

AL-YEMENIA UNIVERSITY

Pharmacy

Program Specification





Pharmacy Program Specification

1. Program Identification and General Information	
Program title and degree	Bachelor in Pharmacy
Unit responsible to Grant degree	Faculty of Medical Sciences
Unit responsible in program implementation	Department of Pharmacy
Program type	Bachelor
Department / scientific departments participating in the program	Faculty of Medical Sciences
Program study language	English
Beginning of the study year	2016/2017
Program attendance system	Compulsory Attendance
Program place implementation	University Campus
Program study system	Semester
Time required to graduate	5 Years (173 Credit Hours)
Admission qualifications	High School Degree
Admission appreciation	70 % at least
Program coordinator name	
Last date approval for program specifications	

2. Vision, Mission & Aims of the University

▪ Vision:

Getting the leadership and the excellence in the fields of higher education and scientific research so as to achieve the persistent development.

▪ Mission:

Providing distinguished education of high quality through creating inspiring environment for education and intellectual creativity, and to support the scientific research in Yemen so as to fulfill the market needs nationally and regionally

▪ Aims:

- 1) To be outstanding in providing the educational programs that equip the students with the knowledge and skills needed by the business market.
- 2) Supporting and enhancing the scientific research theoretically and practically in the different fields.
- 3) To be committed in applying the quality standards and looking for getting the academic accreditation.
- 4) Providing the necessary infrastructure to support the educational process and motivating the students' activities.
- 5) Improving the relationships with the universities and scientific research institutions nationally, regionally and internationally.
- 6) Serving the society through establishing training and consultant centers.

3. Vision, Mission & Aims of the Faculty

▪ **Vision:**

Leadership and excellence in the field science of pharmacy and medical laboratories locally, regionally and globally.

▪ **Mission:**

Providing specialized educational programs of high quality in the fields of pharmacy and medical laboratories to improve healthcare services through educational programs in accordance with quality standards that can support national pharmaceutical industries, market needs and serve community.

▪ **Aims:**

1. To be excellence in the provision of educational programs in the areas of pharmacy and laboratories that earn the student necessary knowledge and skills to meet the needs of the labor market.
2. Encouraging and supporting scientific research in the fields of pharmacy and laboratories science.
3. Providing educational environment of high quality in accordance with the modern techniques of education.
4. Serve the community, manage the safe and efficient distribution of medications through practicing in an ethical, legal manner and according to the GMP and GPP guidelines.
5. Performing students ,the pharmaceuticals qualitative and quantitative analytical techniques according to GLP and GPMP guidelines to assess the quality and quantity of raw materials from natural or synthetic sources and different pharmaceutical products.

4. Vision, Mission & Aims of the Department

▪ **Vision:**

Leadership and excellence in the field of teaching pharmacy science locally and internationally

▪ **Mission:**

To prepare graduates who are competent, professional and ethical in pharmaceutical science, offering and providing healthcare services in accordance with quality standards to provide the health-related needs of the society and be the first department in Yemen in this field.

▪ **Aims:**

- 1) Preparing specialized graduates in the field of pharmaceutical science, who are well-qualified at the academic and professional levels, in accordance with international quality assurance standards.
- 2) Continue development of the department academic programs and updating them to cope with recent development of society and its needs.
- 3) Developing a partnership with the public and private sectors by conducting studies and providing consultancy in information technology filed.
- 4) Provide students with basic concepts and skills of research and develop their initiative and ability to carry out independent research as a basis for further postgraduate study in the field.
- 5) Training students to think critically, communicate effectively and work in a team.

5. Program References

This program based on a number of similar references and programs in the Yemeni, regional and international universities, which include the following:

Academic Standards:

- National Academic Reference Standards for Health Sciences(NARS) which is based on Accreditation Council for Pharmacy Education (ACPE) <http://naqaae.eg/wp-content/uploads/2014/10/NARS-Pharmacy-final-version.pdf>

Government Guidelines

- Law No. (13/2005) concerning universities, higher institutes and private colleges and its executive regulations.
- Standards of the Council of Quality and Academic Accreditation.

Similar Programs:

#	University Name	Faculty	Department	Country	Program Accrediting Body	Univ. Website
1	University of Jordan	Faculty of Pharmacy	Department of Pharmacy	Jordan	ACPE	www.pharmacy.ju.edu.jo
2	Sharjah University	Pharmacy College	Department of Pharmacy	Sharjah. UAE	CCAP	www.sharjah.ac.ae
3	Ajman University	Pharmacy College	Department of Pharmacy	Ajman. UAE	CCAP	www.ajman.ac.ae
4	USM	Pharmacy College	Department of Pharmacy	Malaysia	MHE	www.pha.usm.my/pharmacy
5	Kansas University	Pharmacy College	Department of Pharmacy	Kansas. USA	ACPE	www.ku.edu
	University of Connecticut	Pharmacy College	Department of Pharmacy	Connecticut, USA	ACPE	www.pharmacy.uconn.edu



#	Current Program 173		University of Ajman 160		University of Sharjah 170		University of Jordan 163		University of Connecticut 137		University of Kansas 134	
	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours
		CH		CH		CH		CH		CH		CH
1	Arabic language101	2	Communication Skills In Arabic Language	3	Arabic Language	3	Basics in Arabic Language	3				
2	English language 1	2			English for Medical Sciences	3	Basics in English Language		English 1011 or 1010	4	English 101	3
3	Islamic culture	2	Islamic Culture	3	Islamic Culture	3						
4	Arabic Language 102	2					Communication Skills In Arabic Language	3				
5	English Language 2	2					Communication Skills In English Language				English 102	3
6	Introduction to Computer	2	Computer Applications	3			Computer skills for pharmacy College	3				
7	General Biology	3			Human Biology	3	General Biology	4	Principles of Biology	4	General biology II	3
8	General Chemistry	3			Chemistry for Pharmacy	4	General Chemistry	4	General Chemistry	4	General Chemistry I	3
9	Physiology 1	2	Anatomy & Physiology 1		Pathophysiology I	3	Physiology for Pharmacy 1		Human Physiology & Anatomy I	4		
10	Anatomy	2		4			Anatomy & Histology	2				
11	Organic Chemistry 1	3	Pharmaceutical Organic Chemistry 1	3			Organic Chemistry1	3	Organic Chemistry I	3	Organic Chemistry I	3



#	Current Program 173		University of Ajman 160		University of Sharjah 170		University of Jordan 163		University of Connecticut 137		University of Kansas 134	
	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours
		CH		CH		CH		CH		CH		CH
12	Analytical Chemistry 1	3	Pharmaceutical Analytical Chemistry 1	3					General Chemistry II	4	General Chemistry II	3
13	Physiology 2	2	Anatomy & Physiology 2	3	Pathophysiology II		Physiology 2	2	Human Physiology & Anatomy I	4		
14	Histology	3					Anatomy & Histology	2				
15	First Aids	2										
16	Public Health	2	Environmental Science	3					Public Health & Health care policy	3	Health Care	3
17	Physical Pharmacy	3	Physical Pharmacy I	3	Pharmaceutics A		Physical Pharmacy	3			Physical Chemical Principles of Solution Dosage Forms	
18	Biostatistics	2	Statistics	3	Statistics for Pharmacy	3	Pharmaceutical Statistics	2			Statistics	3
19	Introduction to Pharmacy History	2	Introduction to Pharmacy	3	Introduction to Pharmacy Practice	2			Pharmacy History & Ethics	2	Introduction to Pharmacy	1
20	Botany	3	Botany	3							Botany (General Biology I)	3
21	Pharmaceutics 1	3	Physical pharmacy II	3	Pharmaceutics B	3	Calculation & Compounding dosage forms	3	Foundations in Pharmaceutics I	5		
22	Immunology & Serology	2							Immunology	2		



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	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours
		CH		CH		CH		CH		CH		CH
23	Pharmaceutical Calculation	2			Calculus for Pharmacy	3	Calculation & Compounding dosage forms	3	Calculus	4	Pharmacy Calculations	4
24	Organic Chemistry 2	3	Pharmaceutical Organic Chemistry 2	3					Organic Chemistry II	3	Organic Chemistry II	3
25	Analytical Chemistry 2	3	Pharmaceutical Analytical Chemistry 2	3			Pharmaceutical analytical Chemistry	2			General Chemistry II	2
26	Pharmaceutics 2	3	Pharmaceutical Dosage Forms 1		Pharmaceutics IA		Pharmaceutical technology		Foundations in Pharmaceutics II	4		
27	Psychology	2			Introduction to Psychology (elective)	3			Psychology	2		
28	Organic Chemistry 3	3									Organic Chemistry III	2
29	Analytical Chemistry 3	3	Instrumental analysis 1	3			Instrumental analysis 1	2				
30	Pharmacognosy1	3	General Pharmacognosy	4	Pharmacognosy	4						
31	Pharmaceutics 3	3	Pharmaceutical dosage forms 2	3	Pharmaceutics IB	3	Pharmaceutical Technology 2	2				
32	Microbiology1	3	Pharmaceutical Microbiology & Immunology	4	Pharmaceutical Microbiology I	3	Pharmaceutical MicrobiologyI 1	3	Fundamentals of Microbiology	4	Microbiology I	3
33	Biochemistry 1	3	Biochemistry 1	3	Biochemistry	4	Biochemistry 1	2	Biochemistry	4-5	Medicinal BiochemistryI	4
34	Organic Chemistry 4	3									Organic Chemistry IV	2



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	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours
		CH		CH		CH		CH		CH		CH
35	Pharmacognosy2	3										
36	Pharmaceutics 4	3	Pharmaceutical Dosage FormsIII									
37	Microbiology2	3					Pharmaceutical MicrobiologyI 2	3			Microbiology II	2
38	Biochemistry 2	3	Biochemistry II	3			Biochemistry 2	3			Medicinal Biochemistry II	4
39	Pharmacology 1	2	Pharmacology & Therapeutics I	3	Pharmacology IA	3	Pharmacology 1	3	Principles of Drug Action & Gastroenterology Module	5	Pharmacology I	3
40	Medicinal Chemistry 1	3	Medicinal & Pharmaceutical Chemistry I	3	Medicinal Chemistry IA	3	Medicinal Chemistry 1	3			Medicinal Chemistry I	4
41	Phytochemistry 1	3	Phytochemistry I	4			Phytochemistry & Plant Therapy 1					
42	Biopharmaceutics & Pharmacokinetics 1	3	Biopharmaceutics & Pharmacokinetics I	3	Pharmaceutics IIA	3	Biopharmaceutics	2	Pharmacokinetics /Biopharmaceutics	3	Biopharmaceutics & Drug delivery	3
43	Pharmacology2	2	Pharmacology & Therapeutics II	3	Pharmacology IB	3	Pharmacology 2	3	Endocrine Module	3	Pharmacology II	3
44	Pathology	2	Pathology	2								
45	Toxicology	3	Toxicology & Chemotherapy	3	Toxicology (special Topics in Pharmacy)	3	Toxicology	2				
46	Medicinal Chemistry 2	3	Medicinal & Pharmaceutical Chemistry II	3	Medicinal Chemistry IB	3					Medicinal Chemistry II	3



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	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours
		CH		CH		CH		CH		CH		CH
47	Phytochemistry 2	3					Phytochemistry & Plant Therapy 2					
48	Biopharmaceutics & Pharmacokinetics 2	3	Biopharmaceutics & Pharmacokinetics II		Pharmaceutics IIB	3	Pharmacokinetics	3			Pharmacokinetics	3
49	Pharmacology 3	2			Pharmacology IIA	3			Immunology Module		Pharmacology III	3
50	Parasitology	2										
51	Medicinal Chemistry 3	3			Medicinal Chemistry IIA	3						
52	Applied Pharmacognosy	3										
53	Clinical Pharmacy 1	3	Clinical Pharmacy I	3	Clinical Pharmacy IA	3	Therapeutics 1	3				
54	Pharmacology 4	2			Pharmacology IIB	3			Neurology Module & Psychiatry module	4+ 5	Pharmacology IV	3
55	Industrial Pharmacy 1	3	Pharmaceutical Technology	2								
56	Quality control	3										
57	Community Pharmacy	3	OTC Drugs & Products	3	Principles of OTC Therapy	3	OTC drugs	2			Introductory Pharmacy Practice Experience Community	4



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	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Cours e Hours	Course	Course Hours	Course	Course Hours
		CH		CH		CH		CH		CH		CH
58	Medicinal Chemistry 4	3										
59	Hospital Pharmacy	2									Hospital & Health System Pharmacy	1
60	Clinical Pharmacy 2	3			Clinical Pharmacy IB		Therapeutics 2					
61	Drug design	2			Drug Development	3						
62	Industrial Pharmacy 2	3										
63	Drug Marketing	2	Marketing & Sales				Pharmaceutical Marketing	3				
64	Cosmetics	3					Cosmetics	2				
65	Research Methodology	2										
66	Graduation Project	4	Project	3	Graduation Project	4						

6. Graduate Attributes:

At the end of the program, the BPharm graduates are expected to be:

- **Knowledgeable:** they will have comprehensive knowledge associated with practice of pharmacy.
- **Professional:** they will be able to recall knowledge of manufacturing and development of pharmaceutical products and pharmacy practice
- **Care Provider:** will be able to provide patients with pharmaceutical care.
- **Ethical:** acting responsibly **in preparing and dispensing medications legally**, ethically and with integrity within social and cultural contexts.
- **Problem solver:** identifying and solving problems related to pharmacy practice.
- **Communicator:** able to communicated with pharmacists, patients and other health care providers.
- **Leader:** able to tackle necessary pharmacy administrative duties and pharmacy practice.
- **Lifelong learning:** have self-commitment to **independent** and lifelong learning using up to date technology.
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7. Intended Learning Outcomes:

At the end of this program student will:

A- Knowledge and understanding:

- (A1) Demonstrate knowledge of essential pharmaceutical sciences.
- (A2) Know basic principles of biopharmaceutic & pharmacokinetic , its application in therapeutic usage of medicine and bioequivalence studies.
- (A3) Acquire the required knowledge of all basic ,assisting or behavioral sciences.

B- Cognitive skills:

- (B1) Join the knowledge and understanding of principles related to pharmaceutical sciences
- (B2) Apply the pharmaceutical knowledge in designing safe & effective drug and dealing with novel drug delivery system(NDDS) and ability in applying modern scientific methods for analysis.
- (B3) Explain the stages of pharmaceutical industry & apply principles of good manufacturing practice(GMP) and choose the suitable methods of extraction ,manufacturing ,detecting and titration of active ingredient from their different sources.
- (B4) Detect the reasons of medical interaction in prescriptions to minimize medical errors and Classify drugs according to function ,chemical structure and detect their structure activity relationship (SAR) in addition to differentiate drug dosage forms.

C- Professional and practical skills:

- (C1) Calculate the suitable doses for each age ,sex or medical case & use the medical terms and Choose drugs depending on clear understanding of disease causes and give advice to individuals of community about safe and effective use of drugs (especially OTC drugs) in addition to practice skills of marketing.
- (C2) Extract , formulate ,manufacture , dispense drugs and perform quality control tests(Q.C) according to GMP .
- (C3) Use efficiently the laboratory instruments and devices required in preparation or analyzing.
- (C4) Perform required tests and bioequivalence studies.

D- General and transferal Skills:

- (D1) Communicate effectively with health care team and practice the marketing skills of medicines.

- (D2) Demonstrate transition from a dependent to an active self-directed learner and take evidence decisions based on regular practice of searching.
- (D3) Use effectively relevant and appropriate technologies to enhance learning and communication.

8. Teaching Strategy

It includes description of teaching strategies to achieve learning outcomes of the program (lecture, seminar, laboratory, groups, etc. with description of how to use them and average of each in every course

Teaching Strategy	Description of how it will be used
Lectures	It is the most frequently employed teaching method to convey knowledge and explain theories to students .
Seminars	These are mainly used with small groups of students discussing and negotiating the different concerns of their studies.
Lab experiments	Students doing practices in pharmaceutical sciences
Cooperative learning	Helps the students to work with each other so as to foster their abilities in problem-solving and creativity.
Field visits and training	Field visits to the pharmaceutical companies, medical laboratories and medical facilities .
Dialogue and discussion	Allowing the students to ask questions during the lecture
Training at computer labs	Used mainly in pharmaceutical laboratories, industrial plant and hospitals
Presentations	Helps the students to be more confident with themselves by showing what knowledge they have acquired
Self-learning	Self-learning is the process by which learners teach themselves
Training in Biochemical Labs	Students learn practical labs, and acquire skills in field of study

9. Assessment Strategy

Regulation and rules of setting for exams (do the program have its own regulations and rules and special conditions or it is according the faculty roles) Describe the way in which assessment is used across the program to achieve its teaching and learning outcomes

Assessment Strategy	Its description(in which course it will be used and in which rate)
Midterm tests	Closed – book examinations are used in all levels.
Final exam	Closed – book examinations are used in all.
Oral tests	This type of exams is allotted to test the oral proficiency of the students involved in the program.
Quizzes	This method of evaluation is used in most of the courses given in the program.
Reports' and projects evaluation.	Coursework such as "Research Papers"; reports; presentations used in many courses.

Interviews and evaluating the presentation	Most of the courses in the program will use these tasks to foster the students to work hardy and constantly.
Oral discussion.	These kinds of tasks are to be performed in the class in order to create in the students the sense of cooperation and team work.
Home Work	By Assignment individually or in group

10.Intended learning outcomes (ILOs) of the Program:

(A) Alignment Program Intended Learning Outcomes of Knowledge and Understanding to Teaching Strategies and Assessment Strategies:

Program Intended Learning Outcomes	Teaching strategies	Assessment Strategies
A1, A2,A3	Lectures Practical Discussion Training	Midterm tests Final exam Oral tests Quizzes.

(B) Alignment Program Intended Learning Outcomes of Intellectual Skills to Teaching Strategies and Assessment Strategies:

Program Intended Learning Outcomes	Teaching strategies	Assessment Strategies
B1 , B2, B3,B4	Theoretical Lectures Practical Lectures Discussion Presentations Brain Storm Problems solving. Training	Midterm tests Final exam Oral exam Quizzes Reports' presentation Oral discussion.

(C) Alignment Program Intended Learning Outcomes of Professional and Practical Skills to Teaching Strategies and Assessment Strategies:

Program Intended Learning Outcomes	Teaching strategies	Assessment Strategies
C1, C2, C3,C4	Training Assignments Discussion	Midterm tests Final exam



	Presentations Brain Storm Problems Solving	Oral exam Quizzes Reports' presentation Oral discussion.
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(D) Alignment Program Intended Learning Outcomes of Transferable Skills to Teaching Strategies and Assessment Strategies:

Program Intended Learning Outcomes	Teaching strategies	Assessment Strategies
D1, D2,D3	Assignment Lab experiments Field visits Training Presentations	Reports' presentation Oral discussion.



11. Curriculum Map

Write sub Learning Outcomes, attached it with the program specification document, it should be used as a base to write the curriculum map. The curriculum map will be designed in a table containing courses of the program. It should also indicate the relationships or contribution of each course in achieving the program main and sub-learning outcomes.

Program ILOs																
#	Course Code	Courses	Knowledge and Understanding			Intellectual Skills				Professional and Practical Skills				Transferable Skills		
			A1	A2	A3	B1	B2	B3	B4	C1	C2	C3	C4	D1	D2	D3
1	CEU1121	Physical Pharmacy	✓			✓	✓					✓	✓	✓	✓	✓
2	CR1213	Biostatistics			✓	✓	✓	✓		✓		✓		✓	✓	✓
3	CEU1222	Introduction to Pharmacy History			✓	✓								✓		
4	COG1231	Botany	✓			✓	✓					✓	✓	✓	✓	
5	CEU2123	Pharmaceutics 1	✓			✓	✓	✓	✓		✓		✓	✓	✓	✓
6	ASS2181	Immunology	✓		✓	✓								✓	✓	
7	CEU2124	Pharmaceutical Calculation			✓	✓				✓		✓		✓	✓	
8	MCH2252	Organic Chemistry 2			✓	✓	✓		✓			✓	✓	✓	✓	
9	ACH2272	Analytical Chemistry 2			✓	✓	✓	✓				✓	✓	✓	✓	
10	CEU2225	Pharmaceutics 2	✓			✓	✓		✓		✓	✓	✓	✓	✓	✓
11	ASS2282	Psychology			✓	✓								✓	✓	
12	MCH3253	Organic Chemistry 3			✓	✓	✓		✓			✓	✓	✓	✓	
13	ACH3173	Analytical Chemistry 3			✓	✓	✓					✓	✓	✓	✓	
14	COG3132	Pharmacognosy1	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓
15	CEU3126	Pharmaceutics 3	✓			✓	✓		✓		✓	✓	✓	✓	✓	✓
16	ASS3183	Microbiology1		✓	✓	✓	✓					✓	✓	✓	✓	✓
17	ASS3184	Biochemistry 1		✓	✓	✓	✓					✓	✓	✓	✓	✓



18	MCH3254	Organic Chemistry 4			✓	✓	✓					✓	✓	✓	✓	✓
19	COG3233	Pharmacognosy2	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓
20	CEU3227	Pharmaceutics 4	✓			✓	✓				✓		✓	✓	✓	✓
21	ASS3285	Microbiology2		✓	✓	✓	✓			✓		✓	✓	✓	✓	✓
22	ASS3286	Biochemistry 2		✓	✓	✓	✓			✓		✓	✓	✓	✓	✓
23	COL3241	Pharmacology 1	✓	✓		✓			✓	✓				✓	✓	
24	MCH4155	Medicinal Chemistry 1	✓	✓		✓	✓		✓			✓	✓	✓	✓	✓
25	COG4134	Phytochemistry 1	✓			✓	✓		✓			✓	✓	✓	✓	✓
26	CEU4128	Biopharmaceutics & Pharmacokinetic 1	✓	✓	✓	✓							✓	✓	✓	✓
27	COL4142	Pharmacology2	✓	✓		✓			✓	✓				✓	✓	
28	ASS4187	Pathology		✓	✓	✓								✓	✓	
29	COL4143	Toxicology			✓	✓	✓						✓	✓	✓	
30	MCH4256	Medicinal Chemistry 2	✓	✓		✓	✓		✓			✓	✓	✓	✓	✓
31	COG4235	Photochemistry 2	✓			✓	✓		✓			✓	✓	✓	✓	✓
32	CEU4229	Biopharmaceutics & Pharmacokinetic 2	✓	✓		✓	✓					✓	✓	✓	✓	✓
33	COL4244	Pharmacology3	✓	✓		✓			✓	✓				✓	✓	
34	ASS4288	Parasitology			✓	✓								✓	✓	
35	MCH5157	Medicinal Chemistry 3	✓			✓	✓		✓			✓	✓	✓	✓	✓
36	COG5136	Applied Pharmacognosy	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓
37	MAC5163	Clinical Pharmacy 1	✓			✓			✓	✓				✓	✓	
38	COL5145	Pharmacology 4	✓	✓		✓			✓	✓				✓	✓	
39	MAC5161	Industrial Pharmacy 1	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓
40	MAC5165	Quality control	✓			✓					✓	✓	✓	✓	✓	✓
41	MAC5166	Community Pharmacy	✓			✓				✓				✓	✓	
42	MCH5258	Medicinal Chemistry 4	✓			✓	✓		✓			✓	✓	✓	✓	✓
43	MAC5267	Hospital Pharmacy	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
44	MAC5264	Clinical Pharmacy 2	✓			✓			✓	✓				✓	✓	



45	MCH5259	Drug Design	✓			✓			✓	✓				✓	✓	✓
46	MAC5262	Industrial Pharmacy 2	✓			✓	✓	✓			✓	✓	✓	✓	✓	✓
47	ASS5289	Drug Marketing	✓		✓	✓				✓				✓		
48	CEU5230	Cosmetics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	
49	CR5220	Research Methodology				✓									✓	
50	ER5281	Graduation Project				✓				✓	✓	✓	✓	✓	✓	✓

12. Program Study System

- Time required to complete the program
- Number of hours and percentage of total program hours distributed as a whole

Credit hours	No. Of Credit hours	Percentage of total program hours
University Requirements	12	07%
Faculty Requirements	27	16%
Program Requirements	134	77%
Total Program Credit Hours	173	100%

13. Admission Requirements

Specify the criteria of admission in the program process, such as percentage of secondary school, audition, placement tests, or interview.

- Student must be got Secondary science certificate (High school at least **70%**).
- Original documents and going throw admission process.
- Pass the assessment and testing of the admission or personal interview committee under the applicable regulations.
- Completing university admission application form
- Payment of the tuition fees specified in the Financial Regulations at the beginning of the academic year.
- The applicant has not been dismissed from any other university due disciplinary reasons.
- No admission allowed in two program at the same time.

14. Attendance requirements

Clarifying the rules and regulations which specify conditions of progression from level to other in order to proceed to the next year. rules and regulations to drop out or to transfer to another program in the same faculty.

All roles are taken from the Univ. system for student affairs and we notice on the main points:

- Pass all courses with maximum mark percent 100% and minimum mark percent 50%
- For practical courses student must pass the 2 parts theoretical and practical
 - Pass theoretical part with minimum mark percent 35%
 - Pass practical part with minimum mark percent 35%
 - The total mark for the 2 parts not less than 50%
- Student goes from study level to the next with no more than 3 failed courses

15. Graduation Requirements

Clarifying the rules and regulations which specify conditions of the graduation from the program

- Must pass all courses with total credit hours 159 hours
- Minimal limit of marks to pass in each of the program courses: 50 Marks
- Successful Completion of Graduation Project.

16. Study Plan

First components of the study plan

The study plan in the Department of pharmacy consists of **(173 credit hours)** distributed as follows in the table

#	Requirement Type	Credit Hours
1	University Requirement	12
2	Faculty Requirement	27
3	Program Requirement	134
Total of credit hours		173

Second University Requirement

#	Course Code	Course Name	Credit. Hours
1	UR1102	Arabic language101	2
2	UR1104	English language 1	2
3	UR1101	Islamic culture	2
4	UR1201	Arabic Language 102	2
5	UR1205	English Language 2	2
6	UR1206	Introduction To Computer	2
Total of credit hours			12

Third Faculty Requirement

#	Course Code	Course Name	Credit. Hours
1	CR1111	Biology	3
2	CR1112	General Chemistry	3
3	CR2114	Physiology 1	2
4	CR2115	Anatomy	2
5	MCH2151	Organic Chemistry 1	3
6	ACH2171	Analytical Chemistry 1	3
7	CR2216	Physiology 2	2
8	CR2217	Histology	3
9	CR4118	First Aids	2
10	CR4219	Public Health	2
11	CR5220	Research Methodology	2
Total of credit hours			27



Fourth Program Requirement

	Course Code	Course Name	Credit. Hours
1	CEU1121	Physical Pharmacy	3
2	CR1213	Biostatistics	2
3	CEU1222	Introduction to Pharmacy history	2
4	COG1231	Botany	3
5	CEU2123	Pharmaceutics 1	3
6	ASS2181	Immunology and serology	2
7	CEU2124	Pharmaceutical Calculation	2
8	MCH2252	Organic Chemistry 2	3
9	ACH2272	Analytical Chemistry 2	3
10	CEU2225	Pharmaceutics 2	3
11	ASS2282	Psychology	2
12	MCH3253	Organic Chemistry 3	3
13	ACH3173	Analytical Chemistry 3	3
14	COG3132	Pharmacognosy1	3
15	CEU3126	Pharmaceutics 3	3
16	ASS3183	Microbiology1	3
17	ASS3184	Biochemistry 1	3
18	MCH3254	Organic Chemistry 4	3
19	COG3233	Pharmacognosy2	3
20	CEU3227	Pharmaceutics 4	3
21	ASS3285	Microbiology2	3
22	ASS3286	Biochemistry 2	3
23	COL3241	Pharmacology 1	2
24	MCH4155	Medicinal Chemistry 1	3
25	COG4134	Phytochemistry 1	3
26	CEU4128	Biopharmaceutics & Pharmacokinetic 1	3
27	COL4142	Pharmacology2	2
28	ASS4187	Pathology	2
29	COL4143	Toxicology	3
30	MCH4256	Medicinal Chemistry 2	3
31	COG4235	Photochemistry 2	3
32	CEU4229	Biopharmaceutics & Pharmacokinetic 2	2
33	COL4244	Pharmacology3	2
34	ASS4288	Parasitology	3
35	MCH5157	Medicinal Chemistry 3	3
36	COG5136	Applied Pharmacognosy	3
37	MAC5163	Clinical Pharmacy 1	3
38	COL5145	Pharmacology 4	2
39	MAC5161	Industrial Pharmacy 1	3
40	MAC5165	Quality control	3
41	MAC5166	Community Pharmacy	3



	Course Code	Course Name	Credit. Hours
42	MCH5258	Medicinal Chemistry 4	3
43	MAC5267	Hospital Pharmacy	2
44	MAC5264	Clinical Pharmacy 2	3
45	MCH5259	Drug Design	2
46	MAC5262	Industrial Pharmacy 2	3
47	ASS5289	Drug Marketing	2
48	CEU5230	Cosmetics	3
49	ER5281	Graduation Project	4
Total of credit hours			134

Fifth Semesters Plans for the Bachelor of Pharmacy Program (173 credit hours)

Year 1 (Semester 1)

#	Course Code	First Year / First Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	CEU1121	Physical Pharmacy	2		2		3
2	CR1112	General Chemistry	2		2		3
3	CR1111	Biology	2		2		3
4	UR1104	English language 1	2				2
5	UR1101	Islamic culture	2				2
6	UR1102	Arabic language101	2				2
Total of Credit Hours			15				

Year 1 (Semester 2)

#	Course Code	First Year/ Second Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	COG1231	Botany	2		2		3
2	CEU1222	Introduction To Pharmacy History	2				2
3	CR1213	Biostatistics	2				2
4	UR1206	Introduction To Computer	2				2
5	UR1205	English Language 2	2				2
6	UR1201	Arabic Language102	2				2
Total of Credit Hours			13				

Year 2 (Semester 1)

#	Course Code	Second Year/ First Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	CEU2124	Pharmaceutical Calculation	2				2
2	ACH2171	Analytical Chemistry1	2		2		3
3	ASS2181	Immunology& serology	2				2
4	CEU2123	Pharmaceutics 1	2		2		3
5	MCH2151	Organic Chemistry 1	2		2		3
6	CR2115	Anatomy	2				2
7	CR2114	Physiology 1	2				2
Total of Credit Hours			17				

Year 2 (Semester 2)

#	Course Code	Second Year / Second Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	ASS2282	Psychology	2				2
2	ACH2272	Analytical Chemistry2	2		2		3
3	CEU2225	Pharmaceutics 2	2		2		3
4	MCH2252	Organic Chemistry 2	2		2		3
5	CR2217	Histology	2		2		3
6	CR2216	Physiology 2	2				2
Total of Credit Hours			16				

Year 3 (Semester 1)

#	Course Code	Third Year / First Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	ASS3183	Microbiology1	2		2		3
2	ASS3184	Biochemistry 1	2		2		3
3	CEU3126	Pharmaceutics 3	2		2		3
4	COG3132	Pharmacognosy1	2		2		3
5	ACH3173	Analytical Chemistry 3	2		2		3
6	MCH3253	Organic Chemistry 3	2		2		3
Total of Credit Hours			18				

Year 3 (Semester 2)

#	Course Code	Third Year / Second Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	ASS3285	Microbiology2	2		2		3
2	ASS3286	Biochemistry 2	2		2		3
3	COL3241	Pharmacology 1	2				2
4	CEU3227	Pharmaceutics 4	2		2		3
5	COG3233	Pharmacognosy2	2		2		3
6	MCH3254	Organic Chemistry 4	2		2		3
Total of Credit Hours			17				

Year 4 (Semester 1)

#	Course Code	Fourth Year / First Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	COL4142	Pharmacology2	2				2
2	CR4118	First Aids	2				2
3	COL4143	Toxicology	2		2		3
4	ASS4187	Pathology	2				2
5	CEU4128	Biopharmaceutics & Pharmacokinetic 1	2		2		3
6	COG4134	Phytochemistry 1	2		2		3
7	MCH4155	Medicinal Chemistry 1	2		2		3
Total of Credit Hours			18				

Year 4 (Semester 2)

#	Course Code	Fourth Year / Second Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	CR4219	Public Health	2				2
2	ASS4288	Parasitology	2		2		3
3	COL4244	Pharmacology3	2				2
4	CEU4229	Biopharmaceutics & Pharmacokinetic 2	2				2
5	COG4235	Phytochemistry 2	2		2		3
6	MCH4256	Medicinal Chemistry 2	2		2		3
Total of Credit Hours			15				

Year 4 (Field Training)

#	Course Code	Level 4 / summer course	Contact Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	PH4246	Field Training level 4				250	

Year 5 (Semester 1)

#	Course Code	Fifth Year / First Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	COG5136	Applied Pharmacognosy	2		2		3
2	MAC5166	Community Pharmacy	2		2		3
3	MAC5165	Quality control	2		2		3
4	MAC5161	Industrial Pharmacy 1	2		2		3
5	COL5145	Pharmacology 4	2				2
6	MAC5163	Clinical Pharmacy 1	2		2		3
7	MCH5157	Medicinal Chemistry 3	2		2		3
Total of Credit Hours			20				

Year 5 (Semester 2)

#	Course Code	Fifth Year / Second Semester	Credit Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	CEU5230	Cosmetics	2		2		3
2	MCH5259	Drug Design	2				2
3	ASS5289	Drug Marketing	2				2
4	MAC5264	Clinical Pharmacy 2	2		2		3
5	MAC5267	Hospital Pharmacy	2				2
6	MAC5262	Industrial Pharmacy 2	2		2		3
7	MCH5258	Medicinal Chemistry 4	2		2		3
8	CR5220	Research Methodology	2				2
9	ER5281	Graduation Project			8		4
Total of Credit Hours			24				

Year 5 (Field Training)

#	Course Code	Level 5 / summer course	Contact Hours				Total
		Course Name	Theoretical	Seminar	Practical	Training	
1	PH5247	Field Training level 5				250	

17. Facilities required to implement the program

- a. Learning Resources:
 - Books
 - Journals and periodicals
 - Thesis (Master + PhD)
 - Articles and research in the web.
 - Electronic library.
- b. Equipment, tools and educational materials
 - Projectors
 - Classrooms
 - Wi-Fi internet
 - Labs equipped

18. Evaluation and improvement of the program

- Evaluation of the learning outcomes of the program:

#	Evaluation Tool	Program Intended learning outcomes
1	Graduation Tracking	Knowledge, understanding and general skills
2	assessment	Knowledge, understanding and mental skills

Program Coordinator:

Head of Department: Prof. Maged Alwan

University's president:

Republic of Yemen

AL-YEMENIA UNIVERSITY

MEMBER OF ASSOCIATION OF ARAB UNIVERSITIES



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الجامعة اليمنية

عضو عامل باتحاد الجامعات العربية

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First Year / First Semester



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Course specification of Physical Pharmacy

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Physical Pharmacy			
2	Course Code & Number:	CEU1121			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	First Year / First Semester			
5	Pre –requisite (if any):				
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Majed Alwan			
12	Date of approval:	Dr. Hamoud Abdullah			

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1- AIMS OF THE COURSE:

1. Acquire detailed knowledge and understanding concerning physicochemical properties of drugs and excipients that could affect drug performance and the development of an efficacious dosage form.
2. Recognize how to utilize these principles in the design of active drugs and pharmaceutical dosage forms.
3. Explain the relationship between the physicochemical principles, pharmaceutical formulations and biological activity of drugs.



