etc.</i>	

### Course Specification of Hospital Pharmacy

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
No	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Introduction	<ul style="list-style-type: none"> <li>• Organization and Structure Organization of a hospital and hospital pharmacy</li> <li>• Responsibilities of a hospital pharmacist</li> <li>• Pharmacy and therapeutic committee</li> <li>• Budget preparation and Implementation.</li> <li>• Hospital formulary Contents, preparation and revision of hospital formula</li> </ul>	2	6	
2	Drug Store Management and Inventory Control:	<ul style="list-style-type: none"> <li>• Organization of a drug store</li> <li>• Types of materials stocked</li> <li>• Storage conditions.</li> <li>• Purchase and Inventory Control <ul style="list-style-type: none"> <li>○ Principles</li> <li>○ purchase procedures</li> <li>○ Purchase order</li> <li>○ Procurement and stocking</li> </ul> </li> </ul>	2	6	
3	Drug Distribution Systems in Hospitals:	<ul style="list-style-type: none"> <li>• Outpatient dispensing - methods adopted.</li> <li>• Dispensing of drugs to inpatients .</li> <li>• Types of drug distribution systems . <ul style="list-style-type: none"> <li>○ Floor stock DDS</li> <li>○ Unit dose DDS</li> <li>○ Prescription DDS</li> </ul> </li> <li>• Automation in drug distribution <ul style="list-style-type: none"> <li>○ Goals</li> <li>○ Automated dispensing systems</li> </ul> </li> <li>• Charging policy – labeling</li> <li>• Dispensing of drugs to ambulatory patients.</li> <li>• Dispensing of controlled drugs.</li> </ul>	4	12	
4		Midterm exam	1	3	
5	Pharmacy services	<ul style="list-style-type: none"> <li>• Inpatient pharmacy services <ul style="list-style-type: none"> <li>○ Dose adjustment.</li> </ul> </li> </ul>	6	18	



		<ul style="list-style-type: none"> <li>○ Intravenous admixture (TPN)</li> <li>○ principles of lamina air flow (LAF) hood operation</li> <li>○ principles of aseptic technique, as well as policies and procedures for parenteral drug administration</li> <li>○ Practice the appropriate aseptic technique used in the preparation of intravenous admixture</li> <li>○ calculations associated in all aspects of intravenous admixture preparation appropriately and accurately</li> <li>○ Therapy drug monitoring (TDM)</li> <li>○ Evaluation of medication orders for drug allergy, interactions, and contraindications according to specific patient profiles</li> <li>● Outpatient pharmacy services <ul style="list-style-type: none"> <li>○ Care of patients with chronic illnesses</li> <li>○ Smoke cessation</li> <li>○ Family planning</li> </ul> </li> </ul>			
6		Final exam	1	3	
Number of Weeks/and Units Per Semester			16	48	

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Project	11	5	5%	
2	Quizzes and oral test	6, 8	5	5%	
3	Written Test (midterm exam )	9	30	30%	
4	Final Exam (theoretical)	16	60	60%	
Total			100	100%	

III. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	1- M. C.Allwood and J. T. Fell (2010)."Textbook of Hospital Pharmacy" Fourthedition. Blackwell Scientific Publications, Oxford, UK.
2-Recommended Books and Reference Materials.	
	1. W.E. Hassan (1986)."Hospital Pharmacy" Fifthed. Lea and Febiger, Philadelphia.



3-Electronic Materials and Web Sites *etc.*

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## Course Specification of Clinical Pharmacy II

I. Course Content:					
1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Renal disorders	Acute renal failure	1	2	
2		Urinary tract infections	1	2	
3	Endocrinology disorders	Type 1 diabetes mellitus	1	2	
4		Type 2 diabetes mellitus	1	2	
5		Hyperthyroidism	1	2	
6		Hypothyroidism	1	2	
7	Gynecologic disorders	Pregnancy and lactation "therapeutic consideration"	1	2	
8	Mid-term		1	2	
9	Gynecologic disorders (continuation)	Pregnancy and lactation "therapeutic consideration"	1	2	
10	Infectious disorders	Pneumonia	1	2	
		Sepsis and septic shock			
11	Neurological disorders	Parkinson's disease	1	2	
		Epilepsy	1	2	
12	Psychological disorders	Depression	1	2	
12	Final exam	-	1	2	
Number of Weeks/and Units Per First semester6				26	

b - Practical Aspect:



Order	Practical Experiment	Number of weeks	Contact hours		
1	Case studies on acute renal failure	1	2		
2	Case studies on acute pyelonephritis	1	2		
3	Case-studies on type 1 diabetes	1	2		
4	Case-studies on type 2 diabetes	1	2		
5	Case-studies on hyperthyroidism	1	2		
6	Case-studies on hypothyroidism	1	2		
7	Case-studies on benign cases during pregnancy	1	2		
8	Case-studies on certain disorders during pregnancy	1	2		
9	Case-studies on pneumonia	1	2		
10	Case-studies on sepsis and septic shock	1	2		
11	Case-studies on Parkinson's disease	1	2		
12	Case-studies on epilepsy	1	2		
13	Case-studies on depression	1	2		
14	Final Practical exam	1	2		
Number of Weeks/and Units Per First semester4			28		

II. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Assignments	all	10	10%	
2	Practical Reports	all	10	10%	
3	Written Test (1)	8	10	10%	
4	Final Exam (theoretical)	16	50	50%	
5	Final Exam (practical)	14	20	20%	
7	Total		100	100%	

III. Learning Resources:
1-Required Textbook(s) ( maximum two ).

	1-Dipiro et al, Pharmacotherapy Handbook, 7th edition 2008, McGraw Hill 2-Koda-Kimble and Young's, Applied therapeutics "the clinical use of drugs", 10th edition 2013, Lippincott Williams and Wilkins.
2-Recommended Books and Reference Materials.	
	1- Dipiro et al, Pharmacotherapy A pathophysiologic Approach, 7th edition 2008, McGraw Hill. 2- Dipiro et al, Pharmacotherapy Principles and Practice, 7th edition 2008 McGraw Hill.
3-Electronic Materials and Web Sites <i>etc.</i>	
	1- <a href="http://www.dynamed.ebscohost.com">www.dynamed.ebscohost.com</a> 2- <a href="http://www.drugs.com">www.drugs.com</a> 3- <a href="http://www.drugdigest.com">www.drugdigest.com</a> 4- <a href="http://www.pharmacistletter.com">www.pharmacistletter.com</a> 5- <a href="http://www.rxlist.com">www.rxlist.com</a>

### Course Specification of Applied pharmacognosy 2

I. Course Content:				
1 – Course Topics/Items: Complementary & alternative medicine				
a – Theoretical Aspect:				
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours
1	Introduction	<ul style="list-style-type: none"> <li>- Definitions of complementary and alternative medicine</li> <li>- Concepts of complementary and alternative medicine</li> <li>- Comparison with Integrative medicine</li> <li>- Classification of complementary and alternative medicine.</li> </ul>	1	2
2	Types of complementary and alternative medicine	<ul style="list-style-type: none"> <li>- Alternative medical systems</li> <li>- Definitions, concepts, and applications of</li> <li>* Traditional Chinese medicine.</li> <li>* Indian medicine (Ayurveda).</li> </ul>	1	2

3		- Mind-body therapies - Biologically Based Practices	1	2
4		- Manipulative therapies - Energy medicine	1	2
5	Evidence based therapies	Definitions, concepts, applications of: * Homoeopathy * Anthroposophical medicine	1	2
6		* Aromatherapy * Flower remedy therapy * Phytotherapy (Herbal medicine)	1	2
7	Mid- term exam		1	2
8	Phytotherapy	- Herbs and herbal combinations, preparations and doses used in treatment of: * Central Nervous System disorders	1	2
9		* Urinary tract disorders * Skin diseases * Respiratory system	1	2
10		* Digestive system disorders * Rheumatic Diseases	1	2
11		* Cardiovascular system	1	2
12		* Gynecological disorders * Endocrine and metabolic problems * Performance and immune deficiencies	1	2
13	Non-medicinal based therapies	- Hydrotherapy - Apitherapy	1	2
14	Final exam		1	2