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2- INTENDED LEARNING OUTCOMES: [ILOs:]

A-Knowledge and Understanding:

- a1. Recognize the significance of solubility, distribution phenomena & adsorption phenomena in pharmaceutical systems and in the bioavailability of drugs.
- a2. Describe adsorption & the contribution of diffusion & solubility processes to drug absorption and how this affecting the action of the drug in particular disease.
- a3. Explain Micrometrics & the origin and the consequences of the interfacial phenomenon and different modes of drug decomposition & adsorption.
- a4. Acquire the required knowledge of correct administration for Various dosage forms.
- a5. Classify matter; distinguish between physical and chemical properties/changes.

B-Intellectual Skills:

- b1. Distinguish different types of matters.
- b2. Analyze pharmaceutical degradation data and relate it to drug stability.
- b3. Correlate the concepts of interfacial phenomena & micrometrics with the formulation and stability of colloidal preparations.
- b4. Correlate solubility, permeability, diffusion, adsorption properties & micromeritics of drug material to its bioavailability that meet the health care professionals.
- b5. Predict possible complexation related problems in pharmaceutical systems based on chemical structures.

C-Practical Skills:

- c1. Perform on laboratory instruments and devices used in preparation and analyzing of pharmaceuticals.
- c2. Apply extraction, adsorption, viscosity, crystallization & density processes.
- c3. Apply flowability evaluation measurement of surface tension.
- c4. Identify drug incompatibility reactions.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:



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NO	TOPICS	Sub topic	NO OF HOURS	No of Lectures
1	Solubility	<ul style="list-style-type: none"> Determination of solubility <ul style="list-style-type: none"> Techniques of aqueous solubility determination of non-ionized, ionized and unstable drugs Factors/ parameters affecting solubility Enhancement of solubility Extraction Solubility and partitioning coefficient <p>Preservative action in oil-water systems</p>	4	2
2	Principles of dissolution	<ul style="list-style-type: none"> Dissolution process and its mathematical treatment; Intrinsic dissolution Particulate/ multiparticulate dissolution Modeling and equations Dissolution test design <p><i>In vitro</i> dissolution of solid dosage forms; <i>In vitro</i> - <i>in vivo</i> correlations of dissolution</p>	4	2
3	Rheology	<ul style="list-style-type: none"> Principles of rheology. Measuring methods in the rheology. 	2	1
4	Surface tension	<ul style="list-style-type: none"> Surface tension surfactants critical micelle concentration(CMC) Effect of counter ion and temperature on surface tension and temperature on CMC-values <p>Pharmaceutical applications of surfactants</p>	4	2
5	Adsorption	<ul style="list-style-type: none"> Adsorption at solid surfaces adsorption isotherms 	2	1
6	Powders and rheology of powders	<ul style="list-style-type: none"> Micromeritics and characterization of powders Shape factors Angle of repose Flowability& aging Effect of glidants compatibility Parenteral powders 	4	2
7	Complexation	<ul style="list-style-type: none"> Metal complexes Organic molecular complexes inclusion compounds methods of analysis <p>crystalline structure of complexes</p>	2	1



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8	Drug and formulation stability	<ul style="list-style-type: none"> 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 Physical stability testing Highlights on accelerated/ ambient/ controlled physical stability testing of solutions, disperse systems, aerosols, coated/ uncoated tablets, gelatin capsules, and sustained release products Degradation mechanisms. Pharmaceutical stability problems (hydrolysis, oxidation, photodegradation, ...) Determination of shelf life and recommended storage conditions 	4	2
9	Incompatibility	<ul style="list-style-type: none"> Compatibility test for solid and liquid dosage forms Incompatibility studies by DSC and XRD Use of differential scanning calorimetry (DSC) and X-ray diffraction (XRD) in carrying out incompatibility studies 	2	1
Total			28	14
b - Practical Aspect;				
Ordr	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	



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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
Number of Weeks/and Units Per Semester		14	28

E. TEACHING AND LEARNING METHODS;

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

F. ASSIGNMENTS AND PROJECTS:

No	Assignment	Week Due	Mark
1	Assignment	9	5

G. STUDENT ASSESSMENT METHODS: (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)	12	50	50%
Total			100	100%

H. REFERENCES

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, 21st Edition, Williams and Wilkins. Maryland, USA.

2-Recommended Books and Reference Materials.

Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10thedition., Williams and Wilkins. Maryland, USA.



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3-Electronic Materials and Web Sites etc.

www.go.jblearning.com/basicphysicalpharmacy

I. COURSE POLICIES:

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"> 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 | <p>(Tardy):</p> <ul style="list-style-type: none"> 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"> Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam. Students will not be allowed to leave the exam room until unless half of the examination time is passed. 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. 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%. The student will be considered as failed if he broke the regulations and roles of examination. 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. Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so. |
| 4 | <p>(Assignments and Projects):</p> <ul style="list-style-type: none"> The students have to submit the assignment or project on time. 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. |



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(Cheating):

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
- 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.
- 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.

6

(Plagiarism):

- “To plagiarize is to take ideas or words of another person and pass them off as one’s own”.
- Plagiarism will results in losing the marks of the assignments.
- If the students personates other at examination time both will be suspended for a full academic year

7

(Other policies):

- Using mobile or another electronic device capable of storing or transfer data in class during the lecture or the exam is forbidden.
- Abnormal behavior is not acceptable and the student will face a punitive proceedings.
- Eating or drinking is strictly prohibited.



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Course specification of General chemistry

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	General chemistry			
2	Course Code & Number:	CR1112			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	First Year / First Semester			
5	Pre –requisite (if any):				
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Nabeel Al-Qubati			
12	Date of approval:	Dr. Hamoud Abdullah			

B- COURSE DESCRIPTION:

This course provides the pharmacy students with the basic concepts of chemistry, the importance of general chemistry as applied science, measurements and significant figures, SI units, dimensional analysis, physical state of matter, physical and chemical changes, pure substance and mixtures, atom and its structure, an electronic configuration molecules and ions compounds periodic table and periodic properties of an element, chemical formula and chemical equations, calculation based on chemical reaction types, chemical reactions in aqueous solutions, chemical bonds, molecular shape(VSEPR) and hybridization theories, interaction forces in matter, introduction of thermo and kinetic chemistry.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

For students undertaking this course, the aims are to:

1. Recognize basic concepts of matter and its classification.
2. Express mass relationships in chemical reactions.
3. Acquire properties of gases, liquids, and solids.
4. Gain the concepts of thermos chemistry; quantum theory and electronic behavior; periodic relationship of elements in the periodic table; intermolecular forces; and solutions.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Classify matter; distinguish between physical and chemical properties/changes;
- a2. Define and explain the concepts of atomic mass, average atomic mass, mole, molar mass and perform calculations involving these
- a3. Write, explain and apply the gas laws;
- a4. Explain the kinetic molecular theory (KMT) of gases and use the KMT to qualitatively explain the gas laws; argue the differences between ideal and non-ideal gas behavior;
- a5. Use the periodic table to classify elements and predict trends in properties;

B-Intellectual Skills:

- b1. Analyze different types of matters.
- b2. Write different chemical symbols.
- b3. Categorize common processes as exothermic or endothermic and know the sign conventions.
- b4. Trace the various atomic theories; analyze the Bohr model and the line spectra.

C-Practical Skills:

- c1. Perform chemical experiments
- c2. Prepare Chemicals.
- c3. Balance and interpret chemical equations and perform stoichiometric calculations.
- c4. Apply significant figures and appropriate units in all measurements and calculations;
- c5. Empoly electron configurations and orbital diagrams for multi electron atoms.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS	SUB-TOPICS	NO OF HOURS	No of Lectures
1	Introduction to Chemistry:	<ul style="list-style-type: none"> Matter: Classification, States, Physical, and Chemical Properties 	2	1
2	Atoms, Molecules, and Ions:	<ul style="list-style-type: none"> The Atomic Theory The Structure of the Atom Atomic Number, Mass Number, Isotopes The Periodic Table Molecules and Ions Chemical Formulas Naming Compounds 	2	1
3	Mass Relationships in Chemical	<ul style="list-style-type: none"> Atomic Mass Molar Mass of an Element and Avogadro's Number Molecular Mass 	4	2



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	Reaction: <ul style="list-style-type: none"> Reaction Yield 	<ul style="list-style-type: none"> Percent Composition of Compounds Chemical Reactions and Chemical Equations Amounts of Reactants and Products Limiting Reagents 		
4	Gases:	<ul style="list-style-type: none"> Substances That Exist as Gases Pressure of a Gas The Gas Laws The Ideal Gas Equation Gas Stoichiometry Dalton's Law of Partial Pressure The Kinetic Molecular Theory of Gases Deviation from Ideal Behavior 	2	1
5	Thermochemistry:	<ul style="list-style-type: none"> Energy Changes in Chemical Reactions Introduction to Thermodynamics Enthalpy 	2	1
6	Quantum Theory and the Electronic Structure of Atoms:	<ul style="list-style-type: none"> From Classical Physics to Quantum Theory Bohr's Theory of the Hydrogen Atom The Dual Nature of the Electron Quantum Mechanics Quantum Numbers Atomic Orbitals Electron Configuration The Building-Up Principle 	4	2
7	Periodic Relationships Among the Elements:	<ul style="list-style-type: none"> Periodic Classification of the Elements Periodic Variation in Physical Properties Ionization Energy Electron Affinity 	2	1
8	Chemical Bonding: Basic Concepts:	<ul style="list-style-type: none"> Lewis Dot Structure The Ionic Bond The Covalent Bond Electronegativity Writing Lewis Structure The Concept of Resonance Bond Energy 	2	1
9	Chemical Bonding: Molecular Geometry and Hybridization:	<ul style="list-style-type: none"> Molecular Geometry Dipole Moments The Valence Bond Theory Hybridization of Atomic Orbitals Hybridization in Molecules Containing Double and Triple Bonds 	4	2



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10	Intermolecular Forces in Liquids and Solids:	<ul style="list-style-type: none"> The KMT of Liquids and Solids Intermolecular Forces Properties of Liquids Crystalline vs. Amorphous Solids Phase Changes Phase Diagrams 	4	2
	Total		28	14

b. Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Syllabus and Safety	1	2
2	The Laboratory and SI	1	2
3	Basic Laboratory Operations	1	2
4	Measurements	1	2
5	Acids and bases radicals	1	2
6	Acids and bases radicals	1	2
7	Acids and bases radicals	1	2
8	Acids and bases radicals	1	2
9	Enthalpy of reaction	1	2
10	Periodic properties	1	2
11	Kinetic reaction	1	2
Number of Weeks /and Units Per Semester			22

E- TEACHING AND LEARNING METHOD

a) Lectures



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- b) Class discussion
- c) Exercises solving
- d) Collaborative learning / pair work / group work
- e) Assignments

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- ASSESSMENT TASKS

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	6	5	5%
2	Midterm Exam	8	10	10%
3	Quiz + attendance(1-14)	5	5	5%
4	Final Exam	14	40	40%
5	Practical section	(1-12)	40	40%
Total			100	100%

H- REFERENCES:

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

- Chemistry, The Central Science, 12Edition, by Brown, LeMay, Bursten, Murphy, and Woodward, with MasteringChemistry®, ISBN13:9781292021522
- A bound notebook (ISBN: 9781930882744)

2- Recommended Books and Reference Materials:

- Course Notes Handout Texts: Prepared by
- Satyajit D. Sarker and Lutfun Nahar . Chemistry for Pharmacy Students: General, Organic and Natural Product Chemistry. John Wiley & Sons Ltd, The Atrium,



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Southern Gate, Chichester, West Sussex , 2007

- C.V.S. Subrahmanyam, Essentials of Physical Pharmacy, Published by Vallabh Prakashan (2005)

3- Electronic Materials and Web Sites etc.:

- <http://www.evangel.edu/Personal/badgers/Web/GenChemPPTs.htm>
- <http://facstaff.uwa.edu/mcurry/General%20Chemistry%20I%20PowerPoint.htm>
- 3. <http://memo.cgu.edu.tw/ching-shiun/general%20chemistry.htm>

A- Course Policies:

1.	Class Attendance: At least 75 % of the course hours should be attended by the student. Otherwise, will not be allowed to attend the final exam
2.	Tardy: any student who is late for more than 15 minutes from starting the lecture will not be allowed to attend the lecture and will be considered absent.
3.	Exam Attendance/Punctuality: any student who is late for more than 30 minutes from starting the exam will not be allowed to attend the exam and will be considered absent.-
4.	Assignments & Projects: Assignments and projects will be assessed individually unless the teacher request for group work-
5.	Cheating: Cheating by any means will cause the student failure and must re-study the course
6.	Plagiarism: Plagiarism by any means will cause the student failure in the course .and other disciplinary procedures will be according to the college rules
7.	Other policies: <ul style="list-style-type: none"> • The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources. • In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source. • If you want to use visual information from a WWW site, many of the same rules apply. • Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites

Republic of Yemen

AL-YEMENIA UNIVERSITY

MEMBER OF ASSOCIATION OF ARAB UNIVERSITIES



الجمهورية اليمنية

الجامعة اليمنية

عضو عامل باتحاد الجامعات العربية

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Course specification of Biology

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Biology				
2	Course Code & Number:	CR1111				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	First Year / First Semester				
5	Pre –requisite (if any):					
5	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Sultan Najee				
12	Date of approval:	Dr. Hamoud Abdullah				

B. 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

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire understanding and knowledge about general characters and economic importance of different microorganisms.
2. Recognize the basics on which the different microorganisms are classified into major and minor groups.
3. Gain an idea about plant physiology.



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2-INTENDED LEARNING OUTCOMES; [ILOs:]

A-Knowledge and Understanding:

- a1- Discuss the laws governing energy transformations and the role of enzymes in biological systems;
- a2- Differentiate between the main groups of vertebrates and invertebrates and classify organisms into these groups.

B-Intellectual Skills:

- b1- Distinguish light and dark reaction in photosynthesis.

C-Practical Skills:

- c1- Isolate, cultivate and purify microorganism

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS	Sub topic	NO OF HOURS	No of Lectures
1	Introduction to biology:	<ul style="list-style-type: none"> Origin and nature of life, from simplest single-celled forms to complex plants and animals and human beings. Classification and Naming Organisms: principles and problems of classification, taxonomic hierarchy, species concept, binomial nomenclature system of classification. 	4	2
2	Cell Structure and Function:	<ul style="list-style-type: none"> An Overview: cell theory, basic cell structure and function, prokaryotic and eukaryotic cells, cell organelles Membrane Structure and Function: basic models of membrane structure, diffusion, osmosis, dialysis, membrane transport: facilitated diffusion, active transport, endocytosis, exocytosis. Meiosis and mitosis, DNA structure: genes to proteins, simple Mendelian genetics. 	8	4
3	Energy Transformations:	<ul style="list-style-type: none"> Metabolism: Ground Rules and Main Principles: laws governing energy transformations, metabolic reactions and pathways, enzymes, coupling and ATP; Energy - Acquiring Metabolism: photosynthesis and chemosynthesis; 	6	3



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		Energy - Releasing Metabolism: glycolysis, aerobic and anaerobic pathways, and energy yields		
4	Introductory Ecology:	<ul style="list-style-type: none"> What is ecology? Ecosystem components, flow of energy, biogeochemical cycles, systems ecology, human impact on the environment. 	4	2
5	Genetics:	<ul style="list-style-type: none"> Basic principles of Mendelism, molecular genetics, structure and function of genes and chromosomes, populations and evolution 	6	3
	Total		28	14

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

E. TEACHING AND LEARNING METHODS; [Teaching Strategies]

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

F. ASSIGNMENTS AND PROJECTS



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No	Assignment	Week Due	Mark
1	Project	5	5

G. STUDENT ASSESSMENT METHODS

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Quizzes	5, 12	5	5%
2	Written Test (midterm exam)	7	30	30%
3	Assignment	9	5	5%
4	Final Exam (theoretical)	9	60	60%
Total				100%

H. REFERENCES:

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

- Howard C. Ansel, Nicholas G. Bopovich and Loyd V (1995). AllenPharmaceutical dosage forms and drug delivery systems, 6th edition, WilliamsWilkins, Philadelphia, USA
- J.R. Robinson and V.H.L. Lee (2002). Control drug delivery, fundamentals and applications Fourth edition Marcel Dekker Inc New York, USA.

2-Recommended Books and Reference Materials.

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

3- Electronic Materials and Web Sites *etc.*

- Journal of biology, www.jbiol.com
- Biology of Reproduction, www.biolreprod.org

I. COURSE POLICIES:

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



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1	<p>Class Attendance:</p> <ul style="list-style-type: none"> 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	<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"> Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam. Students will not be allowed to leave the exam room until unless half of the examination time is passed. 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. 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%. The student will be considered as failed if he broke the regulations and roles of examination. 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. Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
4	<p>(Assignments and Projects):</p> <ul style="list-style-type: none"> The students have to submit the assignment or project on time. 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.



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



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Course specification of English I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	English I				
2	Course Code &Number:	UR1104				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	First Year / First Semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:					
12	Date of approval:					

B- COURSE DESCRIPTION:

This course is one of the University General Requirements. It is a prerequisite to other specialized courses which are offered in English. The course is designed to provide students with basic knowledge and skills in English language related to their field of study. The course covers language areas and skills (listening, speaking, reading and writing) which enable students to understand and use English in settings and contexts related to their fields of study. It covers wide range of topics with a view to introduce students to the required terminology in their various fields of study. It also provides students with the opportunity to take part in interactive and communicative activities representing their future professional careers.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

For students undertaking this course, the aims are to:

1. Provide the student with basic principles in English language including reading, writing, listening and grammar with some medical terms.
2. Acquire skills of reading, extracting and handling the information from some short passages.



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2-INTENDED LEARNING OUTCOMES:

A-Knowledge and Understanding:

- a1- Recognize the mistakes in grammar in some passages.
- a2- Extract the information from some short passages.
- a3- Define some medical terms.

B-Intellectual Skills:

- b1. Use correct verbs and grammar in writing.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS	SUB-TOPICS	NO OF HOURS	No of Lectures
1	Reading	<ul style="list-style-type: none"> Preventive medicine Infectious diseases How body fight infection Nutrition Malnutrition Smoking Tropical diseases 	4	2
2	Grammar	<ul style="list-style-type: none"> Verb tenses Simple present Simple past Present continuous Present perfect Past perfect Active and passive voice 	6	3
3	Writing	<ul style="list-style-type: none"> Report writing Letter Writing: Applications / communications such as business correspondences Official communications and acknowledgements 	8	4



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4	Listening	<ul style="list-style-type: none"> Rabies Heat stroke Heat exhaustion Harmful effect of sun on the skin 	4	2
5	Some pharmaceutical terms Introduction	<ul style="list-style-type: none"> Definition Composition of medical terms Examples <ul style="list-style-type: none"> Pharmaceutical dosage forms. Drug administration routes. Calculation of drug dosage forms 	6	3
Number of Weeks /and Units Per Semester			28	14

E- TEACHING AND LEARNING METHODS:

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

F- ASSIGNMENTS AND PROJECTS:

No	Assignment	Week Due	Mark
1	Creative writing	6	5

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	Every class	10	10%



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2	Activities	Every class	10	10%
3	Class Quizzes	5 & 12	5	5%
4	Mid-term (written)	8	10	10%
5	Mid-term (oral)	8	5	5%
6	Final Exam (written)	16	60	60%
Total			100	100%

H- REFERENCES:

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

Murphy, Raymond. *Essential Grammar in Use*. Cambridge University Press

Harrison, Richard. *Keep Writing (Book 1)* Longman Group UK.

Richards, Jack C & David Bohlke. *Speak Now 1 and 2* (Series) SB and WB. Oxford University Press, U
UK ed. edition (June 28, 2012)

2- Essential References.

- 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.

- www.cambridge.org/elt
- BBC English Language Learning Webpage
- www.headwayplusonline.com
- 4- Blackboard online Activities

I. COURSE POLICIES:

I- Class Attendance:

- | | |
|---|--|
| 1 | <ul style="list-style-type: none"> • Students are allowed one absence without a required written excuse for every semester credit hour taken. • It is the student's responsibility and entitlement to meet and discuss all absences or planned absences with their instructors. • Upon the prudence and judgment of the instructor, a course grade of "F" may be given to any student who exceeds 25% of absences in a semester. • No student shall neglect more than 25 % of their class attendance, whether excused or unexcused, in a given semester. • For students who exceed the specified number of unexcused absences, an official documented excuse from the Faculty Dean may be required. • Once a student reaches approximately ten to fifteen percent of absences in a class, he/she shall receive a warning. • The Dean/Faculty Council have the right to permit a student's withdrawal from a course, if presented with |
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	a suitable and acceptable explanation for excessive absentees. This will be coordinated with the consent of the Registrar.
2	Tardy: <ul style="list-style-type: none"> Late arrival to class three times will be regarded as an absence. Each instructor is responsible to define the rules for which a student is considered late to class.
3	Exam Attendance/Punctuality: <ul style="list-style-type: none"> All students have to attend exam as specified. A student who fails to attend the exam has to hand on his/her excuse within 48 hours. All students must come to exam on time and no excuses are accepted for late coming.
4	Assignments & Projects: <ul style="list-style-type: none"> All assignment and projects have to be submitted, as scheduled, on time. Late submission might result in deduction of marks.
5	Cheating: <ul style="list-style-type: none"> All students are required and expected to act and behave according to the university Academic Integrity Code of Conduct as explained and detailed in the student handbook. Punitive actions for any and all students not abiding by these rules is also outlined in the student handbook. Any student caught in the act of or is suspected of cheating will receive a grade of "0" for that exam, quiz, project, or assignment. Any recurring attempt in cheating will be a matter for immediate dismissal from the University. Any student who assists, contributes, or in any way is found to be involved in helping another student cheat will receive an equivalent and equal penalty.
6	Plagiarism: <ul style="list-style-type: none"> Sana'a University regulations will be pursued and enforced on any plagiarism attempts.
7	Other policies: <ul style="list-style-type: none"> As per the university regulations (Students Affairs Bylaws)



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Course specification of Islamic culture

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Islamic culture				
2	Course Code & Number:	UR1101				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	First Year / First Semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	Arabic				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:					
12	Date of approval:					

B- وصف المقرر COURSE DESCRIPTION:

صمم هذا المقرر لتزود الطالب بالمعارف والمهارات والاتجاهات السلوكية اللازمة في مجال الأخلاقيات الإسلامية المهنية والتي تمكنه من التحلي بأخلاقيات الإسلام والصفات التي تميزه عن غيره من الناس في هذا المجال والابتعاد عن المفسدات ومحاولة تعزيز الثوابت وأزاله السلبيات.

C. PROFESSIONAL INFORMATION ILOs:

I. الأهداف التعليمية:

1. يكتسب المفاهيم العامة للأخلاقيات الجيدة وأثرها في حياة الفرد.
2. يعدد مبادئ وتعاليم الإسلام ومصادرها وأسسها.
3. يحدد الأخلاقيات التي يدعو الإسلام إليها ويتحلى بها.
4. يشرح رأي الإسلام في القضايا المعاصرة ويقدم الحلول لها.
5. يتقن المجتمع حول العادات الضارة التي ظهرت فيه.
6. يلم بالقوانين الطبية واللوائح المنظمة للمهنة.
7. يدرك أهمية تجنب الأخطاء في المهنة وعقوبتها وفق القانون والشرع.
8. يتحلى بما يدعو إليه الإسلام من أخلاقيات وسلوك.



II. مخرجات تعلم المقرر

بعد الانتهاء من هذا المقرر سيكون الطالب قادرا على أن :

مخرجات المعرفة والفهم:

a1 . يبين مدى تميز الأمة الإسلامية بثقافة عريقة بين الثقافات البشرية في مقوماتها وعناصرها وخصائصها.

a2 . يصف موقف الإسلام من قضايا العصر في مجالات العلوم النظرية والتطبيقية المختلفة ويناقشها من المنظور الإسلامي. المهارات الذهنية

b1 . يفرق بين الثقافة الإسلامية وغيرها من الثقافات و يستنتج مساوئ الثقافات الأخرى.

المهارات العملية و المهنية

C1. يطبق القوانين الطبية واللوائح المنظمة للمهنة و يتجنب الأخطاء في المهنة وعقوبتها وفق القانون والشرع.

المهارات العامة

d1 . يطور مهارة النقد الهادف والبناء والحوار والمناقشة مع الآخرين .

D. COURSE CONTENTS:

N C	TOPICS	Sub- TOPICS	NO OF HOURS	No of Lectures
1	• أسس العقيدة الإسلامية وأثرها التربوي (أركان الإسلام، الإيمان، والإحسان)	• مصادر التشريع الإسلامي ومقاصدها • أخلاق يدعو الإسلام إليها: - الصدق - الأمانة - الإخلاص في العمل والعبادة - السرية - الإتقان في العمل - الأخلاق الفاضلة • الإسلام والمرأة • الشورى في الإسلام • حقوق الإنسان في الإسلام • هدى الإسلام في الصحة والحفاظ عليها • أثار الغزو الفكري	6	3
2	• مفهوم وأهمية ومصادر علم أخلاقيات المهنة	• المفهوم • الأهمية • المصادر	4	2
3	• الأبعاد الجديدة لعلم الأخلاقيات المهنية في نظر الإسلام:	• أخلاقيات المهنة • حكم الإسلام وأخلاقيات في: ○ (الإجهاض التجميل، نقل الدم والأعضاء ○ ، الاستئصال، منع الحمل، تشريح الجثث، الموت الرحيم، الدواء والصوم، الأدوية والإدمان، التداوي بالأعشاب والرقى).	6	3



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4	المبادئ الأخلاقية الأساسية في الممارسة	المخبرية: - مبدأ الإخلاص والولاء لله لما يخدم المريض. - مبدأ عدم الإضرار بالمريض - مبدأ قول الحقيقة والمحافظة على أسرار المريض إخلاص النية لله في كل عمل تقوم به للمريض حتى تنال الأجر من الله.	4	2
5	العوامل المؤثرة على العلاقة بين الطب التشخيصي والمريض: -	لمرض والمعرفة • الخصائص الشخصية لكل من الصيدلي والمريض • الإطار الذي تم فيه هذه العلاقة • لعلاقة الإيجابية/السلبية • العلاقة التوجيهية/المتعاونة المشاركة/ المتبادلة	4	2
6	بعض المشكلات المعاصرة وكيفية حلها في الإسلام:	- سوء التغذية - انتشار الأمراض - حكم وأثر ممارسه العادات الضارة: (المخدرات – المهدئات – اللواط -العادة السرية.....الخ)	4	2
Total			28	14

E. TEACHING AND LEARNING METHODS:

1-	الإلقاء الفاعل.
2-	الحوار والمناقشة.
3-	حل المشكلات.
4-	العصف الذهني.
5-	التعلم التعاوني.
6-	المهام والتكاليف.
7-	ممارسات التأمل وتبادل الخبرات.

F. ASSIGNMENTS AND PROJECTS: ١

Assignments	الاسبوع Week Due	Mark
منزلي بحث	9	5

G. STUDENT ASSESSMENT METHODS:

أنشطة التقييم	الأسبوع	الدرجة	نسبة الدرجة إلى درجة التقويم النهائي
والمشاركة	W3- w13	5	%5
والتكاليفات	W3- w13	30	%30
ل	W6	5	%5
تصف الفصل	W8	15	15%



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5%	5		W12		نت
40%	40		W16		النهائي
100%	100			اجمالي الدرجة	

H. REFERENCES:

1-Required Textbook(s)

1. أ.د/ علي أحمد القاعدي ، مبادئ الثقافة الإسلامية طبعة 1434 هـ 2113 م، منشورات المتفوق للطباعة والنشر، - صنعاء اليمن.

2. د/ عبد الكريم عثمان، معالم الثقافة الإسلامية، الطبعة الثانية عشر، 1416 هـ 1915 م ، مؤسسة الرسالة.

2-Recommended Books and Reference Materials

1. د/ عبد الحكيم السروري، الثقافة الإسلامية، الطبعة الثانية 1431 هـ 2111 م، دار الفكر. -

2. د/ يوسف القرصاوي، ثقافة الداعية، الطبعة الأولى 1417 هـ 1997 م ، مؤسسة الرسالة بيروت. -

3. لثقافة الإسلامية مجموعة من دكاترة جامعة العلوم الطبعة الثالثة 2114 م منشورات جامعة العلوم. — —

4. د/ عبدالله أحمد فروان المدخل الى الثقافة الإسلامية منشورات الصادق للطباعة والنشر 2114 م

3-Electronic Materials and Web Sites etc.

I. أ: الضوابط والسياسات المتبعة في المقرر.

بعد الرجوع للوائح جامعة صنعاء تم كتابة السياسة العامة للمقرر كالآتي:

الحضور بنسبة (75%). ويعتمد الغياب بعذر رسمي. ويعد الطالب محروماً من المقرر اذا تجاوز الغياب 25% .	سياسة حضور الفعاليات التعليمية:	1
يسمح — عشر دقائق لمحاضرتين.	الحضور المتأخر :	2
في حالة الغياب عن الامتحان يعتبر راسباً. في حالات تأخر الطالب عن الامتحان لمدة تزيد عن عشر دقائق يمنع من دخول الامتحان.	ضوابط الامتحان:	3
يجب أن تسلم إلى أستاذ المقرر أولاً بأول وفي حالة عدم تسليم التكاليف يحرم من الدرجة.	التكاليف:	4

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في حالة الغش في الامتحانات النهائي تطبق عليه لائحة شؤون الطلاب.	الغش:	5
وفي حالات غش التكاليف بأي طريقة من طرائق الغش يحرم من الدرجة.		
تطبق على الطالب لائحة شؤون الطلاب الخاصة بذلك.	الانتحال:	6



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Course specification of Arabic language 101

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Arabic language 101				
2	Course Code & Number:	UR1102				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	First Year\ First Semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	Arabic				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:					
12	Date of approval:					

B- COURSE DESCRIPTION: وصف المقرر

وصف المقرر: صمم هذا المقرر ليزود الطالب بالمعارف والمهارات والاتجاهات السلوكية اللازمة في مجال اللغة العربية والتي تمكنه من تفادي الأخطاء في الكتابة حتى يتسنى له الكتابة الصحيحة عند تعلمه وكتابته للاختبارات والمحاضرات.

C- PROFESIONAL INFORMATION:

1. الأهداف التعليمية:

عند نهاية المقرر سيكون الطالب قادراً على أن: -

- يعدد أقسام الكلام والأخطاء الإملائية الشائعة
- يستخرج أسلوب الاستثناء والحال والتمييز
- يقوم بالبحث في المعاجم عن أصول الكلمات
- يستطيع رسم الهمزة وعلامة الترقيم.
- يفرق بين المبتدأ والخبر
- يحدد النواحي الأدبية في الجوانب الشعرية
- يستخرج التوابع اللغوية.
- يتمكن من كتابته وقراءته التقارير والرسائل العلمية بصورة بلاغية ووضوح تام.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. تعريف كل من لأسماء الظاهرة المعربة والمبنية والمبتدأ والخبر.
- a2. القدرة على كتابة الرسالة الإدارية والتقارير والسيرة الذاتية.
- a3. توضيح الحكم الإعرابي للفعل والفاعل.
- a4. الإلمام بأشهر أبواب النحو التي يستقيم بها اللسان ويعتبر من سلامة القول منطوقاً ومكتوباً.

B-Intellectual Skills:

- b1. الذوق الأدبي من خلال الاطلاع على أشهر النصوص الأدبية.
- b2. تمييز الفروق اللغوية بين التراكيب، والعبارات، والجمل الواردة في كل نص لغوي.
- b3. تحليل النصوص الأدبية تحليلاً لغوياً سليماً.

C-Practical Skills:

- c1. استخراج المبتدأ والخبر والفعل والفاعل من نص لغوي وإعرابهما.
- c2. إعراب الأسماء والأفعال المبنية والأسماء والأفعال المعربة إعراباً صحيحاً.

D-General Skills and Attitudes:

- d1. العمل بفعالية مع زملائه بروح الفريق الواحد أثناء تحليل النص اللغوي داخل القاعة الدراسية.
- d2. تطوير قدراته الذاتية من خلال استخدام مصادر التعلم المختلفة ومنها الانترنت.

D- COURSE CONTENTS:

NO	TOPICS	المواضيع الفرعية	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> أقسام الكلام والأخطاء اللغوية - الإملائية الشائعة 	<ul style="list-style-type: none"> من الأدب الجاهلي: - معلقه طرفه. - شعر الصعاليك (تأبط شراً) من أمثال العرب خطبه حجة الوداع علامة الإعراب علامات الترقى 	10	5
2	<ul style="list-style-type: none"> المبتدأ والخبر الشعر والأدب: 	<ul style="list-style-type: none"> - المقامة العلمية - سحر الربيع - رثاء الأندلس قافلة لضياع (بدر شاكر) 	6	3
3	<ul style="list-style-type: none"> التوابع 	<ul style="list-style-type: none"> أسلوب الاستثناء الحال والتمييز البحث في المعاجم رسم الهمزة 	12	6



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		<ul style="list-style-type: none"> نماذج من التقارير والرسائل العلمية. الأدب المعاصر والابتهالات 		
	Total		28	14

E- TEACHING AND LEARNING METHODS:

1. المناقشة والحوار أثناء الشرح والإلقاء -
2. استراتيجية التواصل اللغوي. -
3. استراتيجية التفكير البنائي. -
4. استراتيجية التفكير الناقد. -
5. حل المشكلات

F- ASSIGNMENTS AND PROJECTS: والواجبات الأبحاث

No.	Assignment البحث	Week Due الأسبوع	Mark الدرجة
1	للاستماع التفصيلية المهارات	5	5
2	الشروء الذهني الأسباب والعلاج	10	

G- STUDENT ASSESSMENT METHODS:

الرقم	أنشطة التقييم	أسبوع التقييم	الدرجة	نسبة الدرجة إلى الدرجة النهائية
1	المهام والواجبات	W2, 4, 5,6, 7,8 ,9.	20	20 %
2	كوز (1) Quiz	W3	5	5 %
3	اختبار نصف الفصل	W6	10	10 %
4	كوز (2) Quiz	W9	5	5 %
5	اختبار نهاية الفصل	W13	60	40 %
الإجمالي Total			100	100 %

H- REFERENCES:

مصادر التعلم Learning Resources: كتابة المراجع المقرر (اسم المؤلف، سنة النشر، اسم الكتاب، دار النشر، بلد النشر).

1. المراجع الرئيسة Required Textbook(s): (لا تزيد عن مرجعين)

سعاد سالم السبع (2017) : التدريبات اللغوية في قواعد الإملاء والنحو والصرف ، مكتبة الصادق صنعاء.

2. المراجع المساندة Essential References:



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أحمد نعيم الكراعين وزميله (د-ت): أسس وتطبيقات نحوية، منشورات جامعة صنعاء. صنعاء.
حسن محمد نور الدين (1996): الدليل إلى قواعد اللغة العربية، دار العلوم العربية للطباعة والنشر، بيروت لبنان.
ضرغام الأجودي (2019): أكثر الأخطاء اللغوية والإملائية شيوعاً، دار الأمل للنشر، بغداد.
عبد السلام هارون (د-ت): الأساليب الإنشائية في النحو العربي، مكتبة الخانجي، القاهرة.
عبد السلام هارون (1993): قواعد الإملاء، مكتبة الأنجلو المصرية، القاهرة.
علي الجارم ومصطفى أمين (2003): النحو الواضح في قواعد اللغة العربية، دار المعارف، القاهرة.

3. المصادر الإلكترونية ومواقع الإنترنت... Electronic Materials and Web Sites etc.

- <http://ar.islamway.net/book>.
- cmawdoo3.com. // <https://>
- <http://www.ballighofiles.com/umzayd/na7w-watheefi.pdf>
- <http://ia700508.us.archive.org/18/items/waq112462/112462.pdf>
- <http://archive.org/do>
- <http://mybook4u.com/%D9%85%D9%86%D9%88%D8%B9%D8%A9/download/download/3600>
- http://lisaanularab.blogspot.com/2015/11/blog-post_93.html

I- COURSE POLICIES !! الضوابط والسياسات المتبعة في المقرر

بعد الرجوع للوائح الجامعة يتم كتابة السياسة العامة للمقرر فيما يتعلق بالآتي:

1	سياسة حضور الفعاليات التعليمية Class Attendance: - يلتزم الطالب بحضور 75% من المحاضرات ويحرم في حال عدم الوفاء بذلك. - يقدم أستاذ المقرر تقريراً بحضور وغياب الطلبة للقسم، ويحرم الطالب من دخول الاختبار في حال تجاوز الغياب 25% ويتم اقرار الحرمان من مجلس القسم.
2	الحضور المتأخر Tardy: - يسمح للطالب بحضور المحاضرة إذا تأخر لمدة ربع ساعة لثلاث مرات في الفصل الدراسي، وإذا تأخر زيادة عن ثلاث مرات يحذر شفهيًا من أستاذ المقرر، وعند عدم الالتزام يمنع من دخول المحاضرة.
3	ضوابط الاختبار Exam Attendance/Punctuality: - لا يسمح للطالب بدخول الاختبار النهائي إذا تأخر مقدار (20) دقيقة من بدء الاختبار. - إذا تغيب الطالب عن الاختبار النهائي تطبق اللوائح الخاصة بنظام الاختبار في الكلية.
4	التعيينات والمشاريع Assignments & Projects: - يحدد أستاذ المقرر نوع التعيينات والمهام في بداية الفصل، ويحدد مواعيد تسليمها وضوابط تنفيذها وتسليمها. - إذا تأخر الطالب في تنفيذ المهام وتسليم التكاليفات عن الموعد المحدد يحرم من درجة المهمة أو التكليف الذي تأخر في تسليمه.
5	الغش Cheating:



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<p>- في حال ثبوت قيام الطالب بالغش في الاختبار النصفى أو النهائي تطبق عليه لائحة شؤون الطلاب. - في حال ثبوت قيام الطالب بالغش أو النقل في التكاليف والمهام يحرم من الدرجة المخصصة للمهام أو التكاليف .</p>	
<p><u>الانتحال Plagiarism:</u> - في حالة وجود شخص ينتحل شخصية طالب لأداء الاختبار نيابة عنه تطبق اللائحة الخاصة بذلك.</p>	6
<p><u>سياسات أخرى Other policies:</u> - أي سياسات أخرى مثل استخدام الموبايل أو مواعيد تسليم التكاليف ...الخ</p>	7

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الرقم ()

First Year / Second Semester



التاريخ / /

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Course specification of Botany

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Botany				
2	Course Code &Number:	COG1231				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	First Year / Second Semester				
5	Pre –requisite (if any):	Biology				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Sultan Najee				
12	Date of approval:	Dr. Hamoud Abdullah				

B. 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.

C. PROFESSIONAL INFORMATION:

1- AIMS OF THE COURSE

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

1. Recognize the plant kingdom.
2. Show understanding of the fundamentals of the basic and biomedical sciences including physics, mathematics, chemistry, structure of human body, normal and abnormal body functions, basis of genomes and different biochemical pathways and their relations to different diseases.
3. Identify the types of poisonous substances, sources, mechanisms of toxicity, analysis, clinical pictures, and management



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2-INTENDED LEARNING OUTCOMES: : (ILOs)

- a1. Basic Pharmaceutical Botany that is relevant to botany and medicinal plants.
- a2. The different processes for preparing the drug to the market starting from cultivation, collection and drying.
- a3. Key constituents and uses of some medicinal plants with advanced biological values.
- a4. Recognize and identify some of the common plants they have encountered.
- a5. Appropriate practical scientific methods and approaches: observation, experimentation and techniques used in their analysis.

B-Intellectual Skills:

- b1. Retrieve, select and collate appropriate traditional botanical and therapeutic information.
- b2. Evaluate primary and secondary evidence and arguments.
- b3. Integrate and link information across course components, including plant's constituents from different plants families.
- b4. Plan and conduct a research task.

C-Practical Skills:

- c1. Analyse samples in the laboratory using appropriate examinations, bearing in mind safety and ethical limitations.
- c2. Use appropriate basic laboratory equipment safely and efficiently.
- c3. Apply principles and limitation of a range of more advanced practical techniques.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

A – Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	Number of Weeks	Contact hours
1	Introduction to Botany and plant cell	1. Concepts to understand plants. 2. Structures and organelles of plant cell	1	2
2	Plant tissues and type of vascular bundles	1. types of plant tissues, and cells 2. types of vascular bundles 3. primary and secondary tissues.	1	2
3	Root morphology and anatomy	1. Roots different morphological features. 2. Root anatomy	1	2



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4	Stem morphology and anatomy	1. Morphological characterization of stems 2. Stem anatomy	2	4
5	Leaf morphology and anatomy	1- Morphological characterization of leaves 2- Leaf anatomy	2	4
6	Plant Physiology and Development	1. Photosynthesis. 2. Respiration. 3. Transport Processes. 4. Soil and mineral nutrition.	2	4
7	Flower, Reproduction and Evolution	1. Flower parts 2. Reproduction process 3. Seed germination	1	2
8	Plant Biotechnology	1- Recombinant DNA Technology 2- Plant Biotechnology 3- Genomics	1	2
9	plants Diversity	1.Vascular plants without seeds. 6.Vascular plants with seeds: Non flowering plants (Gymnosperms). 7.Vascular plants with seeds: flowering plants (Angiosperms). 8.Ethnobotany	2	4
10	Ethnobotany and Plant Ecology	1.plant and people. 2. Plants Response to the Environment .	1	2
Number of Weeks /and Units Per Semester			14	28

b. Practical Aspect;

Order	Tasks/ Experiments	Number of Weeks	contact hours	Learning Outcomes
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1	Plant cells: Onion leaf epidermis; Elodea leaf; potato tuber cells; tomato epidermis; and Asparagus tuber cells	1	2	All ILOs
2	Plant tissues and type of vascular bundles	1	2	All ILOs
3	Morphology & Anatomy of roots: Regions of growth in a root; Eudicot vs. monocot roots	1	2	All ILOs
4	Morphology & Anatomy of stems: Fundamental tissues; ground tissues; vascular tissues; and woody stems vs. herbaceous stem tissues in Cross and longitudinal sections.	2	4	All ILOs
5	Morphology & Anatomy of leaves: External and internal features of monocot and eudicot leaves; and	2	4	All ILOs
6	Flowers and fruits: parts of flowers, Fleshy fruits; dry dehiscent fruits; dry indehiscent fruits	1	2	All ILOs
7	Photosynthesis&transportation: Pigment Chromatography. Measuring photosynthesis and transportation	1	2	All ILOs
8	Classification and Systematics: Nonvascular plants (mosses gametophyte and sporophyte). Seedless vascular plants (lycophyte and pteridophyta).	1	2	All ILOs
9	Classification and Systematics: Seed-nonflowering plants (Gymnosperms).	1	2	All ILOs
10	Classification and Systematics: Seed-flowering plants (Angiosperms)	1	2	All ILOs
11	Preservation and Plant adaptation: how to prepare plant specimens long preservation in herbarium,roots, stems and leaves adaptations to extreme environments.	2	4	All ILOs
Number of Weeks /and Units Per Semester		14	28	



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E. TEACHING AND LEARNING METHODS:

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.

F. ASSIGNMENTS AND PROJECTS

no	Assignment	Week Due	Mark
1	Project	5	5

G. STUDENT ASSESSMENT METHODS:

no	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	All Assignments	1-14	20	20%
2	Mid-term Exam	7	10	10%
3	Final-term Exam	15	40	40%
4	Lab Mid-term Exam	7	10	10%
5	Lab Final-term Exam	15	20	20%
6	Total		100	100%

H. REFERENCES:

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

1. Sylvia/S.Mader 2012, Human Biology, 12th Edition (McGraw-Hill) N.Y.USA.
2. E.Solomon, L.Berg, D.Martin 2008 Biology 8th 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.



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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 6th edition by Campbell, Reece, Taylor, Simon and Dickey 2012.
2. <https://www.mheducation.com/highered/contact.html>

I. COURSE POLICIES:

1	<p>Class Attendance: -</p> <p>Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.</p>
2	<p>Tardy: -</p>
3	<p>Exam Attendance/Punctuality: -</p>
4	<p>Assignments & Projects:-</p> <p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p>



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I. COURSE POLICIES:

Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.

Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.

In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5 Cheating: -

6 Plagiarism:

Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

Intellectual Property involves:

- Another person's idea, opinion, or theory
- Any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge



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I. COURSE POLICIES:

- Quotations of another person's actual spoken or written words
- Paraphrase of another person's spoken or written words

Issues of intellectual property extend beyond the written word of course. Bear in mind that the use of still images, moving images, audio or any other content which you have not created yourself, and which you do not have the appropriate permission to use, serious offence resulting in a FAIL grade for the subject.

7

Other policies:-

Using Internet Sources

The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources. In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.

If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.



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Course specification of Introduction to Pharmacy History

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Introduction to Pharmacy History			
2	Course Code & Number:	CEU1222			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2			
4	Study level/ semester at which this course is offered:	First Year / Second Semester			
5	Pre –requisite (if any):				
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Majed Alwan			
12	Date of approval:	Dr. Hamoud Abdullah			

B- COURSE DESCRIPTION:

This course is concerned with introducing students to the history of pharmacy as well as introducing them to the profession of pharmacy with an emphasis on the contribution of pharmacy to healthcare in various settings.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

For students undertaking this course, the aims are to:

1. Recognize the principles of basic pharmaceutical science and symbols.
2. Distinguish the importance of pharmaceutical science.
3. Explain physic-chemical properties of various substances used in preparation of medicines including inactive and active ingredients



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2-INTENDED LEARNING OUTCOMES (ILOs):

A-Knowledge and Understanding:

- a1. Give an account of the knowledge and work areas of a pharmacy dispenser.
- a2. Use basic pharmaceutical terminology and concepts,

B- General Skills and Attitudes:

- b1- Use internet and search for information..

D-General Skills and Attitudes:

- d1- Work effectively in team.
- d2- Demonstrate written and oral communication skills.

D- COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS	Sub topic	NO OF HOURS	No of Lectures
1	History and scope of pharmacy	<ul style="list-style-type: none"> -Introduction to history of pharmacy -Symbols: the mortar and pestle and recipe. Others. -Drug development and discovery of active constituents, -Development of industrial pharmacy. 	4	2
2	Pharmaceutical Sciences	<ul style="list-style-type: none"> • Medicinal chemistry and Pharmacognosy, Pharmacy practice, clinical pharmacy 	2	1
3	pharmaceutical dosage forms	<ul style="list-style-type: none"> • 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 	4	2
4	The function and responsibility of pharmacy dispensing	Making some therapeutic prescriptions in the absence of the required treatment	4	2
5	The organization of health care: laws and regulations	Definition and types - objective and types - Pharmaceutical abbreviations - Pharmaceutical terminology -Definitions and history.	4	2



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		-		
6	Information retrieval in the pharmacy field	<ul style="list-style-type: none"> • Introduction to the role of the pharmacist in the hospital • A plan for the work distribution mechanism and treatment for patients 	4	2
7	Future of pharmacy practice in different settings	<ul style="list-style-type: none"> • Practice of community pharmacy • Role of pharmacist's in • Industry • Hospital • Government • Military • Research 	4	2
8	pharmacy education and international and national organizations	<ul style="list-style-type: none"> • -Role of old civilization; • -Egyptian civilization • -Greek civilization • -Roman civilization • -Arabian civilization • Europe civilizatio 	2	1
Number of Weeks /and Units Per Semester			28	14

E- TEACHING AND LEARNING METHODS:

- Lectures
- Discussion
- Brainstorming
- Problem solving
- Simulation Method Practical presentations

F- Assignments and projects

No	Assignments	Week Due	Mark
1	Assignment	9	5

G- STUDENT ASSESSMENT METHODS:



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No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	6	5	5%
2	Midterm Exam	8	10	10%
3	Quiz + attendance(1-14)	5	5	5%
4	Final Exam	14	40	40%
5	Practical section	(1-12)	40	40%
	Total			100%

H- REFERENCES:

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

- Bond, Christine, (2000). Evidence-based pharmacy. Pharmaceutical Press, Fifth ed. London.
- Ruth E. Nermire, Karen L. Kier, McGraw Hill, 2009. Pharmacy student Survival Guide, Second edition

2- Recommended Books and Reference Materials.

- Arthur J. Winfield, R. Michael E., Richards; 2009. Pharmaceutical practice, Fourth edition, Churchill Livingstone.
- Williams and Wilkins, 2005. Pharmaceutical calculations, 12th edition, 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-<http://www.ashp.org/doclibrary/bestpractices/managementpositions.aspx>
- 2-<http://www.aetna.com/faqs-health-insurance/health-care-professionals-pharmacy-mgt-program-faqs.html>
- 3-<http://betterpharmacytech.com/about-us/pms/>

I- COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

- ##### 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:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- If the student misses the final exam he will be considered as failed and if the repeated exam will be calculated



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as the minimum of 50%.

- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
 - Midterm Exam cheating results in giving the student a mark of zero
 - 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.
 - If the student's 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.

6- Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites

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Course specification of Biostatistics

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Biostatistics			
2	Course Code & Number:	CR1213			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2			
4	Study level/ semester at which this course is offered:	First Year / Second Semester			
5	Pre –requisite (if any):				
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	Arabic /English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Ahmed Mahyub			
12	Date of approval:	Dr. Majed Alwan			

B- COURSE DESCRIPTION:

The course focuses on descriptive and inferential statistics as applied to medical practice. The course starts with descriptive measures and probability concepts and application. The students are trained to draw statistical inferences by two main methods these are: Estimation and Hypothesis testing. Chi-square variants are discussed with relevant clinical examples. Statistical design of experiments is dealt with concentrating on ANOVA and regression analysis

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

At the end of this course student should be:

1. Acquire knowledge various classes (i.e. experimental, observational, overview and health related) of biomedical literature.
2. Aware of the situation when each type of biomedical literature is required
3. Understand the purpose of each type of these literature
4. Recognize the design of each type and how it differs from the others
5. Familiar with some of the characteristics of each type that is required in the evaluation process.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1- Explain the differences between experimental and observational Literature?
- a2- Justify when meta-analysis studies are usually required and conducted (this question is general for all types).
- a3- Identify the prevalence of characteristics of diseases in a population.
- a4- Describe the purpose of the study type
- a5- Give an example of a study design (Hypothetical) of a clinical trial (this is also a general question).

B. Intellectual skills

- b1. Apply in practice the use of charts that describe the education phenomena.
- b2. Analyze the electronic information using the computer programs and identify the challenges of a particular specialization that might face .

C-Practical Skills:

- c1. Finding ways in evaluation of knowledge and intellectual skill about making the reports statically.
- c2. Deal with data & analyze them by different statistical methods.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS	Sub Topics	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> ▪ Data description, 	<ul style="list-style-type: none"> ▪ Develop measures that can be used to summarize a data set: mean, median, mode, percentiles, variance, standard deviation, and range ▪ Develop measures that can be used to indicate the amount of variation in the data set- percentiles, variance, standard deviation, and range ▪ Know what it means for a data set to be normal ▪ Discuss a measure of the degree to which a scatter diagram of paired values can be approximated by a straight line <ul style="list-style-type: none"> ▪ Discuss the empirical rule 	2	1



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2	<ul style="list-style-type: none"> Displaying data, 	<ul style="list-style-type: none"> Know how to present and describe sets of data using tables, graphs, and charts Know how to assess key features of a data set using graphs 	2	1
3	<ul style="list-style-type: none"> Elementary concepts of the probability, 	<ul style="list-style-type: none"> Understand the concept of the probability of an event Understand the properties of probabilities Understand the application of probabilities in assessment of screening and diagnostic tests 	2	1
4	<ul style="list-style-type: none"> Theoretical and sample characteristics (mean, dispersion, median, etc.) 	<ul style="list-style-type: none"> Understand the difference between continuous and discrete variables Understand the binomial distribution Know how to compute the mean and the variance of the binomial distribution 	4	2
5	<ul style="list-style-type: none"> Statistical estimations, confidence intervals. 	<ul style="list-style-type: none"> Understand continuous random variables Understand normal distribution Understand standard normal distribution Understand the percentiles of a normal random variables Know how to convert normal distribution to standard normal distribution 	2	1
6	<ul style="list-style-type: none"> Testing hypotheses, 	<ul style="list-style-type: none"> Understand the concept of sampling from a population distribution Know the distribution (mean and variance) of the sample mean, proportion, difference between two sample means, and difference between two sample proportions Know the central limit theorem and its application in biological fields 	2	1
7	<ul style="list-style-type: none"> one- and two sample t-tests, 	<ul style="list-style-type: none"> Know how to use sample data to estimate a population mean, a population variance, and a population proportion Know how to compute point and interval estimates of the population parameters 	2	1
8	<ul style="list-style-type: none"> Contingency tables and related evaluations. 	<ul style="list-style-type: none"> Understand a statistical hypothesis and know how to use sample data to test it Understand the difference between the null and the alternative hypothesis Understand the significance of a rejecting a null hypothesis or not rejecting it Understand the meaning of level of significance and p value 	2	1
9	<ul style="list-style-type: none"> Regression and correlation analysis, 	<ul style="list-style-type: none"> Know how to test for population mean when population standard deviation is known Know how to test for population mean when population standard deviation is unknown 	2	1



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10	<ul style="list-style-type: none"> analysis of variance, 	<ul style="list-style-type: none"> Understand the importance of using a control in the testing of a new drug or a new procedure Know how to test the equality of two population means when the population variances are known Know how to test the equality of two population means when the population variances are unknown but assumed equal 	2	1
11	<ul style="list-style-type: none"> Multiple comparisons. 	<ul style="list-style-type: none"> Know how to test the equality of two population means when the population variances are unknown but assumed unequal Know how to test the two- sample hypothesis using confidence interval approach 	2	1
12	<ul style="list-style-type: none"> Non-parametric methods (Mann-Whitney, Wilcoxon, Kruskal-Wallis, Friedman test, rank-correlation). 	<ul style="list-style-type: none"> Know how to test the equality of two population variances Understand the need of using this test before conducting two-sample test 	4	2
Number of Weeks/and Units Per Semester			28	14

E- TEACHING AND LEARNING METHODS:

- Lectures
- Discussion, Demonstrations
- Training, Practicing
- Exercises
- Tests and exams
- Review for exams
- Textbook reading assignments
- Practical Labs

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
[Project	5	5

G- STUDENT ASSESSMENT METHODS:



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No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	6	5	5%
2	Midterm Exam	8	10	10%
3	Quiz + attendance(1-14)	5	5	5%
4	Final Exam	14	40	40%
5	Practical section	(1-12)	40	40%
	Total			100%

H- REFERENCES:

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

1. Al-Mansoob MA and Masood MS, 2012. Introductory to Statistics and Probability, first edition, Yemen.

2. Essential References:

1. Chernick and Friser., 2003. Introductory Biostatistics for the Health Sciences.
2. Modern Applications Including Bootstrap. California State University Long Beach, California

3-Electronic Materials and Web Sites

I- COURSE POLICIES:

J- Course Policies:

1.	Class Attendance: At least 75 % of the course hours should be attended by the student. Otherwise, will not be allowed to attend the final exam
2.	Tardy: any student who is late for more than 15 minutes from starting the lecture will not be allowed to attend the lecture and will be considered absent.
3.	Exam Attendance/Punctuality: any student who is late for more than 30 minutes from starting the exam will not be allowed to attend the exam and will be considered absent.-
4.	Assignments & Projects: Assignments and projects will be assessed individually unless the teacher requests otherwise.
5.	Cheating: Cheating by any means will cause the student failure and must re-study the course
6.	Plagiarism: Plagiarism by any means will cause the student failure in the course .and other disciplinary actions will be taken according to the college rules
7.	Other policies:



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Course specification of Introduction to Computer

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Introduction to Computer			
2	Course Code & Number:	UR1206			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		1	2		
4	Study level/ semester at which this course is offered:	First Year / Second Semester			
5	Pre –requisite (if any):				
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Ahmed Mahyub			
12	Date of approval:	Dr. Majed Alwan			

B- 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

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. For students undertaking this course, the aims are to:
2. To instill an awareness of the various types of information sources available.
3. Provide a technical introduction for computer science and medical information science.
4. Solve the computer operating system problems.
5. Use different application programs like word processing, spreadsheet, presentation,



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Define each part of computer hardware and its function.
- a2- Acquire the basics of how computers operate, with an emphasis on knowledge of practical issues (storage devices, RAM, types of printers etc.)
- a3- Define the use of each office program.
- a4- Recognize various computer applications in medicine - for instruction, information managing, computer based medical record, etc.

B-Intellectual Skills:

- b1-Interpret data of computer aided teaching and testing.

C -Practical Skills:

- c1- Tolerate working in MS-WINDOWS.
- c2- Use of WORDPROCESSOR.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS	SUBTOPICS	NO OF HOURS	No of Lectures
1	An Overview of Computer Concepts	Definitions, History, Generation, Types	2	4
2	Computer Components	Hardware, Software,	1	2
3	System Units	Memory, CPU, Input/output devices, Storage	1	2
4	Central Processing Unit (CPU)	Control unit, Registers, Arithmetic Logic Unit	1	2
5	Memory Unit	Rom Types, Ram, Memory Management	1	2
6	Storage Devices	Hard disk, Mass storage Devices, Files	1	2
7	Input and Output Devices	Input Devices (Keyboards, Mouse, etc., Output Devices (Monitors	2	4



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		types, Printers Types, etc.		
8	Data Representation and Numerical systems	Machine language, Binary numbers, Numbers conversions	1	2
9	Computer Operating Systems	Graphic User Interface, Different types of OS, Folders and Files	1	2
10	Basic Computer Networks	Network Types, Network Topology	1	2
11	Internet, Web and email	Internet Requirement, Web and Google, Email creation and Settings	1	2
12	Computer Security and Viruses	Users and passwords, Security, Virus definition, Virus types, Anti-virus	1	2

Number of Weeks/and Units Per Semester

14

28

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	2	4

Number of Weeks/and Units Per Semester

14

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E- TEACHING AND LEARNING METHODS:



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- Lectures
- Labs
- Brainstorming
- Group projects
- Group Discussions
- Presentation

F- ASSIGNMENTS AND PROJECTS:

No	Assignment	Week Due	Mark
1	Make a PowerPoint presentation and present (group).	19-12	5

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

Total	100	100%
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H- REFERENCES:

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

- 1- Anita Goel, "Computer Fundamentals", Pearson Education India, first Edition, 2010.
- 2- 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 Si

3. Electronic Materials and Web Sites etc.

1. http://en.wikipedia.org/wiki/Computer_science
2. http://en.wikipedia.org/wiki/Microsoft_Office
3. 3- http://en.wikipedia.org/wiki/Computer_virus



I- COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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.

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- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
 - Midterm Exam cheating results in giving the student a mark of zero
 - 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.



- If the student's 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.
- 6- Plagiarism:
- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
- 7- Other policies: Using Internet Sources:
- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
 - In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
 - If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of English 2

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	English 2				
2	Course Code & Number:	UR1205				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	First Year / Second Semester				
5	Pre –requisite (if any):	English I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Samah Shaker				
12	Date of approval:	Dr. Hamoud Abdullah				

B- 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

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

For students undertaking this course, the aims are to:

1. Provide the student with basic principles in English language including reading, writing, listening and grammar with some medical terms.
2. Acquire skills for reading, extracting and handling the information from some short passages.
3. 3. Classify Oral and written communication in medical vocabularies fluently
4. 4. Analyze the correct grammar and spelling.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Correct the mistakes in grammar in some passages.
- a2- Extract the information from some short passages.
- a3- Define some medical terms.

B-Intellectual Skills:

- b1. Use correct verbs and grammar in writing.

C. Professional and Practical Skills:

- c1. Effectively use a variety of reading strategies for analyzing different texts and reading independently and intensively for specific information
- c2. Write comprehensive paragraphs, reports and effective summaries of long texts on topics related to their fields of study

D-General Skills and Attitudes:

- 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.
- d4- Write a scientific essay.

D- COURSE CONTENTS:

NO	TOPICS	SUB TOPICS	NO OF HOURS	No of Lectures
1	Reading •	<ul style="list-style-type: none"> ▪ Immunity and immunization ▪ Foods for thought ▪ Malaria ▪ Cholera ▪ Epidemic diseases 	4	2
2	Grammar •	<ul style="list-style-type: none"> ▪ Punctuation ▪ Articles ▪ Phrases ▪ Conditionals ▪ Prepositions 	6	3
3	Writing	<ul style="list-style-type: none"> ▪ Report writing ▪ Letter Writing: ▪ Applications / communications such as business correspondences ▪ Official communications and acknowledgements 	8	4
4	Listening •	<ul style="list-style-type: none"> ▪ Anemia ▪ Losing weight ▪ Safe water and foods 	4	2



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5	Pharmacological Terminology:	<ul style="list-style-type: none"> Classification of drug actions, pharmacokinetics, and systemic classification of drugs. Autonomic, CNS, cardiovascular, and renal system. Chemotherapy, locally acting, vitamins and hormones 	2	1
6	Pathology and Diagnosis:	<ul style="list-style-type: none"> Infectious diseases. Rheumatic diseases. Peptic ulcers. Surgical operations. Skin diseases. Gynecological diseases. Laboratory investigational terms. Other familiar medical terms and abbreviations 	4	2
Number of Weeks/and Units Per First semester			28	14

E- TEACHING AND LEARNING METHODS:

Lecture
 Tutorials
 problem solving
 case study
 independent study
 practical lab sessions (listening and pronunciation exercises)
 Individual and group work
 Mini-writing projects
 Presentations
 Role-plays
 Seminars and workshops

F- ASSIGNMENTS AND PROJECTS:

no	Assignment 1	Week Due	Mark
1	Creative writing	6	5

G- STUDENT ASSESSMENT METHODS:



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No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	Every class	10	10%
2	Activities	Every class	10	10%
3	Class Quizzes	5 & 12	5	5%
4	Mid-term (written)	8	10	10%
5	Mid-term (oral)	8	5	5%
6	Final Exam (written)	16	60	60%
Total			100	100%

H- REFERENCES:

- Required Textbook(s) (maximum two).
 - 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.
- 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
- Electronic Materials and Web Sites etc.
 - www.cambridge.org/elt
 - BBC English Language Learning Webpage
 - www.headwayplusonline.com

I- COURSE POLICIES

- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
- 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.



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3- Exam Attendance/Punctuality:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the beginning of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
- 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.
- If the student's 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.

6- Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or



work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Arabic Language 102

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Arabic Language 102				
2	Course Code & Number:	UR1201				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	First Year / Second Semester				
5	Pre –requisite (if any):	Arabic Language 101				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	Arabic				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mohammed Khago				
12	Date of approval:	Dr. Majed Alwan				

B- Course Description: المقرر وصف

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

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- صمم هذا المقرر ليزود الطالب بالمعارف والمهارات والاتجاهات السلوكية اللازمة في مجال اللغة العربية والتي تمكنه من تقادي الأخطاء في الكتابة حتى يتسنى له الكتابة الصحيحة عند تعلمه وكتابه للاختبارات والمحاضرات.
1. القدرة على كتابة الرسالة الإدارية والتقارير والسيرة الذاتية.
 2. توضيح الحكم الإعرابي للفعل والفاعل
 3. الإلمام بأشهر أبواب النحو التي يستقيم بها اللسان ويعتبر من سلامة القول منطوقاً ومكتوباً.
 4. الذوق الأدبي من خلال الاطلاع على أشهر النصوص الأدبية.
 5. تطوير قدراته الذاتية من خلال استخدام مصادر التعلم المختلفة ومنها الانترنت.

2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. تعريف كل من لأسماء الظاهرة المعربة والمبنية والمبتدأ والخبر.
- a2. القدرة على كتابة الرسالة الإدارية والتقارير والسيرة الذاتية.
- a3. توضيح الحكم الإعرابي للفعل والفاعل.
- a4. الإمام بأشهر أبواب النحو التي يستقيم بها اللسان ويعتبر من سلامة القول منطوقاً ومكتوباً.

B-Intellectual Skills:

- b1. الذوق الأدبي من خلال الاطلاع على أشهر النصوص الأدبية.
- b2. تمييز الفروق اللغوية بين التراكييب، والعبارات، والجمل الواردة في كل نص لغوي.
- b3. تحليل النصوص الأدبية تحليلًا لغويًا سليمًا.

C-Practical Skills:

- c1. استخراج المبتدأ والخبر والفعل والفاعل من نص لغوي وإعرابهما.
- c2. إعراب الأسماء والأفعال المبنية والأسماء والأفعال المعربة إعرابًا صحيحًا.

D-General Skills and Attitudes:

- d1. العمل بفعالية مع زملائه بروح الفريق الواحد أثناء تحليل النص اللغوي داخل القاعة الدراسية.
- d2. تطوير قدراته الذاتية من خلال استخدام مصادر التعلم المختلفة ومنها الانترنت.

D- COURSE CONTENTS:

NO	TOPICS	NO OF HOURS	No of Lectures
1	قراءة نصوص نثرية وشعرية تدريبات صفية	4	2
2	قراءة نصوص نثرية وشعرية تدريبات صفية	4	2
3	كتابة الرسالة الإدارية تدريبات صفية	2	1
4	كتابة التقرير تدريبات صفية	2	1
5	امتحان نصفي الفصل	2	1
6	السيرة الذاتية تدريبات صفية	2	1
7	القواعد النحوية (الجملة الاسمية ونواسخها) تدريبات صفية	4	2
8	القواعد النحوية (الجملة الفعلية ومكملاتها) تدريبات صفية	2	1



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9	بعض القواعد الإملائية (همزتا الوصل والقطع – الهمزة المتوسطة – علامات الترقيم) تدريبات صفية	2	1
10	دراسة نصوص من الشعر العربي وتحليلها وتذوقها تدريبات صفية + تكاليف	2	1
11	امتحان نهائي	2	1
	Total	28	14

E- TEACHING AND LEARNING METHODS:

- Lecture
- Tutorials
- problem solving
- case study
- independent study
- practical lab sessions (listening and pronunciation exercises)
- Individual and group work
- Mini-writing projects
- Presentations
- Role-plays
- Seminars and workshops

F- ASSIGNMENTS AND PROJECTS;

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:



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

- مجد الدين الفيروز أبادي، 1991 ، القاموس المحيط، الطبعة الاولى ،دار الفكر للطباعة والنشر، بيروت ،لبنان.
- 2-د.محمد صالح الشنطي، 2113 م،المهارات اللغوية، الطبعة الاولى ،دار الاندلس للنشر والتوزيع حائل،السعودية.

2. Essential References.

- د.محمد عبدالله المحجري، 2113 م، المهارات اللغوية ، الطبعة الأولى، دار الكتب اليمنية للنشر ،صنعاء ،اليمن- .
- 2د.صادق الصلاحي،الوجيز في اللغة العربية (مخطوط)

3. Electronic Materials and Web Sites etc.

- موقع اللغة العربية تعلماً وتعليماً . -
- 2•فنون اللغة العربية
- 3الموسوعة العربية العالمية دليل المهارات.

I- COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.

- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

• 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.

- Midterm Exam cheating results in giving the student a mark of zero
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- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
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- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites

Republic of Yemen

AL-YEMENIA UNIVERSITY

MEMBER OF ASSOCIATION OF ARAB UNIVERSITIES



الجمهورية اليمنية

الجامعة اليمنية

عضو عامل باتحاد الجامعات العربية

/ / التاريخ

الرقم ()

Second Year / First Semester



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الرقم ()

Course specification of Pharmaceutical Calculation

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmaceutical Calculation			
2	Course Code & Number:	CEU2124			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2			
4	Study level/ semester at which this course is offered:	Second Year/First Semester			
5	Pre –requisite (if any):				
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Majed Alwan			
12	Date of approval:	Dr. Hamoud Abdullah			

B- 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 pharmaceutics, such as pharmaceutical technology, clinical and preparation pharmacy, pharmacology, pharmaceutical chemistry and pharmacokinetics.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

The aim of the course is to acquire students with the principles of pharmaceutical calculations. In addition to managing proper and safe dispensing of medicine.