Number of Weeks /and Units Per Semester	
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No	Assignment	Week Due	Mark
1	Seminar	10, 11	3
2	Project	5, 8	4
3	Micro assignments	3-11	3

II. Assessment Tasks:				
No	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	3-11	10	10%
2	Exercises and Home works	3, 6, 11	3	3%
3	Oral Tests	2, 7, 9, 12	3	3%
4	Quizzes	4, 8	4	4%
5	Written Test (1)	7	20	20%
6	Final Exam (theoretical)	14	60	60%
7	Total		100	100%

III. Learning Resources:	
<b>1- Required Textbook(s) ( maximum two ).</b>	
	<p>1- Steven B Kayne. "Complementary and alternative medicine" (2009); Pharmaceutical Press.</p> <p>2- Henrich M., Barends j. and Gibbons S.A. "Fundamentals of Pharmacognosy and Phytotherapy" (2004); Churchill Livingstone, New York.</p> <p>3- Karin Kraft. "Pocket guide to herbal medicine" (2004); Georg Thieme Verlag.</p>
<b>2- Recommended Books and Reference Materials.</b>	
	<p>1- Brun L. and Cohen M. "Herbs &amp; Natural Supplements" (2010); 3rd ed., Elsevier, London</p> <p>2- Tracy T.S. &amp; Kingston R.L. "Herbal Products" (2007); 2nd ed., Humana Press, New Jersey.</p> <p>3- Evans W.C., Evans D. &amp; Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York.</p>



3- Electronic Materials and Web Sites etc.	
	<p>1- <a href="http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm">http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm</a></p> <p>2- <a href="http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm">http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm</a></p> <p>3- <a href="http://www.rain-tree.com/prepmethod.htm">http://www.rain-tree.com/prepmethod.htm</a></p>

IV. Learning Resources:	
1-Required Textbook(s) ( maximum two ).	
	<p>1- Henrich M., Barens j. and Gibbons S.A. "Fundamentals of Pharmacognosy and Phytotherapy" (2004); Churchill Livingstone, New York</p> <p>2- Evans W.C., Evans D. and Trease E., Saunders "Trease and Evans 'Pharmacognosy" (2009); 16th ed. Elsevier, New York.</p>
2-Recommended Books and Reference Materials.	
	<p>1- Brun L. and Cohen M. "Herbs and Natural Supplements" (2010); Third ed., Elsevier, London</p> <p>2- Tracy T.S. and Kingston R.L. "Herbal Products" (2007); Seconded., Humana Press, New Jersey.</p>
3-Electronic Materials and Web Sites etc.	
	<p>1- <a href="http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm">http://www.holisticonline.com/Herbal-Med/hol_herb-forms.htm</a></p> <p>2- <a href="http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm">http://www.mothenature.com/Library/Bookshelf/Books/15/1.cfm</a></p> <p>3- <a href="http://www.rain-tree.com/prepmethod.htm">http://www.rain-tree.com/prepmethod.htm</a></p>

### Course Specification of Industrial Pharmacy II

1 – Course Topics/Items:					
a – Theoretical Aspect:					
Order	Topic/ unit	Sub topic	Number of weeks	Contact hours	
1	Heat transfer and Flow of heat	<ul style="list-style-type: none"> <li>-Classification of heat flow process.</li> <li>-Overall coefficient of heat transfer.</li> <li>- Mechanisms of heat transfer, conduction, convection and radiation.</li> <li>-Design of heating equipment.</li> <li>-Tubular heaters; heat transfer by radiation and convection.</li> <li>-Tubular heaters; heat interchangers, inductive heating.</li> </ul>	1	3Hrs	
2	Drying	<ul style="list-style-type: none"> <li>- Introduction, definition, factor affecting drying</li> <li>- Classification of dryers <ul style="list-style-type: none"> <li>- dryers for dilute solutions and suspensions.</li> <li>- Dryers for solid materials.</li> </ul> </li> <li>- Convective and conduction dryers.</li> <li>- Theory of drying loss on drying and moisture content, equilibrium moisture content.</li> <li>- Principles of freeze drying, freeze dryers.</li> </ul>	2	6hrs	