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

1. Distinguish the methods of pharmaceutical calculation
2. Recognize the proper medical terminology, abbreviations and symbols in health reports and pharmacy practice
3. Calculate the proper dose of drugs for adults and pediatrics
4. Apply simple mathematical conversions for weight, volume, temperatures



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

a1- Recognize the principles of physical, clinical, social, behavioral, health and pharmaceutical sciences.

a2- Recognize the pharmaceutical dosage form design and the quality control of

B-Intellectual Skills:

b1. Calculate the proper dose of drugs for adults and pediatrics

C-Practical Skills:

c1. Utilize the proper medical terminology, to communicate with other health care professionals

D-General Skills and Attitudes:

d1. Work effectively as a part of a team to perform the required tasks.

D- COURSE CONTENTS:

NO	TOPICS	NO OF HOURS	No of Lectures
1	Introduction Some fundamentals of measurement and pharmaceutical calculations.	2	1
2	The International System of Units Interpretation of prescription or medication order.	2	1
3	Household measures Reducing and enlarging formula.	2	1
4	Density Specific gravity Specific volume.	2	1
5	pharmaceutical measurement.	2	1
6	Percentage preparation Ratio strength Simple conversion from percentage to ratio strength.	2	1
7	Mid-term exam.	2	1
8	Dilution and concentration.	2	1
9	Stock solution, Dilution.	2	1
10	Allegation medial.	2	1
11	Allegation alternate.	2	1
12	Calculation of pediatric dose according to body weight, age and body surface area.	2	1
13	Calculation of chemotherapeutic dose according to body weight, age.	2	1
14	Calculation of chemotherapeutic dose according to body surface area.	2	1
Number of Weeks/and Units Per Semester		28	14

E- TEACHING AND LEARNING METHODS



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- Lectures using data show
- Group discussion
- Problem solving method

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H- REFERENCES

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

- M.Savva. (2006). Rational Approach to Pharmaceutical Calculations, Vagma LLC.
- Howard C. Ansel, 2010, Pharmaceutical Calculations. 13th Ed., Georgia, Publisher: Lippincott

2. Essential References.

1. H.C .Ansel (2013). Pharmaceutical Calculations. Lippincott Williams & Wilkin 14th ed.
2. S. Parsons. (2013); Pharmaceutical Calculations. Parsons Printing Pre. .

3. Electronic Materials and Web Sites etc.

(Also available as open source e-book: <http://pharmaceuticalcalculations.org>)

I- COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.



- 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.
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 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
- 4- Assignments & Projects:
 - Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
 - Late Assignments / Extensions
 - Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
 - Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
 - In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
- 5- Cheating:
 - 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.
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 - Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work



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7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Analytical chemistry I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Analytical chemistry I			
	Course Code & Number:	ACH2171			
2	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
3	Study level/ semester at which this course is offered:	Second Year /First Semester			
4	Pre –requisite (if any):	General Chemistry			
5	Co –requisite (if any):				
6	Program (s) in which the course is offered:	Bachelor of Pharmacy			
7	Language of teaching the course:	English			
8	The department in which the course is offered:	pharmacy			
9	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
10	Prepared by:	Dr. Mohammed Abas			
11	Date of approval:	Dr. Hamoud Abdullah			

B- 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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Recognize the benefits and problems of analytical chemistry for society.
- 2- Define the basic principles of analytical chemistry and analytical techniques used in analytical chemistry
- 3- Explain the Requirements of suitable volumetric analysis and acid-base concepts.
- 4- Demonstrate an understanding of solution chemistry, prepare and performing stoichiometric calculations in all parts of chemistry.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Recognize the different types of analytical chemistry techniques.
- a2. Identify the importance requirements of suitable volumetric analysis and express the concentrations of solutions.

B-Intellectual Skills:

- b1. Analyze the different types of samples.
- b2. Integrate the concepts of analytical chemistry with those of other related fields and interpret certain medical phenomena based on such concepts.

C-Practical Skills:

- c1. Use the balance, equipment in laboratory to identify and measure the concentrations.
- c2. Apply rules and guidelines related to safety precautions in the laboratory to perform experiments in a risk-free environment

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.

D- COURSE CONTENTS:

a. Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Course introduction; qualitative and quantitative analysis, role of analytical chemistry in pharmacy and medicine.	2	1
2	Method of expression of concentrations (part 1).	2	1
3	Method of expression of concentrations (part 2).	2	1
4	Principle of volumetric analysis.	2	1
5	Applications involving molarity, normality and weight percent calculations.	2	1
6	Acid-base Equilibria in aqueous solution and pX concept (x: H ⁺ , OH ⁻)	2	1
7	pH calculations & Buffer solutions and physiological buffers.	2	1
8	Neutralization reactions; acid-base titrations, titration curve, factors affecting and theory of indicators.	2	1



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9	Calculation involving applications.	2	1
10	Titration of polyprotic acids and polyequivalent bases.	2	1
11	Applications involving determinations of mixtures of acids and mixtures of bases.	2	1
12	Acid-base equilibria in nonequilibrium solution.	2	1
13	Titration curves and equivalent point determination.	2	1
14	Application involving; carboxylic acids phenols and amines determinations.	2	1
Total of hours		28	14

b. Practical Aspect:

Order	Tasks/ Experiments	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



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11	Assay of Metformin hydrochloride	1	2
10	Final Exam	1	2
Number of Weeks /and Units Per Semester		12	24

E- TEACHING AND LEARNING METHODS:

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

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%



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H- REFERENCES:

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, 8th 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.

2. Essential References.

- 1- DEAN'S Analytical Chemistry Handbook, 2004, Second edition, McGraw-Hill Handbooks, New York, USA.
- 2- Somenath Mitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada.
- 3- K. Danzer, Analytical Chemistry Theoretical and Metrological Fundamentals, 2007, Springer-Verlag Berlin Heidelberg

3. Electronic Materials and Web Sites etc.

- The Analytical Abstracts database (<http://www.rsc.org/CFAA/AASearchPage.cfm>)
- The Analytical Forum on ChemWeb (<http://analytical.chemweb.com/search/search.exe>)

I- COURSE POLICIES:

- 1- Class Attendant:
Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
- 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.
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 - Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
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 - 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%.



- The student will be considered as failed if he broke the regulations and roles of examination.
 - 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.
 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
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- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
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 - Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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 - In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
- 5- Cheating:
- 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.
 - Midterm Exam cheating results in giving the student a mark of zero
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Course specification of Immunology and Serology

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Immunology and Serology			
2	Course Code & Number:	ASS2181			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2			
4	Study level/ semester at which this course is offered:	Second Year/ First Semester			
5	Pre –requisite (if any):				
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Ghamdan Al-Tahesh			
12	Date of approval:	Dr. Majed Alwan			

B- COURSE DESCRIPTION:

This course is designed to provide students with the necessary knowledge on the structure and functions of the immune system, understanding of immunological tolerance, autoimmunity system, and the histocompatibility complex HLA .

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1.Acquire knowledge about the structure and functions of the immune system.
2. Recognize types of immune response.
- 3.Correlate the structure and role of the major histocompatibility complex HLA.
4. Illustrate the development of immunological tolerance and autoimmunity.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Recognize all types hypersensitivity reactions .
- a2. Illustrate immune responses against infectious diseases.

B-Intellectual Skills:

- b1. Explore development of immunological tolerance and autoimmunity .

C-Practical Skills:

- c1. Interpret passive and active immunoprophylaxis.

D-General Skills and Attitudes:

- d1. Work effectively in te\

D- COURSE CONTENTS:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Immunology: a. Immunity. b. Antigen- Antibody reaction	2	1
2	Complement system Phagocytes & natural killer cells.	2	1
3	Immune response & hypersensitivity. Autoimmunity	4	2
4	Innate immunity	2	1
5	Adaptive immunity	2	1
6	Anibody(structure,specificity,diversity & generation)	4	1
7	T cell & B cell	6	3
8	Immunodeficiency	4	2
9	Cancer immunology	4	2
Number of Weeks/and Units Per Semester		28	14

E- TEACHING AND LEARNING METHODS:



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1. Lectures using data show
2. Video animation and seminars
3. Group discussion
4. Tutorial
5. Laboratory work (Models)

F- ASSIGNMENTS PROJECTS :

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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

- 1-Immunology: A Short Course (Coico, Immunology) 7th Edition by Richard

2. Essential References.

Basic immunology Function and disorders of the immune system 5e (5th Edition) by Abul K. Abbas, Shiv Pillai.

3. Electronic Materials and Web Sites etc.

I- COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.



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- 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.
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- 7- Other policies: Using Internet Sources:
 - The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
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 - If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting

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Course specification of Pharmaceutics I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmaceutics I			
2	Course Code & Number:	CEU2123			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Second Year/First Semester			
5	Pre –requisite (if any):	Physical Pharmacy			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Hamoud Abdullah			
12	Date of approval:	Dr. Majed Alwan			

B- COURSE DESCRIPTION:

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

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. To acquire student a detailed knowledge and understanding concerning preparation and controlling of various pharmaceutical dosage forms.
2. To provide the student with the knowledge about the theoretical principles outlined in the syllabus in relation to reformulation concepts, design and formulation of a different pharmaceutical dosage



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forms.

3. Correlate the theoretical knowledge to the formulation of proprietary dosage forms discussed in this syllabus and an understanding of the manufacturing processes involved in the preparation of these dosage forms.

2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Recognize the relationship between chemical and physical properties of drugs as applied to drug formulation
- a2. Express the manufacturing process involved in the preparation of pharmaceutical liquid dosage forms.

B-Intellectual Skills:

- b1. Analyze the instability of pharmaceutical dosage forms when occurred.

C-Practical Skills:

- c1. Prepare of certain pharmaceutical dosage forms.

D-General Skills and Attitudes:

- d1. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

:

a – Theoretical Aspect

NO	TOPICS	SUBTOPICS	NO OF HOURS	No of Lectures
1	Pre-formulation studies	<ul style="list-style-type: none"> ▪ Study of physical properties of drug and its effect on formulation like <ul style="list-style-type: none"> • Physical form • Particle size • Shape • Density and angle of repose • Wetting • Dielectric constant • Solubility • Dissolution • Organoleptic properties ▪ Excipients compatibility ▪ Drug extraction ▪ Selection of solvent ▪ Maceration and percolation ▪ Common solvents used in pharmacy. 	4	2
2	Solution	<ul style="list-style-type: none"> • Introduction • Classification of pharmaceutical solution • Aqueous solution • Non aqueous solution • Formulation (vehicles used and additives) 	8	4



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		<ul style="list-style-type: none"> • Isotonicity • Stability of solution • Manufacture of solution 		
3	Suspension	<ul style="list-style-type: none"> • Advantages and disadvantages • Pharmaceutical application of suspension • Types of suspensions • Formulation of suspension • Difference between Flocculation, deflocculation. • Factors affecting sedimentation rate of suspension. • Formulation of various types of suspensions. • flocculating agents • Viscosity modifiers • Formulation additives • Stability testing of suspension 	6	3
4	Emulsion	<ul style="list-style-type: none"> • Emulsion types • Emulsion uses • Identification of emulsion type • Emulsion formulation <ul style="list-style-type: none"> □ Choice of emulsion type, and oil phase □ Emulsion consistency □ Choice of emulsifying agent • Preparation of emulsion • Classification of emulsifying agents • Stability of emulsion • Stability testing of emulsion 	6	3
5	Parenteral preparation	<ul style="list-style-type: none"> • Pre-formulation factors <ul style="list-style-type: none"> o Route of administration of injection o Water for injection o Pyrogenicity o Non-aqueous vehicles o Isotonicity and methods of adjustment • Formulation details <ul style="list-style-type: none"> o Formulation of injection (the vehicles, osmotic pressure, pH, specific gravity, suspension for injection, emulsion for injection) o Containers and closures selection • Parenteral preparation <ul style="list-style-type: none"> o Sterilization o Importance o Methods 	4	2



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Number of Weeks/and Units Per Semester		28	14
b. Practical Aspect:			
Order	Tasks/ Experiments	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		12	24

E- TEACHING AND LEARNING METHODS:

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

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Assignments	1-9	100

G- STUDENT ASSESSMENT METHODS:



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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)	12	50	50%
Total			100	100%

H- REFERENCES:

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. M2.
3. Burns D M and MacDonald S G G Physics for biology and pre-medical students 2nd edn, Addison-Wesley, 1975.

2. Essential References.

- Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10thedition., Williams and Wilkins. Maryland, USA. Maryland, USA.
- Parrott E L Pharmaceutical others Physical pharmacy 4th edn, Lea and Febiger, 1993.

3. Electronic Materials and Web Sites etc.

www.go.jblearning.com/basicphysicalpharmacy

I- COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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Course specification of Organic chemistry I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Organic chemistry I			
2	Course Code & Number:	MCH2151			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Second Year/ First Semester			
5	Pre –requisite (if any):	General chemistry			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Nabeel Al-Qubati			
12	Date of approval:	Dr. Mokhtar Al-Ghorafi			

B- Course Description:

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, purification method and some practical differentiation methods.

C- PROFESIONAL INFORMATION:

1-AIMS OF THE COURSE:

At the end of this module, student will be able to:

1. Nomenclature the different organic compounds.
2. Acquire a Knowledge of basic organic chemistry regarding synthesis and reactions of the main organic functional groups, organic stereochemistry.
3. Have a good understanding of organic sugar types.
4. Draw the molecular structure of organic compounds



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1. Complete chemical reactions.
- a2. Illustrate the name of any organic compounds
- a3. Explain chemical behavior of organic compounds
- a4. Recognize the preparation of any organic compounds from different sources.
- a5. Acquire the required knowledge of all basics chemistry, reactions and structures of different compounds.

B-Intellectual Skills:

- B1. Analyze the different organic compounds according to their functional groups and elements.
- b2. Carry out simple chemical reactions.
- b3. Write chemical reaction equation.
- b4. Identify the products of any reaction
- b5. Distinguish the functional groups of organic compounds by their physical and chemical properties.

C-Practical Skills:

- c1. Apply appropriate laboratory techniques in synthesis the organic compounds and analyzing their purity, safety, potency and quality as per GMP.
- c2. Identify organic compounds by using chemical reaction tests.
- c3. Perform a selection of basic laboratory procedures in general chemistry.

D-General Skills and Attitudes:

- d1. Work effectively both in a team, and independently on solving problems.
- d2. Communicate effectively with others.

D- COURSE CONTENTS:

a.

b. Theoretical Aspect:

NO	TOPICS Subtopics	NO OF HOURS	No of Lectures
1	Introduction to organic compounds: <ul style="list-style-type: none"> ❑ Classification of carbon compounds: Aliphatic compounds, Alicyclic compounds, Aromatic compounds, Heterocyclic compounds. ❑ The structures and nomenclature of functional groups. ❑ Bonding in organic compounds: covalent bonding, co – ordinate boding, ionic bonding in organic compounds, and the hydrogen bond. ❑ Structure and physical properties of organic compounds: bond dissociation energy, polarity of bonds, polarity of molecules, melting points, intermolecular forces (Dipole – dipole interactions, hydrogen bonds, and Van Der Waals forces), boiling point, and solubility. ❑ Acids and bases: The Lowry – Bronsted definition, and the Lewis definition. ❑ Hybridization of atomic orbitals of carbon: carbon atom in the ground state and in the excited state, SP^3- 	2	1



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	Hybridization, SP ² Hybridization, SP – hybridization, the formation of single, double, and triple bonds between carbon atoms, the structure of NH ₃ and H ₂ O (SP ³ – Hybridization).		
2	Isomerism: Introduction and definition, structural isomerism (Definition, chain isomerism, position, isomerism, functional isomerism, Metamerism, Tautomerism), Stereoisomerism or stereochemistry (Definition, tetrahedral carbon atom, optical isomerism, polarized light, optical activity, specific optical rotation, polarimeter, chirality, enantiomerism, racemisation (definition, racemic modification preparation, and resolution of racemic modifications), Diastereomrism, Geometric isomerism (cis – and trans – isomers), Z/E isomerism, Meso compounds, Relativ and absolute configurations (definition, relative configurations D – and L -, absolute configurations R –and S -), number of stereoisomers, representation of configuration of enantiomers, (Fisccher's projection, Newmann's projection, Wedge projection, and Sawhorse projection Formulas), elements of symmetry (plane and centre of symmetry), optical isomerism without Asymmetric Atom.	2	1
3	Conformational Isomerism of Alkanes: Definition, Staggered, Eclipsed, and Gauche Conformers, Factors influencing the Conformational Stability (Torsional Strain, Steric Strain due to V	2	1
4	Alkanes (Paraffinic Hydrocarbons): Definition and Nomenclature, Structural Isomerism, Nomenclature of Functional groups, General methods of preparation, naturally occurring Alkanes, Properties of Alkanes, General Reactivity, Halogenation, Oxidation, Dehydrogenation, Nitration, and Sulphonation of Alkanes	2	1
5	Alkenes-Double Bond (Olifinic Hydrocarbons): Definition, Nomenclature, Compounds of Biological interest which containDouble Bonds, General methods of preparation, Properties of Alkenes, General reactivity (Addition of Halogens, Addition of water and related compounds, Oxidation - Reduction of the Double Bond, Addition reactions ound to the substituted Double Bond and Markovnikov's Rule).	2	1



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6	Commutative Dienes: Commutative Dienes (Synthesis and Reactions), Isolated Dienes (Synthesis and Reactions), Conjugated Dienes (Synthesis and Reactions). Alkynes: Definition and Nomenclature, General methods of preparation, Reactions of Alkynes	2	1
7	Cyclic Aliphatic Hydrocarbons (Cycloalkanes): Definition, Nomenclature, Conformations of Cycloalkanes and their Stabilities, Factors influencing stability of conformation (Angle Strain Torsional Strain, Steric Strain, Dipole -dipole interactions), Conformations of Cyclohexane (Chair Conformation, and Boat Conformation), Equate and Axial Bonds in Cyclohexane, 1,3-Diaxial interactions in substituted Cyclohexane, Stereoisomerism in Cyclic Compounds (cis and trans-isomers), Enantiomers in Cyclic Compounds.	2	1
8	Chemical Reactions: General aspects of Chemical Reactions, Reaction Mechanism Classification of Organic Reactions (Substitution, Elimination, Addition to Multiple Bonds, Molecular Rearrangements), Classification of Organic Reagents (Nucleophiles, Electrophiles, and Free Radicals), Charge Distribution in Organic Molecules and Electronegativity, Inductive effect, Mesomeric Effect and -Electron Delocalisation and Resonance.	2	1
9	Energy Changes during Reactions: Bond Dissociation Energy, Heat of Reaction, Energy of Activation, Transition State, Progress of Reaction (Exothermic and Endothermic Reaction).	2	1
10	Aliphatic Nucleophilic Substitution Reactions: Definition, the Relationship between Nucleophilicity and Basicity, the SN2 Mechanism, the SN1 Mechanism, the Factors Favoring either SN2 or SN1 Reactions, Energetics of SN1 and SN2 Reactions, Stereochemistry of SN1 and SN2 Reactions, Mixed SN1 and SN2 Mechanisms, Transition between SN1 and SN2 Mechanisms, Factors influencing the Course of Substitution Reactions (Nature of the substrate, Nature of the Solvent, Nature of	2	1



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	Nucleophile, Nature of the Leaving Group, the Neighbouring Group Participation).		
11	Elimination Reactions: Elimination, - Elimination or 1,2-Elimination (Dehydrogenation, Dehydration Dehalogenation, and Dehydrohalogenation), E1 and E2 Mechanism Competition between E2 and SN2 Reactions, E1cB Eliminations, Orientation of Double Bond	2	1
12	Alkylation: Definition, Perkin's Reaction, Knoevenagel's Reaction, Stobbe's Condensation, Michael's Addition Reaction, Cyanoethylation, Mannich's Reaction, Reformatsky's Reaction	2	1
13	Molecular Rearrangements: Definition, Pinacol's rearrangement, Wanger-Meerwein's rearrangement, Wolff rearrangement, Hofmann's rearrangement, Lossen's rearrangement, Beckmann's rearrangement, Claisen's rearrangement, Allylic rearrangement, Favorskii's rearrangement, Orton's rearrangement	2	1
14	Free Radical Reactions: Definition, Generation of Stable Free Radicals, Generation of Short-lived Free Radicals, Radical Coupling Reactions, Types of Free Radical Reactions (Radical Displacement, Radical Addition, Radical Substitution in Aromatic Systems).	2	1
Number of Weeks/and Units Per Semester		28	14
b – Practical Aspect:			
Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Instruction in the laboratory methods of organic chemistry rules and ethics in laboratory. Purification some organic compounds by Filtration	1	2
2	Purification some organic compounds by Recrystallization	1	2
3	Purification some organic compounds by Sublimation and Simple distillation	1	2
4	Purification some organic compounds by Steam distillation and Determination of Boiling Points	1	2



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5	Determination of melting point and mixed melting point	1	2
6	Combustion experiments (benzene and hexane)	1	2
7	Extraction of caffeine from tea	1	2
8	The separation of benzoic acid from p dichloro benzene Separation of methyl orange for methylene blue using a chromatography column (adsorption)	1	2
9	acetylsalicylic acid extraction of aspirin tablets extraction of R - (+) - limonene from orange peel and grapefruit.	1	2
10	□□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).	1	2
11	Final Exam		
Number of Weeks /and Units Per Semester		11	22

E- TEACHING AND LEARNING METHODS:

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

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Exercises and Home works Quizzes	2	5	5%
2	Project	4	5	5%



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3	Practical Reports	5	10	10%
4	Written Test	6	10	10%
5	Final Exam (theoretical)	12	50	50%
Total			100	100%

H- REFERENCES:

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

- 1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6th 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, 4th edition, Wiley and Sons., Inc. New York.

2. Essential References.

1. I. L. Finar, Organic Chemistry: The Fundamental Principles, 1963, Fourth edition, longman green and company ltd. London.
2. John McMurry. " Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.
3. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6th edition, John Wiley and Sons, Inc., Hoboken, New Jersey
4. 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.

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I- COURSE POLICIES:

- 1- Class Attendant:
Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
- 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:
 - Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
 - Students will not be allowed to leave the exam room until unless half of the examination time is passed.
 - 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.
 - 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%.



- The student will be considered as failed if he broke the regulations and roles of examination.
 - 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.
 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
- 4- Assignments & Projects:
- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
 - Late Assignments / Extensions
 - Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
 - Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
 - In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
- 5- Cheating:
- 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.
 - Midterm Exam cheating results in giving the student a mark of zero
 - 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.
 - If the student's 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.
- 6- Plagiarism:
- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
- 7- Other policies: Using Internet Sources:
- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
 - In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
 - If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Anatomy

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Anatomy				
2	Course Code & Number:	CR2115				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Second Year /First Semester				
5	Pre –requisite (if any):	Biology				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mohammed Masoud				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

For students undertaking this course, the aims are to:

1. To acquire an appropriate background about and recognize the normal structure and function of the body and of each of its major systems
2. To acquire an appropriate background about and understand different stages of the life cycle and how these affect normal structure and function
3. Demonstrate knowledge of the structure and function of the body and its major organ systems and of the molecular and cellular mechanisms



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Describe course, relations and branches of main blood vessels and branches of main nerves of the body
- a2. Describe the functional capabilities of each tissue type and relate them to the structure

B-Intellectual Skills:

- b1. Interpret the normal anatomical structures on radiographs

C-Practical Skills:

- c1. Detect the important features of ske

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic

D- COURSE CONTENTS:

NO	TOPICS	Sub topics	NO OF HOURS	No of Lectures
1	Skeleton	<ul style="list-style-type: none"> • Structure and classification • Bones of upper and lower limb • Joints 	2	1
2	Respiratory	<ul style="list-style-type: none"> • Structure The lungs and bronchioles 	2	1
3	Digestive system	The mouth cavity <ul style="list-style-type: none"> • Esophagus • Stomach, liver spleen and pancreas • Intestine • Appendix • Rectum 	6	3
4	Nervous system	<ul style="list-style-type: none"> • Structure and Classification • Structure of spinal cord • Spinal nerves • The autonomic nervous system <ul style="list-style-type: none"> o Sympathetic o Parasympathetic 	4	2
5	Cardiovascular system	<ul style="list-style-type: none"> • The heart • Blood vessels 	2	1
6	Kidney	<ul style="list-style-type: none"> • The kidney • Ureter • Urinary bladder 	2	1
7	Anatomy of sense organs	<ul style="list-style-type: none"> • Eye • Ear • Nose • skin 	2	1



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8	Anatomy of endocrine glands	<ul style="list-style-type: none"> Thyroid Pancreas Pituitary Adrenal glands Gonads 	4	2
9	Reproductive system	Female: <ul style="list-style-type: none"> The uterus The vagina The ovary Anatomy of the breast Male : <ul style="list-style-type: none"> The testis Scrotum The penis 	4	2
Number of Weeks/and Units Per Semester			28	14

E- TEACHING AND LEARNING METHODS:

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

F- ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Exercises and Home works Quizzes	2	5	5%
2	Project	4	5	5%



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3	Practical Reports	5	10	10%
4	Written Test	6	10	10%
5	Final Exam (theoretical)	12	50	50%
Total			100	100%

H- REFERENCES:

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

1. John A. Gosling, Philip F. Harris (2008). Human anatomy color atlas and textbook Fifth edition. Elsevier, Spain.
2. Inderbir Singh (2011). Textbook of Human Histology: With Colour Atlas and Practical Guide. 6th edition. Jaypee, Newdelhi, India
3. David Shier, 2012, Holes Human Anatomy & Physiology 11th Edition, McGraw Hill, US
4. William Arnould-Taylor, 1998, Textbook of Anatomy and Physiology, 3rd edition, Nelson Thornes, USA.

2. Essential References.

- Gerard J. Tortora, Mark Nielsen (2013). Principles of Human Anatomy, 13th Edition. Wiley, UK.

3. Electronic Materials and Web Sites etc.

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 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he



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did so.

4- Assignments & Projects:

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- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Physiology I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Physiology I				
2	Course Code & Number:	CR2114				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	Second Year/First Semester				
5	Pre –requisite (if any):	Biology				
6	Co –requisite (if any):	Anatomy				
7	Program (s) in which the course is offered:	Bachelors of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Yousef Saeed				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

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

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire an appropriate functional background of cells, tissues, organs& systems.
2. Integrate physiological data & mechanisms with the ongoing basic sciences: anatomy, histology& biochemistry and clinical applications.
3. Follow the rapidly changing and inflating details about molecular biology & genetics.
4. Explore in detail the functions of the autonomic, the neuromuscular, the respiratory and the cardiovascular systems as well as their integration to achieve homeostasis.
5. Develop the basic scientific research skills as well as effective communication and team work attitudes.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Recognize the cellular functions at the organelle and molecular level.
- a2. Describe & explain the function of the nerve cell the nerve & muscle fiber grossly & the molecular level.
- a3. Explain function of the autonomic nervous system, different component of blood, the respiratory & cardiovascular system both grossly and molecular level.
- a4. Acquire knowledge on some biophysical laws & their relation to physiology.

B-Intellectual Skills:

- b1. Analyze the most important physiological laboratory results (blood, respiratory, neuromuscular), to distinguish a physiological from pathological condition.
- b2. Comment, on some clinical parameters such as: ABP, ECG, nerve conduction velocity pulmonary functions for a normal individual.
- b3. Integrate physiology with other basic and clinical sciences.

C-Practical Skills:

- c1. Detect the most important respiratory function tests.
- c 2. Perform the measurement of the arterial blood pressure.
- c 3. Manipulate a stethoscope for hearing heart & respiratory sounds.
- c 4. Record & read an electrocardiogram.
- c 5. Present physiological scientific data in a graphical form.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

Theoretical Aspect

NO	TOPICS AND SUBTOPICS	NO OF HOURS	No of Lectures
1	Cell: <ul style="list-style-type: none"> Brief account on cell structure 	1	2
2	Respiratory system: <ul style="list-style-type: none"> Physiology of respiration. Control of respiration Hypoxia, cyanosis and dyspnea Pulmonary function tests 	2	4
3	Digestive system: <ul style="list-style-type: none"> Function of digestive organs. Movements of alimentary canal Role of enzymes in digestive process 	2	4
4	Nervous system: <ul style="list-style-type: none"> Neurons Synapses 	3	6



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	<ul style="list-style-type: none"> Ganglion Membrane potential Impulse generation and conduction Reflex arc Function of central nervous system. Autonomic nervous system 		
5	Muscular system: <ul style="list-style-type: none"> Physiology of muscle contraction Movement of muscles. Muscular disorder 	2	4
6	Urinary system : <ul style="list-style-type: none"> Function of urinary organs. Fluid & electrolytes balances. 	2	4
7	Physiology of special senses: <ul style="list-style-type: none"> Function of: Skin, Eye, Ear, Nose, and Tongue. Physiology smell, taste, vision, hearing and pain. 	2	4
Total number of weeks and hours		28	14

E- TEACHING AND LEARNING METHODS:

1. Lectures using data show
2. Video animation and seminars
3. Group discussion
4. Tutorial
5. Laboratory work (Models)

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60

G- STUDENT ASSESSMENT METHODS:

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%



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5	Final Exam (theoretical)	12	50	50%
Total			100	100%

H- REFERENCES:

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

- 1- Text book of medical physiology, Guyton and Hall, 12th 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

2. Essential References.

1. Textbook: Human Physiology, 13th 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 13th Ed. David Shier 2012

3. Electronic Materials and Web Sites etc.

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

I- COURSE POLICIES:

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be eligible to take the exam as first attempt.

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Second Year / Second Semester



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Course specification of psychology

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	psychology				
2	Course Code & Number:	ASS2282				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	Second Year/ Second Semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mohammed Sahlol				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

The course provides a general overview of the most prominent topics in psychology by introducing psychology, its fields, schools, and goals. The course also addresses personality, the determinants of human behavior, motivation, sensation, attention, and human perception. Finally, the course addresses the topics of memory and forgetting.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Identify the conditions that affect memory and intelligence.
2. Determine the role of pharmacists in public health education.
3. Recognize the social and behavioral sciences related to pharmacy.
4. Recognize skills of thinking and decision making.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Identify the conditions that affect memory and intelligence.
- a2. Determine the role of pharmacists in public health education.

B-Intellectual Skills:

- b1. Recognize thinking and decision making skills.

C-Practical Skills:

- c1. Demonstrate the role of the pharmacist in public health education, regarding vaccination, drug abuse and misuse.
- c2. Apply negotiation skills

D-General Skills and Attitudes:

- d1. Work effectively both in a team, and independently on solving problems.

D- COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUB TOPICS	NO OF HOURS	No of Lectures
1	Introduction and terminology & Psychology of learning	2	1
2	Psychological principles & Personality.	2	1
3	Biological basic of behavior & Mental processes: a. Sensation b. Conceit c. Emotion	2	1
4	Mental abilities	2	1
5	Motor skills & Psychology of negotiation skill	2	1
6	Motives	2	1
7	Psychological health	2	1
8	An introduction to pharmacological Psychology & Psychotherapy	4	2
9	Behavioral medicine & The principles of medical sociology	2	1
10	Sociology of medicine & Sociology of hospital	2	1



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11	Preventive method & Psychological causes of drug abuse and addiction	2	1
12	Professional medicine	2	1
13	Psychological and social medicine	2	1
Number of Weeks/and Units Per Semester		28	14

E- TEACHING AND LEARNING METHODS:

1. Lectures.
2. independent study and discussion
3. video animation and seminars

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES

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



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1-Irving B. Weiner, (2003), Handbook of Psychology. Personality and Social Psychology, volume 5, 1st edition, John Wiley & Sons, Inc, Canada.

2. Essential References.

Susan Ayers, Andrew Baum, (2007), Cambridge Handbook of Psychology, Health and Medicine, 2nd edition, Cambridge University press, Cambridge, UK.

3. Electronic Materials and Web Sites etc.

1-www.arabpsynet.com/archives/op/OP.khat-jordcons.htm.

2-www.arabpsynet.com/book/samer

I- COURSE POLICIES:

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Course specification of Analytical chemistry II

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Analytical chemistry II			
2	Course Code & Number:	ACH2272			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Second Year/ Second Semester			
5	Pre –requisite (if any):	Analytical Chemistry I			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Mohammed Abas			
12	Date of approval:	Dr. Majed Alwan			

B- COURSE DESCRIPTION:

This course will provide students with the redox and complexation titrations, basic concepts, definitions, types, titrations curves, indicators, problems and application in quantitative analysis. The parts II focuses, introduction for gravimetric analysis, definitions, steps required in gravimetric analysis, gravimetric factor, gravimetric calculations, examples of gravimetric analysis, precipitation equilibria, factors affecting the solubility of the precipitate and application in quantitative analysis

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Recognize the benefits and problems of analytical chemistry II for society.
- 2- Define the basic principles of analytical chemistry II and analytical techniques used in analytical chemistry.
- 3- Explain the suitable requirements of precipitation titrations.

2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1. Recognize the different types of analytical chemistry techniques.
- a2. Identify the importance requirements of suitable volumetric analysis and express the concentrations of solution

B-Intellectual Skills:

- b1. Analyze the different types of samples.
- b2. Integrate the concepts of analytical chemistry with those of other related fields and interpret certain medical phenomena based on such concepts

C-Practical Skills:

- c1. Use the balance, equipment in laboratory to identify and measure the concentrations.



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c2. Apply rules and guidelines related to safety precautions in the laboratory to perform experiments in a risk-free environment

D-General Skills and Attitudes:

d1. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS AND SUB TOPIC	NO OF HOURS	No of Lectures
1	Course introduction and refreshments for volumetric methods.	2	1
2	Precipitation Equilibria, factors affecting the solubility of the precipitate.	2	1
3	Applications involving calculations of sparingly soluble salts.	2	1
4	Deferent methods of titrations and their applications. Titration curve determination.	2	1
5	Reduction – Oxidation Equilibria, types of electrochemical cells.	2	1
6	Electrode potential and types of electrodes.	2	1
7	Calculations concerning the application of Nernst equation.	2	1
8	Redox – titration, titration curve and factors the titration curves.	2	1
9	Iodi and iodo metric titrations and applications for determination of reducing and oxidizing agents.	2	1
10	Complexation Equilibria Complexation Equilibria complexing, types of agents and their conditions of applications.	2	1
11	Complexometric titrations involving EDTA	2	1
12	Applications of EDTA – titration methods	2	1
13	Gravimetric methods of analysis.	2	1
14	Application for the determination of deferent types of salts	2	1
Number of Weeks/and Units Per First semester4		28	14

b - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Preparation and standardization of potassium permangnatesolution	1	2



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2	Preparation and standardization of ceric ammonium sulphate solution	1	2
3	Preparation and standardization of potassium iodidesolution	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		12	24

E- TEACHING AND LEARNING METHODS:

1. Lectures
2. Practice session,
3. Discussions,
4. Solving Problem methods,
5. Group assignments,
6. Small group discussions
7. Practical classes

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Exercises and Home works Quizzes	2	5	5%
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Total			100	100%

H- REFERENCES:



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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, 8th 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

2. Essential References.

1. DEAN'S Analytical Chemistry Handbook, 2004, Second edition, McGraw-Hill Handbooks, New York, USA.
2. Somenath Mitra, Sample Preparation Techniques in Analytical Chemistry, 2003, A John Wiley and Sons, Inc., Publication, Canada.
3. K. Danzer, Analytical Chemistry Theoretical and Metrological Fundamentals, 2007, Springer-Verlag Berlin Heidelberg.-8.

3. Electronic Materials and Web Sites etc.

- 1-The Analytical Abstracts database (<http://www.rsc.org/CFAA/AASearchPage.cfm>)
- 2 - The Analytical Forum on ChemWeb (<http://analytical.chemweb.com/search/search.exe>)

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Course specification of Pharmaceutics II

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmaceutics II				
2	Course Code & Number:	CEU2225				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Second Year/ Second Semester				
5	Pre –requisite (if any):	Pharmaceutcs1				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Hamoud Abdullah				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

This course is intended to provide the Knowledge and skills necessary for the continued developing roles of pharmacist. The course will cover the formulation of different types of semisolid dosage forms as skin drug delivery system, Pharmaceutical inserts suppositories and pessaries, Aerosols also learn about pharmaceutical products stability and stability testing.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. To acquire a detailed knowledge and understanding concerning preparation and controlling of various pharmaceutical dosage forms.
2. To provide theoretical principles outlined in the syllabus in relation to pre-formulation concepts, design and formulation of a different pharmaceutical dosage forms.
3. To correlate the theoretical knowledge to the formulation of proprietary dosage forms discussed in this syllabus and an understanding of the manufacturing processes involved in the preparation of these dosage forms.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A. KNOWLEDGE AND UNDERSTANDING:

- a1- Acquire knowledge on the principles of design and formulation of pharmaceutical aerosol dosage forms.

B. INTELLECTUAL SKILLS

- b1-Analyze the instability of pharmaceutical dosage forms when occurred.

- b2-Illustrate the drug manufacturing relating problems and solve it.

C. PROFESSIONAL AND PRACTICAL SKILLS

- c1- Prepare of certain pharmaceutical dosage forms.

- c2- Formulate good and stable dosage form like ointments, creams and suppositories

D. GENERAL AND TRANSFERABLE SKILLS

- d1. Work separately or in a team to research and prepare a scientific topic.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUB TOPICS	NO OF HOURS	No of Lectures
1	Ophthalmic preparation <ul style="list-style-type: none"> Principles of ocular drug absorption. Ophthalmic solution. Ophthalmic suspension. Ophthalmic ointments. Ocuserts (ophthalmic inserts) Examples of drugs used to treat certain eye diseases. 	6	3
2	Therapeutic aerosols <ul style="list-style-type: none"> Definition and uses of therapeutic aerosols. Instability of aerosols Deposition of aerosols in the human respiratory tract. Formulation and generation of aerosols <ul style="list-style-type: none"> Pressurized packages <ul style="list-style-type: none"> Type of propellants Containers Formulation aspects Performance of pressurized packages as inhalation aerosol generators Air-blast nebulizers Dry powder generators Methods of preparation Evaluation methods <ul style="list-style-type: none"> Leaking and pressure testing of containers. 	6	3



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	○ Output, drug concentration and dose delivered Size analysis		
3	Semisolid dosage forms <ul style="list-style-type: none"> • Skin anatomy and physiology • Percutaneous absorption and factors affecting it. • Ointments <ul style="list-style-type: none"> ▪ Classification of ointment bases ▪ Additives included in ointment bases ▪ Methods of Preparation of ointments and packaging. ▪ Some examples of medicated ointments • Creams <ul style="list-style-type: none"> ▪ definition ▪ Classification of creams ▪ Some examples of medicated creams • Pastes <ul style="list-style-type: none"> ▪ Definition ▪ Composition ▪ Examples of medicated pastes • Gels <ul style="list-style-type: none"> ▪ Composition and uses • Evaluation of drug release from ointment and cream bases. 	10	5
4	Suppositories <ul style="list-style-type: none"> • Introduction • Advantages and disadvantages • Anatomy and physiology of rectum • Factors affecting rectal drug absorption. • Shapes and size of suppositories. • Types of suppository bases. • Methods of Preparation of suppositories. • Displacement value • Calibration of suppository mould with bases. 	4	2
Number of Weeks/and Units Per Semester		28	14
b - Practical Aspect:			
Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Yellow Simple ointment (ointment base)	1	2



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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 Semester		13	26

E- TEACHING AND LEARNING METHODS:

- Lectures using data show
- Video animation and seminars
- Laboratory work
- Directed reading
- Independent study
- Group discussion
- visiting to pharmaceutical industry companies

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessme



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				nt
1	Exercises and Home works Quizzes	2	5	5%
2	Project	4	5	5%
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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. Essential References.

- Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10thedition., Williams and Wilkins. Maryland, USA.

3. Electronic Materials and Web Sites etc.

- www.go.jblearning.com/basicphysicalpharmacy

I- COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progress until the week of deadline. 80% attendance is the basic requirement of this course. Students failing this requirement will face a penalty of mark percentage deduction. Any progression checks after will NOT be accepted, unless you have valid reasons with supportive documents.

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 will be warned and will be asked to write undertaken for not repeating that, otherwise his guardian will



notified and the student will miss the classes and will be considered as failed.

3- Exam Attendance/Punctuality:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the beginning of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to retake the exam as first attempt.
- If the student misses the final exam he will be considered as failed and if the repeated exam will be considered as the minimum of 50%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you provide valid reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assignment and there are extenuating circumstances preventing them from delivering the assignment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an official medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
- 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 student cheats in the last day of exam the student will be considered as failed in that course and the previous one.
- If the student 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.

6- Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:



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- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying information or graphics from a WWW site (or from a printed source) into a paper is very similar to copying textual information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.



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Course specification of Organic chemistry II

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Organic chemistry II				
2	Course Code & Number:	MCH2252				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Second Year/ Second Semester				
5	Pre –requisite (if any):	Organic Chemistry I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Nabeel Al-Qubati				
12	Date of approval:	Dr. Mokhtar Al-Qhorafi				

B- COURSE DESCRIPTION:

This course will enhance students understanding of different organic compounds that includes; 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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

At the end of this module, student will be able to:

1. Acquire a Knowledge of basic organic chemistry regarding synthesis and reactions of the main organic functional groups, organic stereochemistry.
2. Nomenclature the different organic compounds.
3. Describe the relationship between structure, physical and chemical properties.
4. Illustrate the preparations and reactions mechanism of common functional groups



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1. Acquire knowledge the origin and the theory of aromaticity in addition to important features of benzene chemistry (electrophilic substitution reactions and directing groups).
- a2. Give the name of any organic compounds.
- a3. Identify other benzene derivatives such as: alkyl halides halogen, alcohol, ethers and epoxides, aldehydes, ketones, carboxylic acid and amines.
- a4. Explain the outcome of organic reactions.
- a5. Acquire the required knowledge of all basics chemistry, reactions and structures of different compounds.

B-Intellectual Skills:

- b1. Analyze the different organic compounds according to their functional groups and elements.
- b2. Carry out simple chemical reactions.
- b3. Write chemical reaction equation.
- b4. Identify the products of any reaction
- b5. Distinguish the functional groups of organic compounds by their physical and chemical properties.

C-Practical Skills:

- C1. Apply appropriate laboratory techniques in synthesis the organic compounds and analyzing their purity, safety, potency and quality as per GMP.
- C2. Identify organic compounds by using chemical reaction tests.
- C3. Perform a selection of basic laboratory procedures in general chemistry.

D-General Skills and Attitudes:

- D1. Work effectively both in a team, and independently on solving problems.
- D2. Communicate effectively with others.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUB TOPICS	NO OF HOURS	No of Lectures
1	Aromatic compounds <ul style="list-style-type: none"> Aromatic character, Huckel rule, Nomenclature. Electrophilic aromatic substitution reactions and mechanism of (Alkylation, halogenations, acylations, nitration, sulphonation) side chain (halogenations of alkyl side chain, oxidation). <ul style="list-style-type: none"> Orientation in monosubstituted benzenes derivatives. 	4	2
2	Organic halides <ul style="list-style-type: none"> Nomenclature, physical properties. Synthesis [halogenations of alkanes, addition of HX to alkenes and alkynes, from alcohol (SOCl₂ , PX₃, PX₅)]. (S_N1, S_N2, E1, E2) 	4	2



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	<ul style="list-style-type: none"> Reactions and mechanisms of (nucleophilic substitution elimination, Grignard's reagent, reduction by metal and acids) 		
3	Alcohols <ul style="list-style-type: none"> Nomenclature, physical properties. Addition of water to alkenes; oxidation of alkenes Substitution of halogen in halide alkyl Grignard reagent with Aldehydes, ketones and esters, reduction of Aldehydes, ketones, acids and esters). 	4	2
4	Alcohols <ul style="list-style-type: none"> Reaction of alcohols (salt formation, oxidation, ester formation. Reactions with hydrogen halide, SOCl_2, PX_3, Elimination of H_2O 	2	1
5	Ethers and epoxides <ul style="list-style-type: none"> Nomenclature, physical properties. Synthesis of ether (dehydration of alcohols, William synthesis of epoxide, synthesis from alkenes and alcohol.. Reaction of ethers (with HI, reaction of epoxide (three member ring) with H_2O, ROH, HX, LiAlH_4, phenol, Grignard reagent. 	4	2
6	Aldehyde and Ketones <ul style="list-style-type: none"> Nomenclature, physical properties. Synthesis [oxidation of alcohols, ozonolysis of alkenes, hydration of alkynes, hydrolysis of alkyl dihalides]. Reaction of aldehyde and ketones [reaction of carbonyl compounds, addition of Grignard reagent, addition of alkynide ions, addition of HCN. Addition of alcohol, (hemiacetal, acetal, hemiketal, and ketal formation, no mechanism) Addition of ammonia and its derivatives, synthesis of amino acids, acidity of aldehydes and ketones, aldol condensation 	6	3
7	Carboxylic acid and their derivatives <ul style="list-style-type: none"> Nomenclature, physical properties. <ul style="list-style-type: none"> Synthesis [oxidation of aldehyde], carbonation of Grignard reagent, hydrolysis of nitrile, and carbonation of acetylene. Reaction of carboxylic acid (salt formation, formation of acid derivatives: acid chloride, acid anhydride, amide, ester. Reaction of acid derivatives [elimination reaction, hydrolysis of acid chloride, ester, reaction with acid chloride, acetylation, reduction 	4	2



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Number of Weeks/and Units Per semester		28	14
b. Practical Aspect			
Order	Tasks/ Experiments	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.	1	2
9	Preparation of benzoic acid oxidation of benzyl alcohol	1	2
10	Final Exam	1	2
Number of Weeks /and Units Per Semester		10	20

E- TEACHING AND LEARNING METHODS:

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

F- ASSIGNMENTS AND PROJECTS:



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No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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

- 1- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6th edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.
- 2- K.-H. Hellwich · C. D. Siebert, "Stereochemistry Workbook" 2006, Springer-Verlag Berlin Heidelberg, Berlin.

2. Essential References.

1. I. L. Finar, Organic Chemistry: The Fundamental Principles, 1963, Fourth edition, longman green and company ltd. London.
2. John McMurry. " Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.
3. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6th edition, John Wiley and Sons, Inc., Hoboken, New Jersey
4. 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.

www.orgsyn.org

I- COURSE POLICIES:



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1- Class Attendant:

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Course specification of Histology

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Histology				
2	Course Code & Number:	CR2217				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Second Year/ Second Semester				
5	Pre –requisite (if any):	Anatomy				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mohammed Masoud				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

For students undertaking this course, the aims are to:

1. Describe how the embryology development of different tissues and organs from three germ layers: ectoderm, mesoderm, endoderm.
2. Introduce the types of tissues: epithelial, connective, muscles and nervous.
3. Introduce the structures and functions for each tissues.
4. Recognize the locations of each cells.
5. Describe the structures of bone and cartilage.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A. KNOWLEDGE AND UNDERSTANDING:

- a1. Recognize how the tissues and organs development during the embryology, By using power point presentation using videos and several pictures.
- a2. Identify the chemical systems employing both qualitative and quantitative approaches.
- a3. Identify functions of cells and tissues and understand the structures for each tissue, By using power point presentation using videos and several pictures.
- a4. Recognize and Know the basic steps in preparing specimens for light and electron microscopy, By using power point presentation using videos and several pictures.

B. INTELLECTUAL SKILLS

- b1. Correlate between histological structure and function of different organs of all studied systems.
- b2. Relate the composition of each tissue type to its specific functions.
- b3. Differentiate between normal and abnormal karyotyping .
- b4. Predict which structures are present in a cell from its function.

C. PROFESSIONAL AND PRACTICAL SKILLS

- c1. List the instruments and techniques used to prepare and study histological specimens. By using power point presentation using videos and several pictures to see the cells and tissues.
- c2. Detect different cellular and intracellular components in electron photomicrographs.
- c3. Interpret the difference between types of cells and tissues in histological slides.

D. GENERAL AND TRANSFERABLE SKILLS

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUBTOPICS	N O O F H O U R S	No of Lectures
1	Introduction to histology-types of tissues	2	1
2	Epithelium: <ul style="list-style-type: none"> General characteristics of epithelium & its types Types of simple epithelium (structure & sites) Structure & sites of stratified squamous & stratified columnar epithelium Glandular epithelium with reference to sites Neuro- and myo-epithelium with reference to sites 	4	2



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	<ul style="list-style-type: none"> General functions of epithelium Modifications of epithelial cells surfaces: Apical, basal & lateral modifications Basement membrane 		
3	Connective Tissue: <ul style="list-style-type: none"> General characteristics Cells of C.T. proper (LM, EM & functions) Fibers of C.T. Ground substance Types of C.T. proper with reference to sites General functions of C.T. proper Adipose Tissue 	2	1
4	Cartilage: <ul style="list-style-type: none"> Types of cartilage Histology of each type Sites of each type General functions 	2	1
5	Bone: <ul style="list-style-type: none"> Types of bone with reference to sites Methods of preparation of bone section Bone cells & their functions Intercellular substance (components & chemical composition) Histology of compact bone Histology of spongy bone Differences between cartilage & bone Ossification (intramembranous & intracartilagenous) 	2	1
6	Blood & Hemopoiesis: <ul style="list-style-type: none"> Components of Blood Staining of blood cells Normal structure, size & number of erythrocytes , ultrastructure & functions Abnormalities in structure, size & number of RBCs Polycythaemia & anaemia and their causes Types of WBCs & normal percentage of each Total RBCs count Total leucocytic count & its clinical importance Differential leucocytic count & its importance Structure (LM & EM) & function of WBCs Structure (LM & EM) & function of platelets Types & structure of bone marrow Erythropoiesis 	4	2



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	<ul style="list-style-type: none"> Granulopoiesis Development of lymphocytes Development of monocytes Development of platelets 		
7	Muscle Tissue: <ul style="list-style-type: none"> General histological characteristics and types of muscle tissue Skeletal muscle fibers (LM , EM) & molecular structure Types of skeletal muscle fibers Mechanism of muscle contraction Smooth muscle fibers (LM & EM) Cardiac muscle fibers (LM & EM) Conducting system of heart 	2	1
8	Nerve Tissue: <ul style="list-style-type: none"> Types (classification) of neurons & examples EM of nerve cell body (Perikaryon) Dendrites & axons Types of nerve fibers with examples Histology of peripheral nerve fibers Structure of nerve trunk Spinal & autonomic ganglia Synapse Degeneration & Regeneration of nerve fibers Neuroglia (Definition, Classification & Sites) Structure & function of proper neuroglia cells 	4	2
9	Vascular System: <ul style="list-style-type: none"> General structure of blood vessels & its significance Large, medium sized & small arteries Small, medium sized & large veins Types, sites & structure of Arteriovenous connections 	2	1
10	Lymphatic (Immune) System: <ul style="list-style-type: none"> Cells involved in the immune system & their functions Antigen presenting cells Primary & secondary immune response Cellular & Humoral immunity Lymph vessels & distribution of lymphoid tissue Structure of Lymph node & its immunological function Structure of Spleen & its function Differences between lymph node & spleen Blood supply of spleen & theories of circulation Structure of Tonsils Structure & functions of thymus 	4	2



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Number of Weeks/and Units Per Semester	2 8	14
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b - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
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		
Number of Weeks /and Units Per Semester		10	20

E- TEACHING AND LEARNING METHODS:

1. Lectures using data show,
2. Video animation and seminars
3. Solving Problem method,
4. Laboratory work,
5. Directed reading, independent study and discussion

F- ASSIGNMENTS AND PROJECTS:



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No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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

- 1-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. Essential References.

- 1- Functional histology
- 2- Histological techniques

3. Electronic Materials and Web Sites etc.

www.histology.com

I- COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites





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Course specification of Physiology II

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Physiology II				
2	Course Code & Number:	ASS2282				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	Second Year/ Second Semester				
5	Pre –requisite (if any):	Physiology I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Yousef Saeed				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

This course examines the function relationships of the cardiovascular system, lymphatic system, respiratory system, functions of kidneys, reproductive system, menstrual cycle, and central nervous system.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire an appropriate functional background of cells, tissues, organs & systems.
2. Integrate physiological data & mechanisms with the ongoing basic sciences: anatomy, histology & biochemistry and clinical applications.
3. Follow the rapidly changing and inflating details about molecular biology & genetics.
4. Explore in detail the functions of the autonomic, the neuromuscular, the respiratory and the cardiovascular systems as well as their integration to achieve homeostasis.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-KNOWLEDGE and UNDERSTANDING:

- a1. Acquire knowledge on the cellular functions at the organelle and molecular level.
- a2. Explain the functions of the nerve cell the nerve & muscle fiber grossly & the molecular level.

B-INTELLECTUAL SKILLS:

- b1. Analyze the most important physiological laboratory results (blood, respiratory, neuromuscular), to distinguish a physiological from pathological condition.
- b2. Comment, on some clinical parameters such as: ABP, ECG, nerve conduction velocity pulmonary functions for a normal individual.

C-PRACTICAL SKILLS:

- c1. Detect the most important respiratory function tests.
- c2. Perform the measurement of the arterial blood pressure

D-GENERAL SKILLS AND ATTITUDES:

- d1. Work separately or in a team to research and prepare a scientific topic.

D- COURSE CONTENTS:

Theoretical Aspects

NO	TOPICS SUB TOPICS	NO OF HOURS	No of Lectures
1	Blood and lymph: <ul style="list-style-type: none"> •Composition and function of blood •Blood groups •Blood coagulation •Anemias •White blood cells and immunity •Lymph formation and function •Lymph channels 	6	3
2	Cardiovascular system: <ul style="list-style-type: none"> •Heart •Structure and function of heart •Cardiac cycle (blood circulation) •Blood pressure and its regulation •ECG: methods of recording, normal record and common abnormalities. 	4	2
3	Endocrine system: <ul style="list-style-type: none"> • Physiology of endocrine glands <ul style="list-style-type: none"> ○ Thyroid ○ Pancreas ○ Pituitary ○ Adrenal glands ○ Gonads 	6	3
4	Reproductive system: <ul style="list-style-type: none"> • Female: 	12	6



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	<ul style="list-style-type: none"> Functions of Vulva, mons veneris Functions of Labia major & minor Functions of Clitoris, Vestibule Functions of Hymen Bartholin glands. Function of Ovaries, Fallopian tube, Uterus, Vagina, menstrual cycle, menopause. Function of Breast. Male : <ul style="list-style-type: none"> Function of penis and scrotum Functions of Testes, seminal vesicles Functions of Epididymis, prostate glands Functions of Vas deferens seminal vesicles. Family planning methods Sexually transmitted diseases 		
Total number of weeks and hours		28	14

E- TEACHING AND LEARNING METHODS:

1. Lectures.
2. Discussion.
3. Lab. Work.
4. Seminars

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:



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

- 1- Text book of medical physiology, Guyton and Hall, 12th 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

2. Essential References.

- 1- Textbook: Human Physiology, 13th 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 13th Ed. David Shier 2012.

3. Electronic Materials and Web Sites etc.

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

I- COURSE POLICIES:

- 1- Class Attendant:
 - Students MUST attend all the consultation sessions in class and constantly show individual progress the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet requirement will face a penalty of mark percentage deduction. Any progression checks after due date NOT be accepted, unless you have valid reasons with supportive documents.
- 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. If the student 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:
 - Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the beginning of the exam.
 - Students will not be allowed to leave the exam room until unless half of the examination time is passed.
 - If a student misses the final exam, he/she has to provide an accepted excuse he/she will be eligible to retake the exam as first attempt.
 - If the student misses the final exam he will be considered as failed and if the repeated exam will be considered as the minimum of 50%.
 - The student will be considered as failed if he broke the regulations and roles of examination.
 - 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.
 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed.



he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. As can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
- Cheating in the final exam will result in failing the student in that subject if he/she did not get better than that subject, if he/she gets benefits he/she will be considered as failed in two courses. If the student cheats in the last day of exam the student will be considered as failed in that course and the previous one.
- If the student 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.

6- Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a website, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying information or graphics from a WWW site (or from a printed source) into a paper is very similar to copying text information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.

Republic of Yemen

AL-YEMENIA UNIVERSITY

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الجامعة اليمنية
عضو عامل باتحاد الجامعات العربية

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Third Year / First Semester



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Course specification of Microbiology I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Microbiology I			
2	Course Code & Number:	ASS3183			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Third Year / First Semester			
5	Pre –requisite (if any):	Biology			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Ghamdan Al-Tahesh			
12	Date of approval:	Dr. Majed Alwan			

B- COURSE DESCRIPTION:

The course is designed to give a basic understanding of the theoretical and practical aspects of medical microorganisms, cell structure of prokaryotic and eukaryotic microorganisms, host-microbe interaction, antibiotic and drug resistance and Sterilization. Laboratory sessions are focused on gram stain, pure culture techniques, methods of staining and the microscopic, colonial and biochemical identification of microorganisms.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire knowledge about the antigenic structure of all microorganisms
2. List the classification of microorganisms
3. Deal with infections. Pathogen city and normal microbial flora.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Recognize the differential diagnosis of bacteria.
- a2. Illustrate the diagnosis of bacteria.
- a3. Explain the bacterial pathogenicity.
- a4. Recognize the pathogens causing diseases in order to prescribe the appropriate medicine.
- a5. Identify the shape and arrangement of bacteria.

B-Intellectual Skills:

- b1. Formulate the different features of the basic principles of microbiology.
- b2. Differentiate different bacterial nomenclatures; bacterial names & arrangements.
- b3. Plan the different between pathogenic bacteria and normal flora.
- b4. Interpretation the result of diagnostic tests.

C-Practical Skills:

- c1. Select the suitable and specific media for each each bacteria.
- c2. Prepare and identify pathogenic bacteria by growing in cultures, morphologic shape and arrangements.
- c3. Identify the differential diagnosis of bacteria

D-General Skills and Attitudes:

- d1. Work effectively in team.
- d2. Demonstrate written and oral communication skills.

D- COURSE CONTENTS:

a- Theoretical Aspect:

NO	TOPICS	Sub Topics List	NO OF HOURS	No of Lectures
1	• Introduction in microbiology	• Fundamentals of microbiology. • Cell structure	4	2
2	• The major groups of bacteria. • Microbial metabolism	• Definition, characteristics, classification of bacteria. • Bacteria cell structure and function. • Bacteria growth and metabolism. • Factors affecting growth. • Types of staining used in bacteriology. • Types of media and biochemical test.	4	2
3	• Mycology	• Definition, Structure, characteristics of fungi. • Classification of fungi. • Medical of fungal (Mycoses).	4	2



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4	• Normal bacterial flora.	• Respiratory tract infection • UTI (urinary tract infection)	4	2
5	• Diarrheal diseases	• Meningitis • Sepsis (Infection of skin, wounds, burns and eyes)	4	2
6	• Systemic bacteriology		4	2
7	• Virology	• Definition, Structure, characteristics of viruses. • Classification of viruses	4	2
Total			28	14

b. Practical part:

Order	Practical Experiment	No. of weeks	Contact hours
1	Infection control polices in microbiology lab	1	2
2	Preparation and sterilization of culture media	1	2
3	Inoculation and incubation of culture media	1	2
4	Examination of culture Preparation of smear	1	2
5	Gram staining	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	Determination of the minimal inhibitory concentration (MIC) and minimum bactericidal concentration (MBC)	1	2
11	Media, techniques, and incubation used for culturing fungi		
12	Collection of specimens and diagnosis of dermatophytoses	1	2
	Number of Weeks/and Units Per Semester	12	26



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E- TEACHING AND LEARNING METHODS:

- Lectures,
- Video
- seminars
- Solving Problem method,
- Laboratory work,
- Directed reading,

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mar
1	Antibiotics resistance	4	5

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Total course Assessment
1	Attendance	1 - 13	5	5
2	Assignments (1 + 2)	4, 13	10	10
3	Quiz 1 + Quiz 2	7, 12	5	5
4	Mid-semester exam of theoretical part (written exam)	6	20	20
5	Final exam of theoretical part (written exam)	17	60	60
TOTAL			100	100 %

H- REFERENCES:

1- Required Textbook(s)

1. Tille, P.M. (2017). Bailey & Scott's Diagnostic Microbiology. 14th ed. Elsevier.
2. Brooks, G.F; Carroll, K. C; Butel, J.S; Morse, S.A.(2007): Jawetz, Melnik and Adelberg's Medical Microbiology. 24ed. McCraw-Hill

2- Essential References.

1. Tortora, Funk, Case (2013). Microbiology, An introduction. 11th ed. Pearson
2. Patrick R. Murray, Ken S. Rosenthal, Michael A. Pfaller (2005). Medical Microbiology, 5th ed. Philadelphia: Elsevier/Mosby

3- Electronic Materials and Web Sites etc.

1. http://www.Microbe.org/microbes/virus_or_bacterium.asp
2. <http://www.bact.wisc.edu/Bact330/330lecturetopics>
3. <http://www.micobelibrary.org/>
4. <http://med.sc.edu:85/book/welcome.htm>
5. Web sites of Microbiology
6. Microbiology Journals (Clinical Microbiology Newsletter. Published by Elsevier Science Publishing Company. Clinical
7. Microbiology Reviews. Published by American Society for Microbiology.)

I- Course Policies:

1- Class Attendant:

- Students **MUST** attend all the consultation sessions in class and constantly show individual progression deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless valid reasons with supportive documents.

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 he/she is late in attending the class for more than three times without an excuse he/she will be warned and will be undertaken for not repeating that, otherwise his guardian will be notified and the student will miss the class and be considered as failed.

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- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information. The visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Biochemistry I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Biochemistry I				
2	Course Code & Number:	ASS3184				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Third Year / First Semester				
5	Pre –requisite (if any):	Biology				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ahmed Abdullatif				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

This course aims to provide the student with general knowledge on carbohydrates, amino acids, proteins, nucleic acids, lipids, enzymes and steroids

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. To gain an overview of Medical Biochemistry specialty e.g., its philosophy, features and methods.
2. To help students to become familiar with the biochemical knowledge and skills necessary to understand other related subjects.
3. To provide the students with an appropriate exposure to the medical biochemistry discipline this will assist students in understanding biochemical alteration in health and disease.
4. To provide students with good knowledge about structure and function of carbohydrate, lipids and proteins.
5. To provide an explanation of the relationship between the three-dimensional structure of macromolecules and their biological activities.
6. Course Specifications 2005-2006
7. To enable the students to be oriented with structure and biochemical importance of vitamins as well as the structure, functions and kinetics of enzymes.
8. To enable the students to be oriented with concepts of molecular biology and how this field gave us a new perspective and new technology used in the diagnosis, treatment and new drugs design.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Define the structure and function of carbohydrates, lipids, proteins, nucleotides and enzymes.
- a2. Illustrate the mode of action and kinetics of enzymes and their role in the diagnosis of diseases.
- a3. Illustrate structure and role of vitamins derivatives as coenzymes needed in the activity of enzymes.
- a4. Point out diseases produced by vitamins deficiency and their clinical prints on the biochemical and molecular basis.
- a5. Describe the biological transport and cell membrane and their biochemical, clinical and laboratory importance.
- a6. Describe DNA structure, replication, mutation and repair.

B-Intellectual Skills:

- b1. Interpret symptoms, signs and biochemical laboratory findings of some vitamins deficiency disease.
- b2. Interpret some plasma proteins electrophoresis
- b3. Point out the clinical significance and some enzymes reactions and kinetics
- b4. Point-out the application of molecular biology in basic and clinical sciences

C-Practical Skills:

- c1. Detect laboratory reagents and instruments used in biochemistry laboratory.
- c2. Perform chemical tests to study the properties of lipids and fatty acid.
- c3. Estimation of total plasma proteins.
- c4. Detect unknown solutions.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS	Sub topic	NO OF HOURS	No of Lectures
1	PHYSICO CHEMICAL PRINCIPLES:	Molecular structure of water. Different types of bonds -Solution-OH and pH- acids and Bases- Normal and molar solutions-Buffers and physiological buffers-osmotic pressure and surface tension- Adsorption and elution and dialysis – Diffusion expression of concentration.	2	1
2	CARBOHYDRATES:	Definition, functions and classification: Monosaccharide, disaccharides and polysaccharides Monosaccharides: Classification, structures and	8	4



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		<p>physical and chemical properties. Sugars exhibit various forms of isomerism.</p> <p>Monosaccharides of physiological importance: glucose, fructose, galactose and mannose.</p> <p>Glycoside formation with each other and with other compounds.</p> <p>Sugar derivatives of importance: sugar acids, sugar alcohols, aminosugars and deoxysugars.</p> <p>Disaccharides: maltose, sucrose, and lactose.</p> <p>Polysaccharides starch, glycogen, cellulose and insulin.</p> <p>Glycosaminoglycans (mucopolysaccharides): Structure, function and classification.</p> <p>Glycoproteins (mucoproteins) proteoglycan</p>		
3	LIPIDS:	<ul style="list-style-type: none"> Lipids of physiological functions: Definition, classification and general function. Fatty acids: Saturated and unsaturated w3 and w6 PUFA, OH fatty acids and methyl fatty acids. Triacylglycerol the main storage form of lipids. Waxes. Phospholipids: phosphatidyl compounds - sphingomyelins. Importance and functions. Glycolipids. Sterols: ergosterol and cholesterol, 7-dehydrocholesterol • , vitamin D, bile acids and steroid hormones. Eicosanoids: prostanoids, prostaglandins, prostacyclins, thromboxanes, leukotrienes and lipoxins. Polyprenoids: share the same parent cholesterol • , ubiquinone and dolichol Isoprenoids : fat soluble vitamins and carotenes Lipid peroxidation and antioxidants 	6	3
4	AMINO ACIDS AND PROTEIN:	<ul style="list-style-type: none"> Amino acids: classification according to different parameters: Essentiality, polarity, nutritionally, and structural. Properties: optical activity, amphoteric and general properties, peptide formation (examples — glutathione- insulin etc) - derived compounds. Biochemical importance and functions of proteins: structural — defense — enzymes — transport — regulation — some • hormones. 	6	3



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		<ul style="list-style-type: none"> Conformation of the proteins: primary, secondary, tertiary, quaternary — domains — motifs denaturation. Classification: simple — conjugated. Hemoproteins: myoglobin and hemoglobin, structural function — hemoglobin, derivatives — types of Hb - cytochromes — catalase. Immunoglobulin: structure and function of the different type of immunoglobulins. <p>Methods of proteins separation</p>		
5	ENZYMES:	<ul style="list-style-type: none"> Nature of enzymes: protein mainly - ribozymes. Mechanism of actions Specificity. Classification. Coenzymes and activators Isoenzymes and zymogens. <p>Enzyme units— activity — specific activity - factors affecting enzyme activity.</p> <ul style="list-style-type: none"> Enzyme kinetics Michaelis constant k_m and its significance, V_{max} Lineweaver -Burk plot (double reciprocal plot) and determinations of k_m and V_m. Inhibitors: different types and their effect on k_m and V_m Regulation of enzyme activity. <p>Application and significance of enzyme assay in medicine</p>	4	2
6	VITAMINS:	<ul style="list-style-type: none"> Introduction and Classifications Water soluble vitamins and the derived coenzymes biochemical changes —due to deficiency. vitamins and their role in biochemical Fat soluble activities 	2	1
Number of Weeks /and Units Per Semester			28	14
b- Practical Aspect:				
Order	Tasks/ Experiments		Number of Weeks	contact hours
1	Introduction and policies		2	4
2	Carbohydrates Qualitative and quantitative analysis of biomolecules		3	6



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3	Proteins Qualitative and quantitative analysis of biomolecules	3	6
4	Non-protein nitrogen Qualitative and quantitative analysis of biomolecules	3	6
5	Determination of plasma uric acid.	3	6
Number of Weeks /and Units Per Semester		12	28

E- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

F- TEACHING AND LEARNING METHODS:

1. Active lecture
2. Problem based learning & case studies
3. Tutorials reading assignment
4. Self-learning during laboratory session
5. Classroom discussions
6. Web based search
7. Supervised practice in Lab
8. Self-practice
9. Encourage active participation and effective expression of ideas during class

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	1-15	100	10%
2	Midterm Exam	8	20	20%
3	Lab Midterm Exam	8	10	10%
4	Lab Final Exam	17	20	20%
5	Final Exam	17	30	40%
Total				100%



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H- REFERENCES:

1. Required Textbook(s) (maximum two).
 - a. MALLIKARJUNA RAO, (2008). Medical Biochemistry. Second edition, New Age International Limited Publisher, New Delhi, India.
 - b. 2. John Baynes and Marek Dominiczak, 2014. Medical Biochemistry With STUDENT CONSULT Online Access. Fourth edition, Elsevier limited, China
2. Essential References.
 - a. Chatterjea MN and Shinde R, (2007). Textbook of Medical Biochemistry, 7th edition, JAYPEE BROTHERS, New Delhi, India.
 - b. 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.
 - a. <http://bcs.whfreeman.com/biochem5/default.asp>
 - b. <http://www.biochemistry.org/>
 - c. <http://www.wiley.com/college/boyer/0470003790/animations/animations.htm>
 - d. 4- <http://www.wiley.com/college/fob/anim/>

I- COURSE POLICIES:

- 1 Class Attendance: -
 - Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
- 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:

Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.