3	Evaporation	<ul style="list-style-type: none"> <li>- General principals of evaporation. Factor affecting evaporation</li> <li>- Classification of Evaporator –</li> <li>- jacketed kettles, tube evaporators,</li> <li>- -forced circulation evaporators and evaporator accessories.</li> <li>- Evaporation under reduced pressure.</li> <li>- Multiple effect evaporation.</li> </ul>	1	3hrs	
4	Mid Exam		1	3hrs	
5	Mixing process	<ul style="list-style-type: none"> <li>- Introduction, factor affecting mixing, type of mixture</li> <li>- Fundamentals and mechanism.</li> <li>-Type of mixer used in</li> <li>-liquid/liquid,</li> <li>-liquid/solid,</li> <li>-semisolid</li> <li>--solid/solid mixing.</li> </ul>	2	6hrs	
6	Size enlargement	<ul style="list-style-type: none"> <li>- Methods and mechanisms of granule formation.</li> <li>- Reasons for size enlargement.</li> <li>- Pharmaceutical granulation equipments; high speed mixer granulator, oscillating granulator, extruder.</li> </ul>	1	3hrs	
7	Size reduction	<ul style="list-style-type: none"> <li>- Theory and reasons of size reduction</li> <li>- Factors influencing size reduction.</li> <li>- Pharmaceutical applications.</li> <li>- Mechanisms and equipments used for size</li> </ul>	1	3hrs	



		reduction; e.g. roller mill, ball mill, hammer mill, fluid energy mill, colloid mill.			
8	Filtration	<ul style="list-style-type: none"> <li>- Theory of filtration and filtration media.</li> <li>- Darcy's equation.</li> <li>- Filter aids.</li> <li>- Classification of filtration filters (e.g. plate and frame filter, leaf filter, filter press, rotary filter.....).</li> </ul>	1	3hrs	
9	Distillation	<ul style="list-style-type: none"> <li>- Theory of distillation, definition, uses</li> <li>- type of distillation:                             <ul style="list-style-type: none"> <li>(a) for miscible liquids,</li> <li>(b) for immiscible liquids,</li> <li>(c) Steam distillation</li> <li>d) fractional distillation.</li> </ul> </li> <li>and ...ect.</li> </ul>	1	3hrs	
10	Extraction process	<ul style="list-style-type: none"> <li>- Theory of extraction, definition, uses, factor affecting extraction</li> <li>- Type of extraction:                             <ul style="list-style-type: none"> <li>- Liquid/ solid extraction</li> <li>- Liquid/ liquid extraction</li> </ul> </li> </ul>	1	3hrs	
11	Crystallization	<ul style="list-style-type: none"> <li>- Classification, batch crystallizers, simple vacuum crystallizers.</li> <li>- Nucleation and crystal growth                             <ul style="list-style-type: none"> <li>- - critical humidity</li> <li>prevention of caking, material and energy balances</li> </ul> </li> </ul>	1	3hrs	
12	- Final exam		1	3hrs	
Number of Weeks/and Units Per Semester			14week	42 hr	

I. Assessment Tasks:					
no	Assessment Method	Week Due	Mark	Proportion of Final Assessment	
1	Quizzes	5	5	5%	



2	Written Test (1) Mid exam	6	30	30%	
3	Homework	10	5	5%	
4	Final Exam (theoretical)	14	60	60%	
5	Total		100	100%	

Republic of Yemen  
Ministry of Higher Education & Scientific Research  
AL-NASSER UNIVERSITY



الجمهورية اليمنية  
وزارة التعليم العالي والبحث العلمي  
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