 - Students will not be allowed to leave the exam room until unless half of the examination time is passed.
 - 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.



- 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%.
 - The student will be considered as failed if he broke the regulations and roles of examination.
 - 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.
 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
- 4
- Assignments & Projects:-
 - Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
 - Late Assignments / Extensions
 - Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
 - Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
 - In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
- 5
- Cheating:
- 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
 - Midterm Exam cheating results in giving the student a mark of zer
 - 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.
 - 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.
- 6
- Plagiarism:
- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
- Intellectual Property involves:
- Another person's idea, opinion, or theory
 - Any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge
 - Quotations of another person's actual spoken or written words



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- Paraphrase of another person's spoken or written words
- Issues of intellectual property extend beyond the written word of course. Bear in mind that the use of still images, moving images, audio or any other content which you have not created yourself, and which you do not have the appropriate permission to use, serious offence resulting in a FAIL grade for the subject.

7 Other policies: -

- Using Internet Sources
- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.

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Course specification of Pharmaceutics III

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmaceutics III			
2	Course Code & Number:	CEU3126			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Third year / first semester			
5	Pre –requisite (if any):	Pharmaceutics II			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Hamoud Abdullah			
12	Date of approval:	Dr. Majed Alwan			

B- COURSE DESCRIPTION:

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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- To acquire a detailed knowledge and understanding concerning preparation and controlling of various pharmaceutical dosage forms.
- To provide theoretical principles outlined in the syllabus in relation to pre-formulation concepts, design and formulation of a different pharmaceutical dosage forms.
- To correlate the theoretical knowledge to the formulation of proprietary dosage forms discussed in this syllabus and an understanding of the manufacturing processes involved in the preparation of these dosage forms.

2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- Mention solid dosage form formulation.
- Explain the principles of formulation of pharmaceutical solid dosage forms.
- Describe the characteristics of the solid dosage forms and explain how these characteristics affect the action of the drug.



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a4. Understanding the principles of design and formulation of pharmaceutical solid dosage forms.

a5. Know and understand various methods for evaluation of pharmaceutical solid dosage forms.

B-Intellectual Skills:

b1. Recognize the problems encountered during formulation of pharmaceutical dosage forms when occurred.

b2. Identify the drug manufacturing relating problems and solve it.

C-Practical Skills:

c1. Preparation of certain pharmaceutical dosage forms.

c2. perform quality control for pharmaceutical dosage form.

c3. Ability to formulate good and stable dosage form like tablet, capsule and sustained releases dosage forms.

D-General Skills and Attitudes:

d1. Work separately or in a team to research and prepare a scientific topic.

d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

2-INTENDED LEARNING OUTCOMES:

A-Knowledge and Understanding:

a1. Mention solid dosage form formulation.

a2. Explain the principles of formulation of pharmaceutical solid dosage forms.

a3. Describe the characteristics of the solid dosage forms and explain how these characteristics affect the action of the drug.

a4. Understanding the principles of design and formulation of pharmaceutical solid dosage forms.

a5. Know and understand various methods for evaluation of pharmaceutical solid dosage forms.

B-Intellectual Skills:

b1. Recognize the problems encountered during formulation of pharmaceutical dosage forms when occurred.

b2. Identify the drug manufacturing relating problems and solve it.

C-Practical Skills:

c1. Preparation of certain pharmaceutical dosage forms.

c2. perform quality control for pharmaceutical dosage form.

c3. Ability to formulate good and stable dosage form like tablet, capsule and sustained releases dosage forms.

D-General Skills and Attitudes:

d1. Work separately or in a team to research and prepare a scientific topic.

d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a – Theoretical Aspect

NO	TOPICS	SUB TOPICS	NO OF HOURS	No of Lectures
1	Powder and granules	<ul style="list-style-type: none"> Types of powders Advantages and disadvantages 	4	2



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		<ul style="list-style-type: none"> of powders, • Cachets and Tablet triturates. • Preparation of different types of powders encountered in prescriptions. • Weighing methods, possible errors in weighing • Minimum weighable amounts and weighing of material below the minimum weighable amount • Geometric dilution and proper usage and care of dispensing balance. • Granules • Effervescent granules • Formulation • Preparation 		
2	Tablets Compressed tablets	<ul style="list-style-type: none"> • Introduction • Advantages and disadvantages. • Types of compressed tablets. • Tableting methods <ul style="list-style-type: none"> ○ Direct compression ○ Dry granulation ○ Wet granulation • Technology of production of granules on large scale by various techniques. • Tablet excipients • Large scale production of tablets. • Tablet press machines • Problems encountered during tablet formulation. • Standards quality control tests for tablets. • Tablet coating • Types of coating Film forming materials <ul style="list-style-type: none"> ▪ Common polymers used for tablet coat ing. ▪ Formulation of coating solution ▪ Equipment's for coating 	10	5



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		<ul style="list-style-type: none"> Coating process evaluation of coated tablets 		
3	<ul style="list-style-type: none"> Hard gelatin capsules 	<ul style="list-style-type: none"> Advantages and disadvantages Composition of capsule shell Selection of capsule size. <p>Excipients used in hard gelatin Capsules</p> <p>Hard and soft gelatin capsules</p> <ul style="list-style-type: none"> capsule formulation. Enteric coating of capsules. Capsule filling process. Storage of hard gelatin capsules. <ul style="list-style-type: none"> Soft gelatin capsules Advantage and disadvantages. Capsule shell composition. Shapes and sizes. Soft gelatin capsule formulation. Soft gelatin capsule filling process. 	6	3
4	<p>Sustained dosage forms</p> <ul style="list-style-type: none"> 	<ul style="list-style-type: none"> Introduction. Advantages and disadvantages. Drugs that can be good candidates for sustained release formulation. Methods to obtain sustained release <ul style="list-style-type: none"> Pharmaceutical Chemical Biopharmaceutical 	4	2
5	Microencapsulation	<ul style="list-style-type: none"> Types of microcapsules Importance of microencapsulation in pharmacy, Microcapsulation by Phase separation co-acervation multiorifice 	4	2



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		<ul style="list-style-type: none">• Spray drying• Spray congealing• Polymerization• Complex emulsion<ul style="list-style-type: none">○ Air suspension technique○ Coating pan and other techniques.		
Number of Weeks/and Units Per Semester 14 28			28	14
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 ofEffervescent granule base by wet method	1	2	
6	Preparation of Effervescent granule base by dry method	1	2	
7	Preparation oftablets by Direct compression for (dry method)	1	2	
8	Preparation oftablets 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	1	2	
12	Final exam	1	2	
Number of Weeks/and Units Per Semester		12	24	
E- TEACHING AND LEARNING METHODS:				



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- (a) Lectures
- (b) Class discussion
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments

F- Assignments and project:

no	Assignment	Week Due	Mark
1	One home assignment after each lecture	9	60
2	Group assignment	3	40

G- STUDENT ASSESSMENT METHODS:40

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	9	5	5%
2	Practical Reports	1-12	10	10%
3	Quizzes	2, 5,	5	5%
4	Written Test (midterm exam)	8	10	10%
2	Midterm Exam	8	20	20%
6	Final Exam	14	50	50%
Total				100%

H- REFERENCES:

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. Essential References.

1. Ansel and Loyd Allen (2013). Ansel'sPharmaceutical Dosage Forms and Drug Delivery Systems. 10thedition., Williams and Wilkins. Maryland, USA.
2. British Pharmacopeia, 2010.
3. Remington's: The science and practice of Pharmacy, 21st ed, 2006.

3. Electronic Materials and Web Sites etc.

www.go.jblearning.com/basicphysicalpharmacy



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I- COURSE POLICIES:	
1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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"> • Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam. • Students will not be allowed to leave the exam room until unless half of the examination time is passed. • 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. • 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%. • The student will be considered as failed if he broke the regulations and roles of examination. • 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. • Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
4- Assignment s & Projects	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>



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5- Cheating:	<ul style="list-style-type: none"> • <input type="checkbox"/> 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. • <input type="checkbox"/> Midterm Exam cheating results in giving the student a mark of zero • <input type="checkbox"/> 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. • 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.
6- Plagiarism:	Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
7- Other policies:	<p>Using Internet Sources</p> <p>The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources. In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.</p> <p>If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites</p>



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Course specification of Pharmacognosy I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmacognosy I				
2	Course Code & Number:	COG3132				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Third Year / First Semester				
5	Pre –requisite (if any):	Botany				
6	Co –requisite (if any):	Analytical Chemistry				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Labib Noman				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

This course offers Introduction to medicinal compounds and raw materials of natural origin. Understanding the role of natural products in research and development of drugs as well as in disease prevention and treatment. Acquisition of basic knowledge and skills in quality control of herbal drugs and products.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

Upon successful completion of this course, the students should be able to

1. Illustrate the morphological and histological structures of different organs of medicinal plants such as seeds, fruits, roots and rhizomes.
2. Discuss role of these medicinal plants in the treatment of different disease conditions.
3. Identify many medicinal Plants microscopically in both their entire and powdered forms.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- A1.** Describe the histological structure of the different medicinal plant parts, seeds, fruits, roots and rhizomes.
A2. Give an account on the biologically active principles in each plant part (seeds, fruits, roots and rhizomes) as well as their biological activity.

B-Intellectual Skills:

- B1.** Determine unknown drugs seeds, fruits, roots and rhizomes.. (morphologically and microscopically)
B2. Judge whatever the powdered drug is related to seeds, fruits, roots and rhizomes.

C-Practical Skills:

- C1.** Use the microscope to decide a given unknown plant powder is related to seeds, fruits, roots and rhizomes.
C2. Design and perform experiments for detection of adulteration.

D-General Skills and Attitudes:

- D1.** Work effectively in team.
D2. Demonstrate written and oral communication skills.

D- COURSE CONTENTS:

a- Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	Introduction to seeds. <ul style="list-style-type: none"> • Strophanthus seed. • Nux vomica seed. • Stramonium seed. • Colchicum seed. • Cardamom seed. • Nutmeg seed. • Black mustard seed. • White mustard seed. • Almond seed. • Linseed. • Fenugreek. • Plantago seed. • Castor seed. 	8	4
2	Introduction to fruits <ul style="list-style-type: none"> • Umbelliferous fruits • Fennel. • Anise • Coriander • Ammi visnaga. 	8	4



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	<ul style="list-style-type: none"> • Ammi majus • Caraway. • Dill. • Cumin. • Celery. • Hemlock. • Black pepper. • Colocynth. • Senna pod. • Juniper. • Star anise. • Lemon peel. • Bitter orange peel. • Hops. • Vanilla. • Ccapsicum. • Poppy • ntroduction to • subterranean organs • (roots & rhizomes) 		
3	Rhizomes: <ul style="list-style-type: none"> • Filix mass. • Veratrum. • Valerian. • Rhubarb. • Podophyllum. • Hydrastis. • Ginger. • Galengal. • Turmeric. • Orris. • Calmus • Colchicum. 	6	3
4	Root: <ul style="list-style-type: none"> • Liquorice. • Ipecacuanha • Dandelion. • Krameria. • Derris. • Rauwolfia. • Alkanna. • Senega. 	6	3



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	<ul style="list-style-type: none"> • Calumba. • Althea. • Marshmallow. • Gentian. • Belladonna. • Jalap. • Scammony. • Aconite. • Sasaparilla. 		
Number of weeks /and Units Per Semester		28	14

b - Practical Aspect

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Determination of loss on drying, total ash, swelling index and some chemical values	2	4
2	Qualitative analysis of cyanogenic glycosides, anthracene derivatives, cardiotonic glycosides and tannins in herbal Drugs	2	4
3	Identification of herbal drugs containing flavonoid by thin layer chromatography	2	4
4	Determination of essential oil in herbal drugs	2	4
5	Identification of essential oil	2	4
6	Determination of arbutinimethylarbutin, phenolic acids and alkaloids in herbal drugs	2	4
7	Anaysis of flavonoids using high performance liquid chromatography	2	4
Number of Weeks /and Units Per Semester		14	28

E- TEACHING AND LEARNING METHODS:

- (a) Lectures
- (b) Class discussion
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Seminars
- (j) Lab Practice

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
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1	One home assignment after each lecture	1-16	60
2	Group assignment	7, 15	40

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	1-14	100	10%
2	Midterm lab Exam	7	10	10%
3	Midterm Exam	8	20	20%
4	Final lab Exam	15	10	20%
5	Final Exam	16	40	40%
	Total			100%

H- Learning Resources:

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

1. S. Vladimir-Knežević and B. Blažeković. Teaching practicum in Pharmacognosy I, Faculty of Pharmacy and Biochemistry, Zagreb 2008.
2. S. Vladimir-Knežević. Pharmacognosy I: lectures and seminars

2. Essential References.

1. European Directorate for the Quality of Medicines and Health Care (EDQM). European Pharmacopoeia, Council of Europe: Strasbourg
2. G. Samuelsson. Drugs of natural origin, A textbook of pharmacognosy, Swedish Pharmaceutical Press, Stockholm, 2004 .
3. Hansel, O. Sticher: Pharmakognosie – Phytopharmazie, 7. Auflage, Springer-Verlag Berlin Heidelberg New York, 2004.

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>

I- Course Policies:



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1	<p>Class Attendance: -</p> <p>Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.</p>
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> <p>Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.</p> <p><input type="checkbox"/> Students will not be allowed to leave the exam room until unless half of the examination time is passed.</p> <p>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.</p> <p><input type="checkbox"/> 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%.</p> <p><input type="checkbox"/> The student will be considered as failed if he broke the regulations and roles of examination.</p> <p><input type="checkbox"/> 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.</p> <p><input type="checkbox"/> Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.</p>
4	<p>Assignments & Projects:-</p> <p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday.</p>



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	<p>No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>
5	<p>Cheating: -</p> <p><input type="checkbox"/> <input type="checkbox"/> 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.</p> <p><input type="checkbox"/> <input type="checkbox"/> Midterm Exam cheating results in giving the student a mark of zero</p> <p><input type="checkbox"/> <input type="checkbox"/> 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.</p> <p><input type="checkbox"/> 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.</p>
6	<p>Plagiarism:</p> <p>Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.</p> <p>Intellectual Property involves:</p> <ul style="list-style-type: none"> • Another person's idea, opinion, or theory • Any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge • Quotations of another person's actual spoken or written words • Paraphrase of another person's spoken or written words <p>Issues of intellectual property extend beyond the written word of course. Bear in mind that the use of still images, moving images, audio or any other content which you have not created yourself, and which you do not have the appropriate permission to use, is an serious offence resulting in a FAIL grade for the subject.</p>
7	<p>Other policies:-</p>



Using Internet Sources

The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources. In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.

If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.



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Course specification of Analytical chemistry III

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Analytical chemistry III				
2	Course Code & Number:	ACH3173				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Second Year/ Second Semester				
5	Pre –requisite (if any):	Analytical Chemistry II				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mohammed Abas				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

Analytical chemistry(2) is the second course for pharmacy students, the part I , provides them with the redox and complexation titrations , basic concepts ,definitions , types, titrations curves ,an indicators ,problems and application in quantitative analysis. The parts II focuses, introduction for gravimetric analysis, definitions, steps required in gravimetric analysis, gravimetric factor, gravimetric calculations, examples of gravimetric analysis, precipitation equilibria, factors affecting the solubility of the precipitate and application in quantitative analysis

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Recognize the benefits and problems of analytical chemistry for society.
- 2- Define the basic principles of analytical chemistry and analytical techniques used in analytical chemistry III.
- 3- Explain the Requirements of suitable electromagnetic radiation, and instruments
- 4- Define the electronic transitions, atomic absorption spectrum, UV-Visible spectroscopy and Beer-Lambert's law.



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2-INTENDED LEARNING OUTCOMES:

A-Knowledge and Understanding:

- a1. Recognize the different types of analytical chemistry techniques.
- a2. Describe the basic principles of chromatography.

B-Intellectual Skills:

- b1. Analyze the different types of samples.
- b2. Integrate the concepts of analytical chemistry with those of other related fields and interpret certain medical phenomena based on such concepts.

C-Practical Skills:

- c1. Use the balance, equipment in laboratory to identify and measure the concentrations.
- c2. Apply rules and guidelines related to safety precautions in the laboratory to perform experiments in a risk-free environment

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.

D- COURSE Content:

a. Theoretical Aspect:

Order	Units/Topics List	Sub Topics List	Number of Weeks	contact hours
1	Oxidation-Reduction Titrations	Definitions , concepts. redox reactions, balancing of reaction, permanganate titrations ,dichromate titrations redox titration curve ,indicators, problems iodimetric and iodometric titrations, Applications problems	4	8
2	Complexation titrations	Introduction, EDTA ligand,physical and chemical properties of EDTA,EDTA complexes with metal, stability constant and conditional formation constant, EDTA titration curve, types of titrations of EDTA,EDTA indicators,problems	3	
3		Med term exam		
4	Gravimetric analysis	Gravimetric analysis and precipitation equilibria .Steps required in gravimetric analysis	2	
5	Gravimetric analysis	.Gravimetric factor and gravimetric calculations Examples of gravimetric analysis, Precipitation equilibria, factors affecting the solubility of the precipitate. Applications involving calculations of sparingly soluble salts.	4	



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Total number of weeks and hours

14

(b) Practical Section

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Lab safety, calibration of Equipments and using Excel in an analysis	1	
2	Prepare of standard solutions	1	
3	Redox titrations	3	
5	Titration of mixture	2	
6	Complexation titrations	2	
7	Gravimetric analysis	2	
	Number of Weeks	10	

E- TEACHING AND LEARNING METHODS:

1. Lectures
2. Lecture-Discussion
3. Practical class
4. Assignments
5. Office Hours

F- Assignment and project

1	Assignments	5	2
2	Assignments	8	3

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Homework/Assignments	5,8	5	5%
2	Quiz	4	5	5%
3	Midterm Exam	8	10	10%
4	Practical Exam	12	40	40%
5	Final Exam	14	40	100%

H- REFERENCES:

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

1. S. Vladimir-Knežević and B. Blažeković. Teaching practicum in Pharmacognosy I, Faculty of Pharmacy and Biochemistry, Zagreb 2008.
2. S. Vladimir-Knežević. Pharmacognosy I: lectures and seminars



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2. Essential References.

1. European Directorate for the Quality of Medicines and Health Care (EDQM). European Pharmacopoeia, Council of Europe: Strasbourg
2. G. Samuelsson. Drugs of natural origin, A textbook of pharmacognosy, Swedish Pharmaceutical Press, Stockholm, 2004 .
3. Hansel, O. Sticher: Pharmakognosie – Phytopharmazie, 7. Auflage, Springer-Verlag Berlin Heidelberg New York, 2004.

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>

I. COURSE POLICIES:

1 Class Attendance: -

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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: -

Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam

- ☐ Students will not be allowed to leave the exam room until unless half of the examination time is passed.

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.

- ☐ 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%.
- ☐ The student will be considered as failed if he broke the regulations and roles of examination.
- ☐ 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.
- ☐ Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.



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Assignments & Projects:-

Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.

Late Assignments / Extensions

Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.

Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.

In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5

Cheating: -

- 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.
- Midterm Exam cheating results in giving the student a mark of zero.
- Cheating in the final exam will result in failing the student in that subject if he/she did not get benefits in the 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.

☐ 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.

6

Plagiarism:

Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

Intellectual Property involves:

- Another person's idea, opinion, or theory
- Any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge
- Quotations of another person's actual spoken or written words
- Paraphrase of another person's spoken or written words



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Issues of intellectual property extend beyond the written word of course. Bear in mind that the use of still images, moving images, audio or any other content which you have not created yourself, and which you do not have the appropriate permission to use, is an serious offence resulting in a FAIL grade for the subject.

7

Other policies:-

Using Internet Sources

The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources. In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.

If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.



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Course specification of Organic Chemistry III

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Organic Chemistry III			
2	Course Code & Number:	MCH3253			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Third Year / First Semester			
5	Pre –requisite (if any):	Organic Chemistry II			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Nabeel Al-Qubati			
12	Date of approval:	Dr. Mokhtar Al-Qhorafi			

B- COURSE DESCRIPTION:

The course aims to help student to understanding the basic of organic chemistry that include methods of physicochemical properties, preparation , reactions and stereochemistry of hydrocarbons of Aliphatic & aromatic aldehydes & ketones, Aliphatic & aromatic carboxylic acids & derivatives, Aliphatic & aromatic Amines, Nitro compounds & Heterocyclic compounds.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Explain the nomenclature, physical and chemical properties of the compounds in studied classes.
2. Recognize the aromaticity and stability of benzene and their derivatives.
3. Illustrate the mechanism of Electrophilic substitution and reactivity of orientation.
4. Describe the pharmaceutical application of the studied topics.
5. Suggest the possible method of preparation.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Acquire knowledge the origin and the theory of aromaticity in addition to important features of benzene chemistry (electrophilic substitution reactions and directing groups).
- a2. Give the name of any organic compounds.
- a3. Identify other benzene derivatives such as: aryl halides halogen, phenol, nitro compounds diazonium salts, sulfonic acid and their derivatives.
- a4. Explain the outcome of organic reactions.
- a5. Acquire the required knowledge of all basics chemistry, reactions and structures of different compounds.

B-Intellectual Skills:

- b1. Analyze the different organic compounds according to their functional groups and elements.
- b2. Carry out simple chemical reactions.
- b3. Write chemical reaction equation.
- b4. Differentiate the products of any reaction
- b5. Distinguish the functional groups of organic compounds by their physical and chemical properties.

C-Practical Skills:

- c1. Apply appropriate laboratory techniques in synthesis the organic compounds and analyzing their purity, safety, potency and quality as per GMP.
- c2. Detect organic compounds by using chemical reaction tests.
- c3. Perform a selection of basic laboratory procedures in general chemistry.

D-General Skills and Attitudes:

- d1. Work effectively both in a team, and independently on solving problems.
- d2. Communicate effectively with others.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS	SUB TOPICS	NO OF HOURS	No of Lectures
1	Amines:	Definition, Classification, Nomenclature, General Methods of Preparation, Physical Properties, Chemical Properties (Basicity and Salt Formation, Alkylation, Conversion into Amides, Reaction with Nitrous Acid, Ring Substitution in Aromatic Amines, Basicity of Amines, Effect of Substituents on the Basicity of Aromatic Amines, Exhaustive Methylation of Amines and Hofmann Elimination, Cope Elimination).	4	2
2	Aryl Halides:	Definition, Nomenclature, Methods of preparation, Physical properties, Chemical properties (Formation of Grignard reagents, Nucleophilic Aromatic	4	2



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		Substitution, replacement by -OH group, replacement by -NH ₂ group), The Mechanism of Nucleophilic Aromatic Substitution, Nucleophilic Substitution of Substituted Aryl Halides, Electrophilic Aromatic Substitution, Other Reactions (Wurtz-Fitting Reaction, Ullman Synthesis), The Influence of Substituents on Reactivity in Nucleophilic Aromatic Substitution (Electron-releasing groups, Electron-withdrawing groups), Influence of substituents on orientation in Nucleophilic Aromatic substitution Comparison of Aliphatic and Aromatic Nucleophilic substitutions		
3	Nitro Compounds:	Structure of Nitro Group, The Importance of Nitro Compounds, General Methods of Preparation (Aliphatic and Aromatic), Reactions of Nitro Compounds (Electrophilic and Nucleophilic Substitutions, Reduction under Different Conditions).	4	2
4	Diazonium Salts:	Definition, Nomenclature, Methods of Preparation, The Mechanism of Diazotisation, Physical Properties, Chemical Properties (Replacement -Cl, -Br or -CN Sandmeyer's Reaction, Replacement by -I, Replacement by -F, Replacement by -OH, Replacement by -H, Replacement by Aryl Group, Reduction to Hydrazines, Coupling with Tertiary Amines, Reactions of Primary and Secondary Amines.	6	2
5	Phenols:	Definitions, Nomenclature, Preparations of Phenols, Physical Properties and Hydrogen Bonding, Chemical Properties (Acidity and Effect of Substituents on Acidity of Phenols, Ether Formation-Williamson Synthesis, Ester Formation, Halogenation, Nitration, Sulphonation, FriedelAlkylation and Acylation, Koble Reaction, and Reimer-Tiemann Reaction, Phthalein Reaction with Ferric Chloride).	6	3
6	Sulphonic Acids and Their Derivatives:	Definition, Nomenclature, Preparations, Physical Properties, Chemical Properties (Reactions due to lonisable Hydrogen, acidity, salt formation, Formation of Functional Derivatives, formation of sulphonyl chlorides, Replacement of Sulphonic Acid Group by -H, by -OH Group, by -NH Group, Reactions of Aromatic Nucleus, Derivatives of Sulphonic Acid (Chloramine T, Halazone, Saccharin, Sulphanilamide)	4	2
Number of Weeks/and Units Per semester 28			28	14



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b – Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Oxidation/ reactions using potassium permanganate & Decomposition reaction of sodium bicarbonate in water	1	2
2	Acid/base reaction : HCl and NaOH	2	2
3	Nucleophilic aliphatic substitution Preparation of t-butyl chloride, reactivity of alkyl halide	3	2
4	Reactions of aldehydes	4	2
5	Reactions of ketones	5	2
6	Reactions of carboxylic acids and their derivatives	6	2
7	Mid Exam	7	2
8	Reactions of carboxylic acids and their derivatives	8	2
9	Amines: Properties and reactions	9	2
10	Nitro, Properties and reactions	10	2
11	Review	11	2
12	Final exam.	12	2
Number of Weeks /and Units Per Semester			24

E- TEACHING AND LEARNING METHODS:

- Interactive lectures
- Group discussion
- Study tour
- Practical lab
- Demonstration
- Presentation

F- Assignments and projects

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignment	During term	15	15%



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2	Quiz	4week	5	5%
3	Mid exam Theory	8week	10	10%
4	Mid exam Practical	8week	10	10%
5	Final exam theory	16	40	40%
6	Final exam practical	15	20	20%
Total			100	100%

H- REFERENCES:

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

- R. T. Morrison and R. N. Boyd, Organic Chemistry, 2002, 6th edition, Pearson Prentice Hall of India Pvt. Ltd, New Delhi.
- Dohn D Hepworth, David R Waringand Micheal J Waring. "Aromatic Compounds "2002, The Royal Society of Chemistry, Cambridge

2- Essential References.

- John McMurry." Fundamentals of Organic Chemistry " 2011, Seventh Edition, Brooks/Cole 20 Davis Drive, Belmont.
- Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6th edition, John Wiley and Sons, Inc., Hoboken, New Jersey
- 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. Organic Chemistry.com
- 2- www.orgsyn.org

I- COURSE POLICIES:

1	Class Attendance: - Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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.
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examination time is passed.

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.

☐ 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%.

☐ The student will be considered as failed if he broke the regulations and roles of examination.

☐ 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.

☐ Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4 Assignments & Projects:-

Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.

Late Assignments / Extensions

Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.

Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.

In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5 Cheating: -

☐ 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.

☐ Midterm Exam cheating results in giving the student a mark of zero

☐ 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.

☐ If the students repeats cheating in a single examination period he will be discontinued for a full



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	academic year or permanently if he repeated cheating more than twice.
6	<p>Plagiarism:</p> <p>Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.</p> <p>Intellectual Property involves:</p> <ul style="list-style-type: none"> • Another person's idea, opinion, or theory • Any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge • Quotations of another person's actual spoken or written words • Paraphrase of another person's spoken or written words <p>Issues of intellectual property extend beyond the written word of course. Bear in mind that the use of still images, moving images, audio or any other content which you have not created yourself, and which you do not have the appropriate permission to use, is a serious offence resulting in a FAIL grade for the subject.</p>
7	<p>Other policies:-</p> <p>Using Internet Sources</p> <p>The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources. In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.</p> <p>If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.</p>

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Third Year / Second Semester



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Course specification of Microbiology II

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Microbiology II				
2	Course Code & Number:	ASS3285				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Third Year / Second Semester				
5	Pre –requisite (if any):	Microbiology I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ghamdan Al-Tahesh				
12	Date of approval:	Dr. Majed Alwan				

B- 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

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Recognize the principles of sterilization and disinfection.
2. Have knowledge of all types of antimicrobial agents and their mechanisms of action.
3. Deal with bacterial resistance against antimicrobial agents.
4. Illustrate classification of non-antibiotic antimicrobial agents and their mechanisms of action.
5. To deal with microbiological aspects of pharmaceutical industry.
6. Acquire knowledge of factory and hospital hygiene and good manufacturing practice



2-INTENDED LEARNING OUTCOMES: (ILOs)

A-Knowledge and Understanding:

- a1. Recognize all types of antimicrobial agents and their mechanisms of action.
- a2. Illustrate bacterial resistance against antimicrobial agents.
- a3. Explain classification of non-antibiotic antimicrobial agents and their mechanisms of action.
- a4. Acquire the knowledge of factory and hospital hygiene and good manufacturing practice.

B-Intellectual Skills:

- b1. Formulate the different features of the basic principles of microbiology.
- b2. Differentiate classes of non-antibiotics antimicrobial agents.
- b3. Plan factory and hospital hygiene and good manufacturing practice

C-Practical Skills:

- c1. Perform bacterial resistance test against antimicrobial agents.
- c2. Apply microbiological aspects of pharmaceutical industry.

D-General Skills and Attitudes:

- d1. Work effectively in team.
- d2. Demonstrate written and oral communication skills

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> An Introduction to the pharmaceutical Microbiology 	2	1
2	<ul style="list-style-type: none"> Sterilization and principles and practice of disinfection 	2	1
3	<ul style="list-style-type: none"> Anti-microbial agents Types of antibiotics, synthetic, anti-microbial agents and semi synthetic. 	4	2
4	<ul style="list-style-type: none"> Clinical uses of anti- microbial drugs Manufacture of antibiotics. 	2	1
5	<ul style="list-style-type: none"> Methods of assaying antibiotics 	2	1
6	<ul style="list-style-type: none"> Bacterial resistance to antibiotics and (MIC) Chemical disinfectants, antiseptic and preservatives 	4	2
7	<ul style="list-style-type: none"> Evolution of non- antibiotic anti-Microbial agents Mode of action of non-antibiotic antibacterial agents 	2	1



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8	• Resistance to non-antibiotic anti-microbial agent	2	1
9	• Microbiological aspects of pharmaceutical processing	2	1
10	• Ecology of microorganisms as it affects the pharmaceutical	2	1
11	• Microbial spoilage and preservation of pharmaceutical products	2	1
12	• Contamination of non-sterile pharmaceutical in hospital and community environments (nosocomial infection)	2	1
Number of Weeks /and Units Per Semester		28	14

b - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	Contact hours
1	Introduction to Diagnostic Bacteriology <ul style="list-style-type: none"> ▪ Laboratory Safety Procedures ▪ Specimen-Sampling & Collection ▪ Culture Media Preparation & Sterilization 	1	2
2	Aseptic Technique & Transfer of Microorganisms Staining <ul style="list-style-type: none"> ▪ Aseptic Technique ▪ The Streak-Plate Technique ▪ Forms of Culture Medium ▪ Colony Morphology and Pigmentation ▪ Gram and Acid Fast Stain 	1	2
3	Identification of Gram Positive Cocci (1) <ul style="list-style-type: none"> ▪ Staphylococcus aureus, ▪ S. epidermidis 	1	2



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	<ul style="list-style-type: none"> ▪ S. saprophyticus 		
4	Identification of Gram Positive Cocci (2) <ul style="list-style-type: none"> ▪ Beta Streptococci (Groups A,B,C,F,G) ▪ Pneumococcus (Streptococcus pneumoniae) ▪ Viridans Streptococci ▪ Enterococci 	1	2
5	Aerobic & Anaerobic Endospore-Forming Bacteria <ul style="list-style-type: none"> ▪ Bacillus & Corynebacteriae Isolation Of Normal Microbiota From Human Body <ul style="list-style-type: none"> ▪ Common microbiota of the nose and throat 	1	2
6	Identification Of Gram-Negative Cocci And Coccobacilli: <ul style="list-style-type: none"> ▪ Neisseriae ▪ Hemophilus 	1	2
7	Identification of Enterobacteriaceae Gram Negative bacilli <ul style="list-style-type: none"> ▪ Fermentative, Enteric Bacilli 	1	2
8	Review	1	2
9	Identification of Pseudomonas and Acinetobacter Gram-Negative bacilli <ul style="list-style-type: none"> ▪ Non-fermentative, Gram-Negative Bacilli 	1	2
10	Isolation Of Normal Microbiota From Human Body <ul style="list-style-type: none"> ▪ Common microbiota of Urine and Stool Urine Culture and Stool Culture <ul style="list-style-type: none"> ▪ Qualitative Urine Culture ▪ Screening for Salmonella carriers 	1	2
11	Using Antimicrobial Chemotherapeutic	1	2



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	Agents To Control Microorganisms <ul style="list-style-type: none"> Antibiotic Susceptibility Testing Kirby-Bauer Assay (Disk Diffusion) Tube Dilution (MIC) & (MBC) 		
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Number of Weeks/and Units Per Semester 22

11

22

E- TEACHING AND LEARNING METHODS:

- (a) Lectures
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Homework and Report
- (j) Office Hours

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-16	40
2	Group Assignments	4, 8, 12	30

A- 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%
Total				100%

B- REFERENCES:



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

- Hugo, W.B and Russell, A.D.(2011 ;(Pharmaceutical Microbiology, 8th ed.Blackwell Science, UK
- Harvey RA, Champe PA, Strol WA, Rouse H, Fisher BD. Lippincott's Illustrated Reviews Microbiology (2001). Lippincott Williams and Wilkins. Philadelphia.
- Kar A. Pharmaceutical Microbiology. (2008). New age international publisher. New Delhi.

2. Essential References.

- Winfield, A.J. and Richards, R.M.E. ed. (2009) Pharmaceutical practice 3rd. ed.Churchill Livingstone, U.K.
- 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/
www.textbookofbacteriology.net/
www.wsmicrobiology.com
www.microbiologyonline.org.uk
www.asm.org

I- Course Policies:

1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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.



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<p>3- Exam Attendance/Punctuality:</p>	<ul style="list-style-type: none"> • Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the beginning of the exam. • Students will not be allowed to leave the exam room until unless half of the examination time is passed. • 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. • 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%. • The student will be considered as failed if he broke the regulations and roles of examination. • 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. • Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
<p>4- Assignments & Projects</p>	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>
<p>5- Cheating:</p>	<ul style="list-style-type: none"> • <input type="checkbox"/> 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. • <input type="checkbox"/> Midterm Exam cheating results in giving the student a mark of zero • <input type="checkbox"/> 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. • 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.



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6- Plagiarism:	Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
7- Other policies:	<p>Using Internet Sources</p> <p>The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.</p> <p>In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.</p> <p>If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites</p>



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Course specification of Biochemistry II

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Biochemistry II				
2	Course Code & Number:	ASS3286				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Third Year / Second Semester				
5	Pre –requisite (if any):	Biochemistry I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ahmed Abdullatif				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. To give the students insight into appreciating how understanding of metabolic processes occurring in the human body, could contribute to the
2. To make students familiar with the various control and integrating mechanisms of diverse biochemical events in different metabolic processes, and to understand normal and abnormal human metabolism.
3. To provide knowledge of basic chemical constituents of biological fluids in health and disease, with the ability to determine the relevant investigations for their applications in clinical diagnosis.
4. To enable the student to illustrate and/or describe the metabolic pathways of purines and pyrimidines bases.
5. To enable the student to point out the bioenergetics of the concerned metabolic



pathways under different physiological circumstances.

6. To acquire students experience in biochemical methodology in order to be aware with the clinical biochemistry techniques as diagnostic tools and to be

2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Define the metabolic pathways of carbohydrates, lipids, proteins, nucleotides and their micro-molecules and determine the site of each.
- a2- Illustrate the steps and regulatory mechanisms of these pathways.
- a3- Point out the related metabolic disorders and their clinical prints on biochemical and molecular basis.
- a4- Classify the functions of hormones and minerals, their biochemical, clinical and laboratory importance and deficiency manifestations of each.
- a5- Describe the components of some body fluids; viz. blood, urine, milk, Semen, CSF and sweat.
- a6- Acquire knowledge in the differing mechanism which the body uses to get rid various types of foreign chemical as drugs, food, additive, and pollutants.
- a7- Explain the role of antioxidants in prevention and treatment of chronic diseases.

B-Intellectual Skills:

- b1- Investigate symptoms, signs and biochemical laboratory findings of some metabolic disorders.
- b2- Interpret urine report outcome.
- b3- Point out the clinical significance of determination of plasma levels of glucose, total proteins, albumin, cholesterol, creatinine and uric acid.
- b4- Diagnose the type of abnormality of pathological glucose tolerance curve.
- b5- Point-out the etiology of metabolic disturbance in a given case study report.

C-Practical Skills:

- c1- Identify the physical and chemical characters of normal urine under different physiological conditions.
- c2- Perform chemical tests to detect abnormal constituents of urine.
- c3- Estimate serum levels of glucose, total proteins, albumin, cholesterol, creatinine and uric acid by colorimetric methods.
- c4- Assess glucose tolerance by glucose tolerance test.

D-General Skills and Attitudes:

- d1- Work effectively in team.
- d2- Demonstrate written and oral communication skills.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS AND SUB TOPICS	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> • Carbohydrate metabolism <ul style="list-style-type: none"> ○ glycogen metabolism, gluconeogenesis, special 	2	1



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	metabolism of fructose, galactose and aminosugars, pathological aspects of carbohydrate metabolism and their clinical implications with special emphasis on diabetes mellitus and biochemistry of insulin and other disorders of carbohydrate metabolism and their clinical importance.		
2	<ul style="list-style-type: none"> • Metabolism of lipids: <ul style="list-style-type: none"> ○ Dietary lipids, digestion and absorption, metabolism of triacylglycerol, fatty acid metabolism, metabolism of: eicosanoids, conjugated lipids, cholesterol, ketone bodies, classification and disorders of plasma lipoproteins. Pathological aspects of lipid metabolism and their clinical implications. 	2	1
3	<ul style="list-style-type: none"> • Metabolism of proteins: <ul style="list-style-type: none"> ○ Dietary proteins, digestion and absorption, general aspect of protein metabolism, metabolism of ammonia, metabolism of individual amino acids with related errors of metabolism, pathological aspects of protein and amino acid metabolism and their clinical implications. 	2	1
4	<ul style="list-style-type: none"> • Metabolism of Heme: <ul style="list-style-type: none"> ○ Synthesis of porphyrins and heme, catabolism, hyperbilirubinemia and porphyries. 	2	1
5	<ul style="list-style-type: none"> • Bioenergetics steps, regulation, and importance. 	2	1
6	<ul style="list-style-type: none"> • Metabolism of purines and pyrimidines: <ul style="list-style-type: none"> ○ Digestion and absorption of nucleic acids, biosynthesis and catabolism of purines and pyrimidines with the related errors of metabolism (including gout), and synthetic base analogues and their clinical use. 	2	1
7	<ul style="list-style-type: none"> • Integrative aspect of metabolism: <ul style="list-style-type: none"> ○ Interconversion of major food stuffs. Metabolic interrelationship between adipose tissue, the liver and extrahepatic tissues. Starve fed state: early fasting— fasting — fed. Glucose hemostasis. Metabolic interrelationship of tissues in various 	2	1



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	hormonal states obesity, exercise. Pregnancy and lactation.		
8	<ul style="list-style-type: none"> Mineral: <ul style="list-style-type: none"> Major elements (Ca-P-Mg-Na-K-Cl-S) and trace elements (Fe, Cu, Zn, Mn, Co., Cr., I.) 	2	1
9	<ul style="list-style-type: none"> Body Fluids: <ul style="list-style-type: none"> Composition of milk, blood, CSF, sweat seminal fluid and urine in health and disease. Blood plasma, clinical importance of plasma enzymes and proteins. Biochemical aspects of coagulation. 	2	1
10	<ul style="list-style-type: none"> Biochemistry of endocrine glands: <ul style="list-style-type: none"> Group I hormones that bind to intracellular receptor. Group II hormones that bind to cell surface receptor. Mode of action. Secondary messenger. Hormones that regulate calcium: Parathyroid hormones, calcitonin and calcitriol. Endocrine functions of pancreas: Insulin, glucagon, somatostatin and pancreatic polypeptide: Structure, function and their pathological disorders. Hormones of hypothalamus, pituitary, thyroid adrenal and gonads: Structure, function and their pathological disorders. 	2	1
11	<ul style="list-style-type: none"> Tissue chemistry and immunochemistry: <ul style="list-style-type: none"> Biochemistry of connective tissue, bone connective tissue, skeletal and cardiac muscles and cytoskeleton, biochemistry of immune responses. 	2	1
12	<ul style="list-style-type: none"> Free radicals and antioxidants: <ul style="list-style-type: none"> Sources of free radicals. Effect of free radicals on tissues. Antioxidants: types and their roles in prevention and treatment of chronic diseases and cancer 	2	1
13	<ul style="list-style-type: none"> Proteins, Amino acids, disorders related with structures and metabolism. 	2	1
14	<ul style="list-style-type: none"> Liver and Kidney function and disorders 	2	1



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Number of Weeks/and Units Per Semester 15 30		28	14
b - Practical Aspect			
Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Introduction and policies	1	2
2	Estimation of Blood Glucose (Random and Fasting)	1	2
3	Estimation of Amylase and Lactate dehydrogenase enzyme	1	2
4	Lipid Profile	1	2
5	Estimation of Total Protein	1	2
6	Renal stone analysis	1	2
7	Estimation of Albumin	1	2
8	Electrophoresis of Isoenzymes	1	2
9	Assessment of Kidney (Urea and creatinine)	1	2
10	Assessment of Liver (ALT and AST)	1	2
11	Function and electrophoresis of serum lipoproteins	1	2
12	Review	3	6
Number of Weeks /and Units Per Semester		14	28
E- TEACHING AND LEARNING METHODS:			
<ul style="list-style-type: none"> Active lecture Problem based learning & case studies Tutorials reading assignment Self-learning during laboratory session Classroom discussions Web based search Supervised practice in Lab Self-practice Encourage active participation and effective expression of ideas during class. 			
F- ASSIGNMENTS AND PROJECTS			
No	Assignment	Week Due	Mark
1	Assignment on Drug used for metabolic diseases	10	5
G- STUDENT ASSESSMENT METHODS:			



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No.	Assessment Method	Week Due	Mark	Proportion of Assessment
1	Assignments	1-15	100	10%
2	Midterm Exam	8	20	20%
3	Lab Midterm Exam	8	10	10%
4	Lab Final Exam	17	20	20%
5	Final Exam	17	30	40%
Total				100%

H- REFERENCES:

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

1. Biochemistry DeMystified. A self-Teaching Guide. Sharon Walker and David McMahon. McgrawHillPublishers. USA, 2008.
2. MALLIKARJUNA RAO, (2008). Medical Biochemistry. Second edition, New Age International Limited Publisher, New Delhi, India.
3. John Baynes and Marek Dominiczak, 2014. Medical Biochemistry With STUDENT CONSULT Online Access. Fourth edition, Elsevier limited, China.

2. Essential References.

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/>

I- COURSE POLICIES:

1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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<p>4- Assignments & Projects</p>	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>
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Course specification of Pharmacology I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmacology I				
2	Course Code & Number:	COL3241				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Third Year / Second Semester				
5	Pre –requisite (if any):	Anatomy & Physiology I, II				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ali Al-Yahoi				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

This course is an essential topic for pharmacy, which provide students with the basic principles of the science of pharmacology and familiarizes them with the necessary terminology. This module has a reflective, interactive and analytical contextual focus. However, it deals with concept of drug receptor interaction, the mode of action of drugs, the modifying responses and adverse effects, the dose-response relationship, drug toxicity, drug absorption, distribution, protein binding, metabolism, and excretion

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire a knowledge about the pharmacokinetic of drugs (absorption, distribution, metabolism and excretion).
2. Provide pharmacodynamics of drugs (mechanism of drug action & their biological effects on different body organs and drug-protein binding) and dosage form of drugs (advantages & disadvantages).
3. Recognize uses & adverse drug reactions & their side effects (drug toxicity, abuse, and their misuse).
4. Explain the types of drug-drug interactions.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a.1- Define the drugs affecting G.I.T & R.S.
- a.2- Identify action and indication of the drugs.

B-Intellectual Skills:

- b.1- Read the dive prescribed drugs.
- b.2- list precaution to be taken for each drug.

C-Practical Skills:

- c.1- Detect the side effect and adverse effect.
- c.2- Apply the abbreviations used in pharmacology.

D-General Skills and Attitudes:

- d1- Work effectively in team.
- d2- Demonstrate written and oral communication skills.

D- COURSE CONTENTS:

Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> • General pharmacology <ul style="list-style-type: none"> ○ General pharmacology Definitions. ○ Drug source & classification. ○ Pharmacokinetic: Absorption, Distribution, bio transformation & Excretion. ○ Routes of drugs administration. ○ Pharmacodynamics: –Theory of receptors, -drug-protein binding ○ Adverse drug effects. ○ Drug-drug interaction. 	4	2
2	<ul style="list-style-type: none"> • Autonomic Nervous System: • General Physiological principles. • Sympathomimetic: <ul style="list-style-type: none"> ○ Adrenaline, Noradrenaline, ephedrine, Isoprenaline, Dopamine, Dobutamine, amphetamine& methyl amphetamine. • Sympathomimetics for specific systems <ul style="list-style-type: none"> ○ Vasopressor sympathomimetics e.g.: mephenteramine, methoxamine, phenylephrine ○ Vasodilator and uterine relaxants sympathomimetics e.g. isoxsuprine & Ritodine ○ Nasal decongestants e.g. Naphazoline, Xylometazoline, tetrahydrazoline. 	6	3



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	○ Antiasthmatic sympathomimetics e.g: Salbutamol & terbutaline.		
3	<ul style="list-style-type: none"> • Sympathetic Depressants: • Adrenergic Receptor Blockers • α-blockers: <ul style="list-style-type: none"> ○ Ergot alkaloids e.g: ergotamine & ergometrine. ○ Imidazoline derivatives e.g. tolazoline & phentolamine ○ Beta-haloalkyl amines e.g phenoxybenzamine & dibenamine. ○ Other α_1-blockers e.g: prazosin, yohimbine - Treatment of migraine & pheochromocytoma. 	2	1
4	<ul style="list-style-type: none"> • β-Blockers: <ul style="list-style-type: none"> ○ Selective β_1 Blocker e.g: Acebutolol, etc.... ○ Selective β_2 blocker e.g: Atenolol, Butoxamine, etc... ○ Non selective $\beta_1 \beta_2$ blocker e.g: propranolol, etc 	2	1
5	<ul style="list-style-type: none"> • α and β- blockers: e.g: labetalol. <ul style="list-style-type: none"> ○ Antiadrenergic drugs: e.g. guanethidine, bretylium, reserpine & a methyl dopa. ○ α_2-receptor agonist: α_2 receptor stimulants e.g: Clonidine. 	2	1
6	<ul style="list-style-type: none"> • Parasympathomimetics: <ul style="list-style-type: none"> ○ Choline esters e.g.: acetylcholine, methacholine, carbachol, Bethanecol. ○ Natural cholinomimetic alkaloids e.g.: pilocarpine. ○ anticholinesterase drugs e.g.: physostigmine, Neostigmine, Neostigmine substitutes pyridostigmine, edrophonium) & Organophosphorus compounds. 	4	2
7	<ul style="list-style-type: none"> • Treatment of Myasthenia gravis: • Parasympathetic depressants: <ul style="list-style-type: none"> ○ Natural products e.g.: Atropine & hyoscine. ○ Synthetic atropine substitutes: <ol style="list-style-type: none"> 1- Mydriatics & cycloplegics e.g: Homatropine, etc. 2- Antispasmodics e.g: pirenzepine, etc... 3- Antiparkinsonism e.g: Benzotropine, etc. ○ Ganglion stimulants & blockers (Nicotine , D.M.P.P, hexamethonium, etc...). 	4	2



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8	<ul style="list-style-type: none"> • Drugs affecting GIT <ul style="list-style-type: none"> ○ Antiulcer and antacid drugs. ○ Emetics and antiemetic drugs. ○ Liver disease and gallstones. ○ Constipation & laxatives. ○ Diarrhea & anti-diarrheal agents. ○ Amoebiasis & Giardiasis. ○ Inflammatory bowel disease (IBD). ○ Anorexigenic agents. ○ Appetizers. ○ Digestants. ○ Carminatives. 	4	2
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Number of Weeks/and Units Per First semester 5 26

28

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E- TEACHING AND LEARNING METHODS:

- (a) Lecture
- (b) Practical
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Home work and Report
- (j) Office Hours

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- STUDENT ASSESSMENT METHODS:

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%



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5	Final Exam (theoretical)	16	50	50%
	Total			100%

H- REFERENCES:

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

- Pharmacology Recall, Second Edition, Print and Audio Package, Author(s): Anand Ramachandran MD , Lorne H Blackbourne MD, FACS, Publication Date: Nov 29, 2007, ISBN/ISSN: 9780781787307
- Pharmacology for Health Professionals, Author(s): W. Renee Acosta RPh, MS Publication Date: Apr 30, 2012, Edition: Second, ISBN/ISSN: 9781608315758

2. Essential References.

- Medical pharmacology, Udaykumar, Padmaja (Author), New Delhi: CBS Publishers & Distributors Pvt Ltd., 2011, 3d edition, ISBN: 978-81-239-1966-9 .
- How drugs work: basic pharmacology for healthcare professionals, McGavock , Hugh (Author), Oxford: Radcliffe Publishing, 2011, 3d edition, ISBN: 978-1-84619-478-8.

3. Electronic Materials and Web Sites etc.

- 1- www.who.int
- 2- www.drugs.com

I- COURSE POLICIES:

1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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"> • Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam. • Students will not be allowed to leave the exam room until unless half of the examination time is passed. • 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. • 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%. • The student will be considered as failed if he broke the regulations and roles of examination.



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	<ul style="list-style-type: none"> • 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. • Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
4- Assignments & Projects	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>
5- Cheating:	<ul style="list-style-type: none"> • <input type="checkbox"/> 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. • <input type="checkbox"/> Midterm Exam cheating results in giving the student a mark of zero • <input type="checkbox"/> 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. • 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.
6- Plagiarism:	<p>Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.</p>



7- Other policies:

Using Internet Sources

The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.

In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.

If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Pharmaceutics IV

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmaceutics IV				
2	Course Code & Number:	CEU3227				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Third Year / Second Semester				
5	Pre –requisite (if any):	Pharmaceutics III				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Hamoud Abdullah				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

This course aims to provide the students with basic principles of pharmaceutical solid dosage forms. It concentrates on the advantages and disadvantages, additives, methods of formulation and quality control tests of pharmaceutical solid dosage forms.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

Pharmaceutical biotechnology is a rapidly developing area. This course aims

1. To provide students with an in-depth understanding in principles of drug delivery systems.
2. To acquire knowledge on the principles, strategies, materials used & fabrication of such drug delivery systems.
3. 3- Illustrate novel pharmaceutical formulations used in drug delivery systems e.g implantable ,transdermal ,Liposomes etc...



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2-INTENDED LEARNING OUTCOMES: (ILOs)

A-Knowledge and Understanding:

- a1- To Recognize the fundamentals and principles of drug delivery and the applications of these fundamentals to building of controlled drug delivery systems.
- a2- To acquire knowledge on the principles, strategies, and materials used in the engineering of drug delivery systems.
- a3- To understand the analysis of drug information literature
- a4- To be familiar with the various technologies and strategies used in drug delivery.
- a5- To Explain different materials and approaches used in the design and fabrication of such delivery system

B-Intellectual Skills:

- b1-Differentiate between approaches used in the design and fabrication of such delivery System.
- b2- Analyze various technologies and strategies used in drug delivery.

C-Practical Skills:

- b1- Use different techniques needed for development, formulation, and evaluation of delivery system.
- b2- Plan experimental and selecting appropriate techniques demonstrate safe & skillful practical techniques to test the controlled release of materials in an active state.
- b3- Identify feasible delivery strategies for these environments based on a predefined set of criteria.

D-General Skills and Attitudes:

- d1-Work separately or in a team to research and prepare a scientific topic.
- d2-Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a. Theoretical Aspect

NO	TOPICS	Sub-topic Lis	NO OF HOURS	No of Lectures
1	introduction to the drug delivery system.	Definition, types, Advantages, disadvantages,	4	2
2	MICRO-ENCAPSULATION	<ul style="list-style-type: none"> ○ Types of microcapsule ○ Importance of micro encapsulation in pharmacy ○ Micro encapsulation by phase separation ○ co-acrvlation ○ Multi orifice ○ Spray drying ○ Spray congealing ○ Polymerisation, complex ○ Formulation ○ Coating pan and other techniques 	4	2



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		○ evaluation of micro capsules		
3	PARENTERAL PRODUCTS & OPTHALMIC PREPARATIONS:	<ul style="list-style-type: none"> ○ • Preformulation factors ○ • Routes of administration ○ • Water for injection ○ • Pyrogenicity • Nonaqueous vehicles. • Formulation details ○ containers and closures and their selection. • Prefilling treatment • Washing of containers and closures • Preparation of solution and suspensions ○ Filling and sealing of ampoules • Filling and sealing of ampoules • Vial • Infusion fluids • Lyophilization & preparation of sterile powders ○ Equipment for large scale manufacture and evaluation of parenteral products 	4	2
4	PHARMACEUTICAL AEROSOLS:	<ul style="list-style-type: none"> • Definition • Propellants • General formulation • Manufacturing and packaging methods Pharmaceutical applications .	4	2
5	COSMETOLOGY AND COSMETIC PREPARATIONS:	<ul style="list-style-type: none"> • Structure of skin • Formulation of cold cream • Vanishing cream • Cleansing cream • All purpose cream 	4	2



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		<ul style="list-style-type: none"> • Protective cream • Antiperspirants • Deodorant • Face powder. • Hair structure • Shampoos • Conditioner • Shaving and after shaving products • Dentrifice & Mouthwash • Lipstick,Nail lacquer. 		
6	BLOOD PRODUCTS AND PLASMA SUBSTITUTES	<ul style="list-style-type: none"> • Collection , processing &storage of whole blood plasma • Concerated human RBCs • Dried blood plasma • Human fibrinogen • Human thrombin • Human normal immunoglobulin, human fibrin • Foam plasma substitutes • Ideal requirements • PVP <p>Dextran etc for con troll</p>	4	2
7	GOOD MANUFACTURING PRACTICES FOR PHARMACEUTICALS:	Status and applicability of regulation, current good manufacturing practices in manufacturing,processing, packaging and holding of drugs, production and processcontrols, ISO 9000 certification	4	2
	Total		28	14



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a. Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Introduction	2	4
2	<ul style="list-style-type: none"> Types of microcapsule Importance of micro encapsulation in pharmacy Micro encapsulation by phase separation co-acrvlation 	4	8
6	<ul style="list-style-type: none"> Nonaqueous vehicles. Formulation details containers and closures and their selection. 	4	8
10	<ul style="list-style-type: none"> Structure of skin Formulation of cold cream Vanishing cream Cleansing cream All purpose cream Protective cream Antiperspirants Deodorant Face powder. Hair structure Shampoos Conditioner Shaving and after shaving products Dentrifice & Mouthwash Lipstick, Nail lacquer. 	4	8
Number of Weeks /and Units Per Semester		14	28

E- TEACHING AND LEARNING METHODS:

- (a) Lectures
- (b) Class discussion
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments

F- ASSIGNMENTS AND PROJECTS:



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No	Assignments	Week Due	Mark
1	One home assignment after each lecture	1-16	60
2	Group assignment	7, 14	40

G- STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Assignments	1-15	100	40%
2	Midterm Exam	8	20	20%
3	Final Exam	16	40	40%
Total				100%

H- REFERENCES:

Required Textbook(s) (maximum two).

- R.E. Avis, Pharmaceutical Dosage Forms: Parenteral Medication, Vol-I, Marcel Dekker-Inc, New York & Basel.2- Ophthalmic Drug Facts, Bartlett.
- Dermatological and Transdermal Formulations, A.W. Kenneth.

Essential References.

- Cosmetic Science and Technology, S.M. Balsam and Gershon S.D., New York.
- Harrys Cosmeticology, Wilkinson J.P., and Moore J.S., New York.

Electronic Materials and Web Sites etc.

- www.go.jblearning.com/basicphysicalpharmacy

I- COURSE POLICIES

1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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.



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<p>3- Exam Attendance/Punctuality:</p>	<ul style="list-style-type: none"> • Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the beginning of the exam. • Students will not be allowed to leave the exam room until unless half of the examination time is passed. • 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. • 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%. • The student will be considered as failed if he broke the regulations and roles of examination. • 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. • Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
<p>4- Assignments & Projects</p>	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>
<p>5- Cheating:</p>	<ul style="list-style-type: none"> • <input type="checkbox"/> 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. • <input type="checkbox"/> Midterm Exam cheating results in giving the student a mark of zero • <input type="checkbox"/> 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. • 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.



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6- Plagiarism:	Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
7- Other policies:	<p>Using Internet Sources</p> <p>The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.</p> <p>In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.</p> <p>If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites</p>



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Course specification of Pharmacognosy II

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmacognosy II				
2	Course Code & Number:	COG3233				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Third Year / Second Semester				
5	Pre –requisite (if any):	Pharmacognosy I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Labib Noman				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

This course design to acquire students' knowledge on chemistry and activity of drugs of plant and animal origins as well as active ingredients in them. Understand the use and chemical constituents of drugs of plant and animal origin. Acquire integrative knowledge on the most important drugs of plant and animal origin according to their chemical characteristics. Distinguish drugs according to their morphological and micromorphological features.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

Upon successful completion of this course, the students should be able to

1. Illustrate the morphological and histological structures of different organs of Medicinal plants such as seeds, fruits, roots and rhizomes.
2. Discuss role of these medicinal plants in the treatment of different disease conditions.
3. Identify many medicinal plants microscopically in both their entire and powdered forms.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1- Describe the histological structure of the different medicinal plant parts viz. herbs and unorganized drugs.
- a2- Give an account on the biologically active principles in each plant part viz. (herbs and unorganized drugs) as well as their biological activity.
- a3- Design a regime for optimum nutrition (minerals and vitamins).

B-Intellectual Skills:

- b1- Determine unknown drugs viz. herbs and unorganized drugs. (morphologically, microscopically and chemically).
- b2- Judge whatever the powdered drug is related to herbs and identify unorganized drugs through chemical tests.

C-Practical Skills:

- c1- Use the microscope to decide a given unknown plant powder is related to herbs and unorganized drugs.
- c2- Design and perform experiments for detection of adulteration.
- c3- Perform some experiments to know the nature of unorganized.

D-General Skills and Attitudes:

- d1- Work effectively in team.
- d2- Demonstrate written and oral communication skills.

D- COURSE CONTENTS:

a- Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> • Introduction to herbs <ul style="list-style-type: none"> • Hyoscyamus • Lobelia • Mentha • Ergot • Cannabis • Thyme • Diatoms • Focus & laminaria • Carrageen • Saccharomyces. • Penicillium • Mushroom. • Cetraria • Ephedra • Sabina ○ Broom tops 	10	5



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2	<ul style="list-style-type: none"> • Introduction to unorganized drugs <ul style="list-style-type: none"> ○ Opium ○ Agar ○ Gelatin ○ Gambier ○ Cutch ○ Aloes ○ Ehinacea ○ Kinos ○ Colophony ○ Rectified oil of turpentine. ○ Guaiacum resin ○ Jhan resin ○ Cannabis resin ○ Mastic ○ Copaiba ○ Canada turpentine ○ Myrrh ○ Asafetida ○ Galbanum ○ Ammoniacum ○ Olibanum ○ Benzoin ○ Balsam Peru ○ Balsam Tolu ○ Storax ○ Gum acacia ○ Gum tragacanth ○ Karaya gum ○ Manna ○ Guar gum ○ Simbhal ○ Tamal ○ Evening primrose ○ Theobroma oil ○ Castor oil ○ Linseed oil ○ Olive oil ○ Almond oil ○ Bees wax ○ Carnuba wax ○ Purified honey ○ Royal jelly ○ Bee propolis 	10	5
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	<ul style="list-style-type: none"> ○ Bee pollen ○ Bee venom ○ Unorganized drugs in 		
3	• Vitamins and minerals	8	4
Number of Weeks/and Units Per First semester		28	14
b - Practical Aspect:			
Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Morphological and micromorphological identification of herbal drugs in Pharmacognosy	2	4
2	Morphological and micromorphological identification of herbal drugs: leafs and flowers	2	4
3	Morphological and micromorphological identification of herbal drugs: herbs and barks	2	4
4	Morphological and micromorphological identification of herbal drugs: rhizomes and roots	2	4
5	Morphological and micromorphological identification of herbal drugs: fruits and seeds	2	4
6	Histochemical reactions	2	4
7	Analysis of tea mixture	2	4
Number of Weeks /and Units Per Semester		14	28
E- TEACHING AND LEARNING METHODS:			
(a) Lectures (b) Class discussion (c) Exercises solving (d) Collaborative learning / pair work / group work (e) Assignments (i) Seminars (j) Lab Practice			
F- ASSIGNMENTS AND PROJECTS:			
No	Assignments	Week Due	Mark
1	One home assignment after each lecture	1-16	60
2	Group assignment	7, 15	40



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G- STUDENT ASSESSMENT METHODS:

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%
Total				100%

H- REFERENCES:

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

- S. Vladimir-Knežević and B. Blažeković. Teaching practicum in Pharmacognosy I, Faculty of Pharmacy and Biochemistry, Zagreb 2008.
- S. Vladimir-Knežević. Pharmacognosy I: lectures and seminars

2. Essential References.

- European Directorate for the Quality of Medicines and Health Care (EDQM). European Pharmacopoeia, Council of Europe: Strasbourg
- G. Samuelsson. Drugs of natural origin, A textbook of pharmacognosy, Swedish Pharmaceutical Press, Stockholm ,2004 .
- Hansel, O. Sticher: Pharmakognosie – Phytopharmazie, 7. Auflage, Springer-Verlag Berlin Heidelberg New York,2004.

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>

I- COURSE POLICIES:

1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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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.
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4- Assignments & Projects	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>



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5- Cheating:	<ul style="list-style-type: none"> • <input type="checkbox"/> 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. • <input type="checkbox"/> Midterm Exam cheating results in giving the student a mark of zero • <input type="checkbox"/> 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. • 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.
6- Plagiarism:	Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
7- Other policies:	<p>Using Internet Sources</p> <p>The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.</p> <p>In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.</p> <p>If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites</p>



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Course specification of Organic chemistry IV

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Organic chemistry IV			
2	Course Code & Number:	MCH3254			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Third Year / Second Semester			
5	Pre –requisite (if any):	Organic Chemistry III			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Nabeel Al-Qubati			
12	Date of approval:	Dr. Mokhtar Al-Qhorafi			

B- COURSE DESCRIPTION:

The course aims to help student to Use different chemical information for modeling and analyzing given problems in design of new pharmaceutical compounds as new drugs.& .Acquire knowledge about the application of IR ,NMR and UV spectroscopy in identification of organic compound

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1.Use different chemical information for modeling and analyzing given problems in design of new pharmaceutical compounds as new drugs.
2. Describe the physical and chemical properties of organic compounds.
- 3.Acquire knowledge about the application of IR ,NMR and UV spectroscopy in identification of organic compounds
4. Explain the synthesis and reactions of polynuclear hydrocarbons and heterocyclic compounds.
5. Recognize current concepts and basic knowledge of polynuclear hydrocarbons and heterocyclic organic compounds.
6. Provide students with basic knowledge of spectroscopy application of identification of organic compounds.
7. Ability of writing chemical reaction mechanisms and identify unknown organic compounds.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Recognize the nomenclature and chemistry of heterocyclic compounds and the different methods of preparation and reactions of them.
- a2. Acquire the required knowledge of chemistry, reactions and structures of polynuclear compounds.

B-Intellectual Skills:

- b1. Analyze the different organic compounds according to their functional groups and elements.
- b2. Carry out simple chemical reactions.
- b3. Write chemical reaction equation.
- b4. Differentiate between the products of any reaction.
- b5. Distinguish the functional groups of organic compounds by their physical and chemical properties.

C-Practical Skills:

- c1. Apply appropriate laboratory techniques in synthesis the organic compounds and analyzing their purity, safety, potency and quality as per GMP.
- c2. Identify organic compounds by using chemical reaction tests.
- c3. Perform a selection of basic laboratory procedures in general chemistry.

D-General Skills and Attitudes:

- d1. Work effectively in team.
- d2. Demonstrate written and oral communication skills.

D- COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> • Polynuclear Aromatic Compounds: <ul style="list-style-type: none"> ○ Definition, Bonding in Polynuclear Aromatic Compounds (Naphthalene, Anthracene, Phenanthrene), Nomenclature and Isomerism of Naphthalene Derivatives, Physical Properties of Naphthalene, Chemical Properties of Naphthalene (Substitution reactions, Halogenation, Nitration, Sulphonation, Friedel-Craft's Reactions, The Mechanism of Substitution in Naphthalene, Addition Reactions, Reduction, Addition of Halogens, Oxidation, Orientation of Substitution in Naphthalene and Its Derivatives, Effect of Activating and Deactivating Groups), Anthracene, Phenanthrene. 	8	4
2	<ul style="list-style-type: none"> • Heterocyclic Compounds: <ul style="list-style-type: none"> ○ Definition, Nomenclature of Monocyclic Rings Containing One or More Heteroatoms (Pyrrole, Furan, Thiophen, Imidazole, Oxazole, Thiazole, Pyrazole, Pyrrolidine, Pyridine, 	8	4



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	Pyrimidine and Purine), Nomenclature of Bicyclic Rings Containing One or More Heteroatoms (Purine, Quinoline, Isoquinoline, Carbazole), Aromaticity of Heterocyclic Compounds, Five-membered Heterocyclic Compounds (with One or Two Heteroatoms), Electrophilic Substitution of Five-membered Rings, Six-membered Heterocyclic Compounds with One Oxygen as a Heteroatom (-Pyran, - Pyran, - Pyrone, -Pyrone and Their Derivatives), Six-membered Heterocyclic Compounds with One Nitrogen as a Heteroatom (Pyridine, Quinoline, Acridine and Their Derivatives), Reactions of Six-membered Heterocyclic Compounds, Six-memebered Heterocyclic Compounds with Two Heteroatoms (Pyridazine, Pyrimidine, Pyrazine and Their Derivatives), Condensed Systems Consisting of Pyrazine Ring.		
3	<ul style="list-style-type: none"> • Elemental Analysis <ul style="list-style-type: none"> ○ Elemental Analysis and Calculations: (Qualitative Elemental Analysis, Quantitative Elemental Analysis, Determination of the Molecular Weight) by the Vapour Density Method, by the Cryoscopic Method, by the Rast Method, by the Neutralisation Equivalent, and by the Vapour Pressure Osmometry Method), Molecular Formulas, The Index of Hydrogen Deficiency. ○ Electronic absorption Spectroscopy (UV/VIS): Definition, Electronic Energy Changes, Principles of Absorption Spectroscopy, The Relationship of max and max to Structure, Solvents, Chromophores, The Effect of Conjugation, The Woodward-Fieser Rules for Dienes, Carbonyl Compounds, Solvent Shifts (a more detailed examination), Aromatic Compounds, Substituents with Unshared Electrons, Substituents Capable of -Conjugation, Electron Releasing and Electron Withdrawing Effects, Disubstituted Benzene Derivatives, Polynuclear Aromatic Hydrocarbons and Heterocyclic Compounds, Model Compound Studies Visible Spectra, Colour in Compounds. ○ Infrared Spectroscopy: Introduction, The Infrared Absorption Process, Uses of the IR Specrum, The Modes of Vibration 	12	6



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	<p>and Bending (Symmetric and Asymmetric Stretching Vibrations, and In-plane and Out of Plane Bending Vibrations), Bond Properties and Absorption Trends, Examining IR Spectra, Correlation Charts and Tables, Analysis of IR Spectrum.</p> <p>○ Nuclear Magnetic Resonance (NMR) Spectroscopy: Introduction, Nuclear Spin States, Nuclear Magnetic Moments, Absorption of Energy, The Mechanism of Absorption (Resonance) The Chemical Shift and Shielding, The NMR Spectrometer, Chemical Equivalence, Integrals, Chemical Environment and Chemical Shifts, Local Diamagnetic Shielding (Electronegativity Effects, Hybridization Effects, Acidic and Exchangeable Protons, Hydrogen Bonding), Magnetic Anisotropy, Spin-Spin Splitting (N+1) Rule, The Origin of Spin-Spin Splitting, Pascal's Triangle, Coupling Constant.</p> <p>Mass Spectroscopy (MS): The Mass Spectrometer, The Mass Spectrum, Molecular Weight Determination, Molecular Formulas from Isotope Ratio Data, Some Fragmentation Patterns, Additional Topics.</p>		
Number of Weeks /and Units Per Semester		28	14
E- TEACHING AND LEARNING METHODS:			
<ol style="list-style-type: none"> 1. Lectures using data show. 2. Video animation and seminars. 3. Solving Problem method. 4. Laboratory work, directed reading. 5. independent study. 6. discussion 			
F- ASSIGNMENTS AND PROJECTS			
No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100



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G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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, 6th edition, Pearson

2. Essential References.

- Prentice Hall of India Pvt. Ltd, New Delhi. 4. Jerry and March, Advanced Organic Chemistry ; reaction, mechanism and structure, 2007, 6th edition, John Wiley and Sons, Inc., Hoboken, New Jersey.

3. Electronic Materials and Web Sites etc.

- 1- WWW. Organic Chemistry.com
- 2- www.orgsyn.org

I- Course Policies:

1	Class Attendance: - <ul style="list-style-type: none"> • Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
2	Tardy: - <ul style="list-style-type: none"> • Students will be allowed to in the class if he/she is late not more than



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	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"> • Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam. • Students will not be allowed to leave the exam room until unless half of the examination time is passed. • 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. • 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%. • The student will be considered as failed if he broke the regulations and roles of examination. • 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. • Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
4	<ul style="list-style-type: none"> • Assignments & Projects:- • Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer. • Late Assignments / Extensions • Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents. • Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.



	<ul style="list-style-type: none"> In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
5	<p>Cheating: -</p> <ul style="list-style-type: none"> 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. Midterm Exam cheating results in giving the student a mark of zero 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. 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.
6	<p>Plagiarism:</p> <p>Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.</p> <p>Intellectual Property involves:</p> <ul style="list-style-type: none"> Another person's idea, opinion, or theory Any facts, statistics, graphs, drawings—any pieces of information—that are not common knowledge Quotations of another person's actual spoken or written words Paraphrase of another person's spoken or written words <p>Issues of intellectual property extend beyond the written word of course. Bear in mind that the use of still images, moving images, audio or any other content which you have not created yourself, and which you do not have the appropriate permission to use, is a serious offence resulting in a FAIL grade for the subject.</p>
7	<p>Other policies:-</p> <ul style="list-style-type: none"> Using Internet Sources The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources. In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site,



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you must cite that source.

- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.

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Fourth Year / First Semester



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Course specification of Pharmacology II

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmacology II				
2	Course Code & Number:	COL4142				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Fourth Year \ First Semester				
5	Pre –requisite (if any):	Pharmacology I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ali Al-Yahoi				
12	Date of approval:	Dr. Hamoud Abdullah				

B. 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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire a knowledge about the pharmacokinetic of drugs (absorption, distribution, metabolism and excretion).
2. Recognize Pharmacodynamic of drugs (mechanism of drug action & their biological effects on different body organs and drug-protein binding) and dosage form of drugs (advantages & disadvantages).
3. Explain uses & Adverse drug reactions & their side effects (drug toxicity, abuse, and their misuse).
4. Classify the types of drug-drug interactions.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Define the drugs affecting cardiovascular and respiratory system
- a2- Identify action and indication of the drugs.
- a3- Recognize the side effects of various drugs.
- a4- Explain Mechanism of these drugs.
- a5- Illustrate the reasons for various indication of the drugs.
- a6- Identify various drugs used in hospitals, polyclinic and pharmacy

sections.

B-Intellectual Skills:

- b1- Read the dive prescribed drugs.
- b2- list precaution to be taken for each drug.
- b3 -Explain how to deal with patient when side effect occurred

C-Practical Skills:

- c1. Accepts Attitude on health team working.
- c2- Participate in health education activities in his field.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Cardiovascular System (C.V.S) <ul style="list-style-type: none"> • Antihypertensive agents. • Drugs used in treatment of heart failure. • Anti-anginal agents. • Anti-arrhythmic agents. • Drugs for shock • Hypolipidaemic agents 	8	4
2	Respiratory System (R.S) <ul style="list-style-type: none"> Cough therapy Respiratory stimulants Drugs used in treatment of Bronchial Asthma. Drugs used in treatment of Rhinitis. 	4	2
3	Autocoids <ul style="list-style-type: none"> Histamine & antihistamines Serotonin agonists & antagonists. Eicosanoids, and their uses PAF, bradykinin 	4	2



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4	Endocrine System Hypothalamic & pituitary gland. Thyroid and antithyroid drugs. Glucagon and adrenocortical steroids Insulin & oral hypoglycemic agents. Sex hormones. Female sex hormones. Male sex hormones. Contraceptives. Pituitary hormones	8	4
5	Urogenital system A Diuretics Oxytocics and uterine relaxants	4	1
Number of Weeks/and Units Per First semester4		28	14

E. TEACHING AND LEARNING METHODS

- 1-Lectures
- 2- Tutorials
- 3- Student oral and written presentation
- 4- Practical sessions

F. ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H. REFERENCES:

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. Essential References.

- H.P. Rang, M.M. Dale, J.M. Ritter, R.J. Flower (2007) Rand and Dale's Pharmacology, 6th edition, Churchill Livingstone Elsevier, Philadelphia
- Tripathi –Essential Pharmacology (2001)
- Goodman & Gilman's- The pharmacological basic of therapeutics (1995)

3. Electronic Materials and Web Sites etc.

1- www.who.int

2- www.drugs.com

I. COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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.

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- The student will be considered as failed if he broke the regulations and roles of examination.
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- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

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- Late Assignments / Extensions



- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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 - In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
- 5- Cheating:
- 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.
 - Midterm Exam cheating results in giving the student a mark of zero
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 - If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of First Aid

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	First Aid				
2	Course Code & Number:	CR4118				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Fourth Year \ First Semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ifrah Al-Dohani				
12	Date of approval:	Dr. Majed Alwan				

B. 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.

C. PROFESSIONAL INFORMATION

1-AIMS OF THE COURSE:

- 1- To provide the student with knowledge, skills and attitudes in the field of environmental health & Nutrition.
- 2- Also to help the student to acquire knowledge, skills and attitudes in the field of health education and Family planning, enable him/her to participate efficiently in solving some of health problems affecting the community.
- 3- understand the constituents of the food for the daily requirements of the body in health and illness and their sources, functions and deficiencies.
- 4- participate effectively in the health education process & Family planning.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Recognize health problems available in the environment that affect the community.
- a2. Explain the necessary steps for solving some of health problem affecting the environment and the community.
- a3. Acquire knowledge in proper Nutrition.
- a4. Illustrate the constituents of food, their sources, functions, deficiencies and daily requirements in health and illness.

B-Intellectual Skills:

- b1. Prepare simple Materials for the purpose of health education .
- b2. Classify constituents of the food for the daily requirements of the body in health and illness and their sources, functions and deficiencies..

C-Practical Skills:

- c1. Accepts Attitude on health team working.
- c2- Participate in health education activities in his field.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	<u>Introduction</u> Concept of first aid Objective of first aider Responsibilities of fist aider	2	1
2	<u>Hemorrhage and cut wounds</u> External bleeding Cuts wound	4	2
3	<u>Shock</u> Definition Types First aid treatment of shock <u>Unconsciousness</u> Definition First aid treatment Heart massage <u>Epileptic fits</u> -first aid treatment	6	3
4	<u>Splint and bandage</u> Aims of bandaging in first aid Aim of splinting	2	1



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	Methods of apply bandages		
5	<u>Fractures and dislocation</u> A-definition of fractures Types of fractures Signs and symptoms First aid treatment <u>B-definition of dislocation</u> The first aid treatment	4	2
6	<u>Burns and scalds</u> Heat burns Chemical scalds first aid treatment	4	2
7	<u>Asphyxia</u> Artificial respiration P.R	2	1
8	<u>Poisoning</u> Types Cause Classification Treatment	4	2
Number of Weeks/and Units Per First Second semester		28	14

E. TEACHING AND LEARNING METHODS

- Lecture
- Problem solving
- Cooperative learning
- Discussion
- Demonstration
- Videoclips

F. ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS



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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)	12	50	50%
Total			100	100%

H. REFERENCES:

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

- Austen M.2011, First Aid Manual. 9th edition.London
- Community health Nursing (Promoting & protecting the public health) Allender , Judith.

2. Essential References.

- 1. Crouch R. 2009, Emergency nursing hand bookfirst edition.Oxford University press.
- Use of guidelines for making pregnancy safer and family planning, W.H.O

3. Electronic Materials and Web Sites etc.

- 1-http: www.trauma.org
- 2-http: BLS.com

I. COURSE POLICIES:

- Class Attendant:
Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
- 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.
- Exam Attendance/Punctuality:
 - Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
 - Students will not be allowed to leave the exam room until unless half of the examination



time is passed.

- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

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- Midterm Exam cheating results in giving the student a mark of zero
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6- Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:



- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



Course specification of Toxicology

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Toxicology				
2	Course Code & Number:	COL4143				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fourth Year \ First Semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):	Pharmacology IV				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Hassan Al-Mahbashi				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

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, fetal 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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire the basic principles of toxicology and the different disciplines of toxicology.
2. Gain knowledge regarding the supportive measures, therapeutic interventions, specific antidotes as general guidelines of treatment modalities.
3. Understand the mechanism of toxicity, toxicokinetic, clinical presentation, diagnosis and medications indicated and contraindicated in the treatment of toxicity of common drug and chemical groups.
4. Illustrate the serious consequences of exposure to therapeutic drugs and environmental and occupational chemicals.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1. Acquire knowledge on Knowledge about the various means of possible exposure to therapeutic and non-therapeutic agents.
- a2. Gain an overview of protocols for managing various toxic ingestions, and the antidotes and treatments associated with their pathology
- a3. Illustrate knowledge regarding the special considerations with maternal, fetal, and neonatal health.

B-Intellectual Skills:

- b1. Develop a greater awareness for the consequences of ingesting prescription medicines and other compounds with the risk of environmental and biological threats to public safety
- b2. Differentiate between exposure to therapeutic drugs and environmental and occupational chemicals.

C-Practical Skills:

- c1. Identify the serious consequences of toxic drugs and chemicals exposure
- c2. Apply supportive measures, therapeutic interventions, specific antidotes as general guidelines of treatment modalities.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	General Principles of Toxicology: Toxicity, hazard, risk. ○ Branches of toxicology: Occupational, Environmental, Ecotoxicology, Analytical and Clinical	2	1
2	Types of exposure and toxic responses Spectrum of toxicity. ○ Evaluation of safety of chemicals and drugs.).	2	1
3	Prevention and Management of Poisoning: Poisoning episodes: Accidental, Suicidal, Homicidal, Nonaccidental ○ Prevention of poisoning:	4	2
4	Management of Poisoning: Maintenance of vital functions Antidotes: non-specific & specific	4	2



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5	Prevention of absorption of poisons Enhanced elimination of poisons Supportive management	2	1
6	Poisoning with Common Drugs: Selected OTC Products: Aspirin, Paracetamol, Iron	2	1
7	CNS Depressants: Barbiturates, Benzodiazepines:	2	1
8	CNS Stimulants: Amphetamine & Cocaine	2	
9	Poisoning with Common Chemicals: Household Toxicants: Solvents, corrosives, gases, cleaning agents (soaps, detergents, bleaches, ammonia solution).	2	1
10	Pesticides: Halogenated & cholinesterase inhibitor insecticides Rodenticides, Herbicides, Fungicides	2	1
11	Common Heavy Metals and Chelators	2	1
12	Teratogenic and Toxic Effects of Drugs and Chemicals on Reproduction: Possible site of action of teratogens: Effects on father, mother, feto-placental unit and fetus. Principles of teratology as applied to man: Stages of pregnancy, Drug dosage, placental transfer, use of drugs during pregnancy	2	1
Number of Weeks/and Units Per Semester		28	14

b - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	<ul style="list-style-type: none"> 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) 	3	6
2	<ul style="list-style-type: none"> Detection of corrosive acids Detection of corrosive alkalis 	1	2
3	<ul style="list-style-type: none"> Detection of carbolic acid (phenols) Detection of heavy metals 	1	2
4	<ul style="list-style-type: none"> Detection of some analgesic drugs (aspirin and paracetamol) Detection of sedatives and hypnotics (barbiturates and 	1	2



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	benzodiazepines)		
5	<ul style="list-style-type: none"> Detection of CNS depressants (opioids) Detection of CNS stimulants (amphetamine) 	1	2
6	<ul style="list-style-type: none"> Detection of pesticides Detection of volatile poisons 	1	2
7	Final Exam	1	2
Number of Weeks /and Units Per Semester		9	18

E- TEACHING AND LEARNING METHODS

- Tutorials
- Lectures using PowerPoint and data show
- Laboratory sessions (Practical training).
- Group discussion.
- Seminars

F- ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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

- Curtis Klaassen (2013), Casarett and Doull's Toxicology: Basic Science of Poisons. 8th Edition, McGraw Hill, New York.

2. Essential References.



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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. Electro nic Materials and Web Sites etc.

1- <http://toxnet.nlm.nih.gov/>

2- <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi>

3- <http://www.PubMed.com>

I- COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions



- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
 - Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
 - In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
- 5- Cheating:
- 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.
 - Midterm Exam cheating results in giving the student a mark of zero
 - 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.
 - If the student's 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.
- 6- Plagiarism:
- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.
- 7- Other policies: Using Internet Sources:
- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
 - In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
 - If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Pathology

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pathology				
2	Course Code & Number:	ASS4187				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Fourth Year \ First Semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Waleed Al-Dahbi				
12	Date of approval:	Dr. Hamoud Abdullah				

B. 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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1-It provides the basic knowledge about etiology, pathogenesis & pathological changes.
- 2-Illustrate effects and possible complication of common disease entities along with abnormal changes .
3. List abnormal pathological laboratory results and their causes
4. Illustrate the fate and complications of different disease processes

2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Acquire knowledge on the scope and importance of pathology in clinical practice.
- a2. Recognize clinical manifestations of a certain disease and its underlying pathological changes.

B-Intellectual Skills:



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- b1. Analyze importance and the sources of marine drugs, their toxicities and their promising medicinal applications
b2. Differentiate between clinical manifestations of a certain disease

C-Practical Skills:

1. C1. Detect abnormalities that may indicate cancer or other diseases of tissue.
1. C2. Interpret microscopical changes occurring in the tissues and organs in the studied diseases.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUB TOPICS	NO OF HOURS	No of Lectures
1	General pathology: ○ Introduction to pathology	2	1
2	Tissue and cell damage and metabolic disturbance Cell injury and tissue damage Causes of cell injury and tissue damage Degenerations: Cloudy swelling Types of degeneration Metabolic disorders, causes and types Necrosis, causes and types Inflammation Definition and etiology Spread of inflammation Local inflammation Metastatic inflammation Generalized infection Types of acute inflammations Local changes: Hyperemia exudation of leucocytes and others cells and phagocytosis Systemic effects of acute inflammation Exudative: serous, suppurative, serofibinous & haemorrhagic Chronic inflammation : Specific and non-specific Repair and Healing Healing wounds Healing by first intention Healing by second intention Complication of wound healing	8	4



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	<p>Healing by fibrosis Mechanism of fibrous tissue formation Factors influencing wound healing and fibrosis ○ Healing of bone fractures</p>		
3	<p><u>Neoplasia</u> Types of cellular proliferation Non-neoplastic - metaplasia - hypertrophy Hyperplasia - dysplasia Classification of benign and malignant tumors Pathology of some benign and malignant tumors Spread of malignant tumors Prognosis and grading of malignant tumors Carcinogenesis & theories of origin of neoplasms</p> <p><u>Hypertrophy</u> Types of hypertrophy Diseases associated with hypertrophy Hypertrophic cardiomyopathy Congenital hypertrophic pyloric stenosis</p> <p><u>Hyperplasia</u> Types of hyperplasia Diseases associated with hyperplasia Prostatic hyperplasia Thyroid Hyperplasia</p> <p><u>Atrophy</u> Types of atrophy Disorders associated with generalized atrophy Disorders associated with organ atrophy Osteoporosis Alzheimer's Disease ○ Pick's Disease</p>	8	4
4	<p>Tumor Pathology General definition of tumor Benign tumors Malignant tumors Tumors of limited malignancy Tumor-like lesions</p> <p>Tumor Classification <u>Nonepithelial tumors</u> General definitions Benign nonepithelial tumors Malignant nonepithelial tumors Fibrous tumors Fibroma and fibrosarcoma Tumors of fatty tissue Lipoma and liposarcoma</p>	10	5



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	Cartilage tumors, chondroma Bone tumors Osteoma and osteosarcoma <u>Benign epithelial tumors</u> Papillomas Mucosal papilloma Urothelial papilloma Adenomas Solid adenoma Tubular adenoma Fibroadenoma Adenocarcinoma Highly differentiated forms Moderately differentiated forms Mucigenous carcinomas <u>Carcinomas of specific organs</u> Prostatic carcinomas Carcinoma of the breast Lung carcinoma Colorectal carcinoma			
Number of Weeks /and Units Per Semester		28	14	
E. TEACHING AND LEARNING METHODS				
1-Lectures 2- Tutorials 3- Video animation 4- Seminars				
F. ASSIGNMENTS AND PROJECTS				
No	Assignments	Week Due	Mark	
1	Homework Assignments	1-12	100	
G. STUDENT ASSESSMENT METHODS				
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%



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5	Final Exam (theoretical)	12	50	50%
Total			100	100%

H. REFERENCES

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. Essential References.

- 1- Ursus-Nikolaus Riede, Martin Werner: *Color Atlas of Pathology: Pathologic Principles· Associated Diseases*; Thieme Stuttgart· New York 2004
- 2- Lecture notes on general pathology
- 3- lecture notes on systemic pathology

3. Electronic Materials and Web Sites etc.

- 1- www.google general pathology
- 2- www.google systemic pathology

I. COURSE POLICIES:

1- Class Attendant:

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- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Biopharmaceutics & Pharmacokinetics I

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Biopharmaceutics & Pharmacokinetics I				
2	Course Code & Number:	CEU4128				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fourth Year \ First Semester				
5	Pre –requisite (if any):	Pharmaceutics I,II ,III & IV				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Majed Alwan				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

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.

C- PROFESSIONAL INFORMATION

1-AIMS OF THE COURSE:

To provide a conceptual and quantitative background in pharmacokinetic theory and applications needed to pursue advanced studies in clinical pharmacokinetics and biopharmaceutics as applied to drug delivery system design and pharmacokinetic theory.



2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1. Understanding the effects of various physicochemical, biochemical, physiological and pathological processes on the kinetics and extent of drug absorption, distribution, and elimination.
- a2. Explain the effects of dosage form design and routes of drug administration on therapeutic drug levels optimization.
- a3. Differentiate between passive diffusion, facilitated diffusion, and active transport.
- a4. Characterize the impact of efflux proteins at various anatomical sites (i.e., intestinal, placental, and blood-brain barrier) on the concentration and pharmacologic effect achieved
- a5. Describe the significance and impact of the first-pass effect after oral administration.

B-Intellectual Skills:

- b1. Design of bioavailability and bioequivalence studies.
- b2. Analyze empirical pharmacokinetic models to devise and optimize dosage regimens.
- b3. Classify pharmacokinetic models.

C-Practical Skills:

- c1. Adjust and optimize the dose and dosage regimen.
- c2. Estimate of drug half life

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day

D- COURSE CONTENTS:

a – Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	<ul style="list-style-type: none"> • Introduction to Biopharmaceutics • Effect of various routes of administration on drug bioavailability • GIT absorption of drugs <ul style="list-style-type: none"> ○ Mechanism of drug absorption ○ Physiological factors affecting oral absorption ○ Physical-Chemical factors affecting oral absorption ○ Formulation factors affecting oral absorption ○ Techniques for the GIT absorption assessment 	12	6



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2	<ul style="list-style-type: none"> • Biopharmaceutics study of drugs <ul style="list-style-type: none"> ○ Distribution ○ Metabolism ○ Elimination 	12	6
3	<ul style="list-style-type: none"> • Bioavailability and bioequivalence <ul style="list-style-type: none"> ○ Definition ○ Method of determination of bioavailability using blood and urine excretion data. ○ Protocol design of bioavailability assessment. ○ Methods of bioequivalence determination 	4	2
Number of Weeks/and Units Per Semester		28	14

b. Theoretical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Plasma –time level curve	1	2
2	Routes of Drug Administration	1	2
3	Bioavailability study	1	2
4	Mechanism of drug absorption	1	2
5	Volume of distribution	1	2
6	Role of drug metabolism	1	2
7	Role and pathway of excretion	1	2
8	Renal excretion	1	2
9	Measurement of Bioavailability	1	2
10	Methods of bioequivalence determination	1	2
11	Limitations of BA/BE studies	1	2
12	Final Exam	1	2
Number of Weeks /and Units Per Semester		12	24

E- TEACHING AND LEARNING METHODS



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- Lectures using data show
- Video animation and seminars
- Direct reading
- Independent study
- Group discussion

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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

1. Leon Shargel Andrew (2012). Applied Biopharmaceutics and Pharmacokinetics, Sixth edition, Lippincotts and William, Philadelphia.
2. Handbook of Basic Pharmacokinetics-Ritschel, W.A., Drug Intelligence Publication,

2. Essential References.

- Michel E. Winter (2011). Basic clinical pharmacokinetics, Fifth edition, Lippincotts and William, San Fransisco.
- Fundamentals of Clinical Pharmacokinetics-Wagner, J.C., Drug Intelligence Publication,
- Remington's Pharmaceutical Sciences - Gennaro A.R., ed., 19th Edition, Mack Publishing Co., Easton, PA. 1995. Clinical Pharmacokinetics - Rowland, M. & Tozer, N., 2nd, edi

3. Electronic Materials and Web Sites etc.

-www.boomer.org



I- COURSE POLICIES:

- 1- Class Attendant:
Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
- 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.
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 - The student will be considered as failed if he broke the regulations and roles of examination.
 - 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.
 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
- 4- Assignments & Projects:
 - Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
 - Late Assignments / Extensions
 - Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
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6- Plagiarism:

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- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Phytochemistry I

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Phytochemistry I				
2	Course Code & Number:	COG4134				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fourth Year \ First Semester				
5	Pre –requisite (if any):	Pharmacognosy I,II				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Labib Noman				
12	Date of approval:	Dr. Majed Alwan				

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Provide the basic phytochemical knowledge.
- 2- Recognize the natural source, classification, extraction, detection, isolation, pharmacological and toxicological effects.
- 3- Illustrate chemistry of natural pesticides as well as drugs of marine origin.
- 4- Discuss the major pharmaceutically important secondary metabolites from natural sources (alkaloids & steroids) of pharmaceutical interest.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Acquire knowledge on the scope and importance of Phytochemistry in drug discovery and modern medicine.
- a2. Recognize the chemical structure, medicinal value, natural source, detection, isolation, characterization and medicinal applications of alkaloids & steroids and their importance in orthodox medicine.
- a3. Classify and explain different chromatography methods.
- a4. Identify the medicinally important alkaloids, their chemical structure, natural sources, detection, isolation and characterization and medicinal applications.

B-Intellectual Skills:

- b1. Analyze importance and the sources of marine drugs, their toxicities and their promising medicinal applications
- b2. Differentiate between different types of alkaloids & steroids.

C-Practical Skills:

- c1. Identify the nature, source, production, and medicinal uses of naturally occurring antibiotics.
- c2. Apply chromatography in identification, differentiation and isolation of alkaloids & steroids.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUB TOPICS	NO OF HOURS	No of Lectures
1	<u>Chromatography</u> <ul style="list-style-type: none"> ○ Basic concept (partition and adsorption chromatography), Separation techniques (elution, frontal, and displacement analysis), ○ Types of chromatographic methods: Paper chromatography, Thin layer chromatography (TLC), ○ Types of chromatographic methods: Column chromatography (CC), ○ Gas chromatography (GC), performance liquid chromatography (HPLC), Gel chromatography 	8	4
2	<u>Alkaloids</u> <ul style="list-style-type: none"> ○ Introduction : Definition, history, occurrence, classification, nomenclature, physical and chemical properties, isolation, purification and detection 	10	5



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	<p>Alkaloids derived from phenylalanine and tyrosine</p> <p>Isochinolin-alkaloids (papaverine, morphine, codeine, and emetine)</p> <p>Tropolon-alkaloids (colchicine, demecolcine).</p> <p>Amaryllidaceen-alkaloids : (lycorine, galanthamin)</p> <p>Alkaloids derived from typtophan</p> <ul style="list-style-type: none"> Indol-alkaloids (physostigmine-, carboline-, ergoline-, ajmalicine-, yohin ajmaline-, and strychnine-type) <p>Chinoline-alkaloids (Cinchona-alkaloids).</p> <p>Alkaloid deived from histidin: (pilocarpine, isopilicarpine, pilosin).</p> <p>Alkaloids derived from asparagic acid: (ricinine, and Nicotiana-alkaloids). Alkaloids derived from lysin</p> <ul style="list-style-type: none"> Piperidine-alkaloids (Piper-, Lobelia-, and Pomegranate-alkaloids) Alkaloids derived from ornithine <p>Tropan-alkaloids (atropine, hyoscyamine, scopolamine and cocaine)</p> <p>Chinazoline – alkaloids (tetradoxine).</p> <p>Alkaloids derived from glycine</p> <p>Purin –alkaloids (caffeine, theiphylline, and theobromine)</p> <p>Terpen – alkaloids: (monoterpen-, sesquiterpen-, and diterpen- alkaloids).</p> <ul style="list-style-type: none"> Steroidal alkaloids: (Veratum alkaloids). 		
3	<p><u>Steroids :</u></p> <ul style="list-style-type: none"> - Definition, classification, structures, chemical and physical properties, characterization. - Sterols (Definition, classification, structures, chemical and physical properties, Pharmacological Importance). Vitamin D (Sources, structure, action, clinical uses) Bile acids (Structure, action and uses) Steroid hormones (Sexual hormones and corticoids, classification, structure, action and clinical uses) 	6	3
4	<p><u>Bitter principles</u></p> <p>Definition, classification, chief drugs containing bitter principle</p>	4	2
Number of Weeks/and Units Per Semester		28	14



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b - Practical Aspect:			
Order	Tasks/ Experiments	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 cyangenetic 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		
Number of Weeks /and Units Per Semester		11	22
E. TEACHING AND LEARNING METHODS			
<ul style="list-style-type: none"> - Lectures using board and makers, data show, - Discussion - Video animation - Seminars - Solving Problem method, - Laboratory work, independent study and discussion 			
F. ASSIGNMENTS AND PROJECTS			
No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100



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G. STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H. REFERENCES:

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. Essential References.

- 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>

I. COURSE POLICIES:

- 1- Class Attendant:
Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
- 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:



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- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
 - Students will not be allowed to leave the exam room until unless half of the examination time is passed.
 - 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.
 - 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%.
 - The student will be considered as failed if he broke the regulations and roles of examination.
 - 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.
 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
- 4- Assignments & Projects:
- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
 - Late Assignments / Extensions
 - Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
 - Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
 - In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.
- 5- Cheating:
- 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.
 - Midterm Exam cheating results in giving the student a mark of zero
 - 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.
 - If the student's 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.
- 6- Plagiarism:
- Plagiarism is a breach of intellectual property; the act of using or copying someone



else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course Specification of Medicinal Chemistry I

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Medicinal chemistry I			
2	Course Code & Number:	MCH4155			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Fourth Year \ First Semester			
5	Pre –requisite (if any):	Organic chemistry I, II,III,IV, pharmacology I			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	Pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Mokhtar Al-Qhoraifi			
12	Date of approval:	Dr. Majed Alwan			

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. To provide the knowledge of chemistry of drugs with special references to their pharmaceutical and medicinal usage.
2. To acquire the knowledge about the relationship of chemical structure and therapeutic properties.
3. To correlate medical chemistry facts with manufacture drugs & clinical application.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Acquire knowledge on the principles of medicinal chemistry .
- a2. Describe the basic principles of mechanism action for active groups in pharmaceuticals chemistry.
- a3. Recognize different reaction between active groups in pharmaceutical chemistry especially in preparations of drugs.
- a4. Explain of nomenclature chemically of medical chemistry.

B-Intellectual Skills:

- b1. Apply preparation (synthesis) of medical compound drugs
- b2. Identify the different of medical compound drugs by assay& titration
- b3. Determine medically used & roles of important medical compound drugs.

C-Practical Skills:

- c1. Maintain the name of chemical compound & derivatives or chemical modification effects.
- c2. Estimate drug half-life.
- c3. Classify medical compound drugs according to medically used & active group

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Physiochemical properties <ul style="list-style-type: none"> Pharmacokinetics Acid-Base properties Drug receptor interaction <ul style="list-style-type: none"> Force involved, steric effects 	2	1
2	Metabolism <ul style="list-style-type: none"> Site, pathways, factors Oxidative reactions Reductive reactions Hydrolytic reactions <ul style="list-style-type: none"> Conjugation reactions 	4	2
3	Drug design <ul style="list-style-type: none"> Introduction Physical and chemical properties of drugs. 	2	1



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	<ul style="list-style-type: none"> Isosteres and bioisosteres- pharmacophoric groups. <ul style="list-style-type: none"> Use of computer in drug design 		
4	Adrenergic agents <ul style="list-style-type: none"> Sympathomimetic agents Sympatholytic agents as: Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use.	6	3
5	Cholinergic agents <ul style="list-style-type: none"> Cholinergic agents Anticholinergic agents Ganglionic blocking agents Neuromuscular blocking agents Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use.	6	3
6	Immunology Nomenclature, Antigen, Defense mechanisms, Antibody, Vaccines and toxoids Antigen.	4	2
7	Biotechnology Cloning DNA Expression of DNA Manipulation of DNA Products.	4	2
Number of Weeks/and Units Per First semester		28	14

b - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Limit Test For Chloride	1	2
2	Limit Test For Sulphate	1	2
3	Limit Test For iron	1	2
4	limit test for sulphate in sod thiosulphate	1	2
5	limit test for chloride in potassium bromide	1	2
6	limit test for chloride in colored compound (potassium permanganate)	1	2
7	limit test in sodium salicylate	1	2



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8	Limit test for Cl^- , SO_4^{2-} and salicylic acid in aspirin	1	2
9	Evaluation of Medicinal Crude drugs	1	2
10	Final Exam	1	2
Number of Weeks /and Units Per Semester		10	20

E. TEACHING AND LEARNING METHODS

1. Lectures
2. Practice session,
3. Discussions,
4. Solving Problem methods,
5. Group assignments,
6. Small group discussions
7. Practical classes

F. ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H. REFERENCES:

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. Essential References.



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- 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" 6th edition, A John Wiley and Sons, Inc., Virginia.
- 3- Thomas L. Lemke, Victoria F. Roche, David A. Williams and S. William Zito.

3. Electronic Materials and Web Sites etc.

- 1- <http://www.chemaxon/marvin>
- 2- <http://www.webmolecules.com>
- 3- <http://www.acdlabs.com>
- 4- PASS Prediction of Activity Spectra for Substance (<http://www.ibmh.msk.su/PASS>)

I. COURSE POLICIES:

- 1- Class Attendant:
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 - Late Assignments / Extensions



- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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- 5- Cheating:
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 - If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites

Republic of Yemen

AL-YEMENIA UNIVERSITY

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Fourth Year / Second Semester



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Course specification of Pharmacology III

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmacology III				
2	Course Code & Number:	COL4244				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Fourth Year \ Second Semester				
5	Pre –requisite (if any):	Pharmacology II				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ali Al-Yahoi				
12	Date of approval:	Dr. Hamoud Abdullah				

B. COURSE DESCRIPTION:

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

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Give a knowledge about the pharmacokinetic of drugs (absorption, distribution, metabolism and excretion).
2. Explain Pharmacodynamic of drugs (mechanism of drug action & their biological effects on different body organs and drug-protein binding)
3. Illustrate uses & adverse drug reactions & their side effects (drug toxicity, abuse, and their misuse).
4. Express the types of drug-drug interactions.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Define the drugs affecting G.I.T & R.S.
- a2- Identify action and indication of the drugs.
- a3- Recognize the side effects of various drugs .
- a4- Explain Mechanism of these drugs.
- a5- Explain the reasons for various indication of the drugs.
- a6- Identify various drugs used in hospitals and pharmacy sections.

B-Intellectual Skills:

- b1- Read the dive prescribed drugs.
- b2- list precaution to be taken for each drug.
- b3 -Explain how to deal with patient when side effect occurred.

C-Practical Skills:

- c1-Differentiate between the side effect and adverse effect.
- c2- Identify the abbreviations used in pharmacology.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Chemotherapeutic Drugs; Introduction to chemotherapy B-Lactam Antibiotics and other inhibitors of the cell wall. synthesis. Penicillins.	2	1
2	Cephalosporins , Imipenems and monolactams	2	1
3	Chloromphenicol, Tetracyclines, Macroids and Clindamycin Aminoglycosides and other drugs used to treat gram - negative infection	2	1
4	Cancer Chemotherapy; Introduction, Poly functional alkylating agents.	2	1
5	Plant alkaloids and Antibiotics.	2	1
6	Hormonal agents and Miscellaneous anticancer agents	2	1
7	Immunopharmacology; Introduction and Immunosuppressive agents.	2	1
8	Immunomodulating agents	2	1



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9	Cancer immunotherapy and Gene therapy.	2	1
10	Endocrine Hormones; Pancreatic Hormones.	2	1
11	Anti-diabetic Drugs.	2	1
12	Hypothalamic, Pituitary Hormones and Synthetic analogue.	2	1
13	Thyroid and Anti-thyroid Drugs.	2	1
14	Adrenocorticosteroids & Adrenocortical antagonists.	2	1
Number of Weeks/and Units Per First semester			

E. TEACHING AND LEARNING METHODS

- 1-Lectures
- 2- Tutorials
- 3-Student oral and written presentation

F. ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H. REFERENCES:

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, 11th



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edition, Mc Graw Hill Lange, U.S.A.

2. Essential References.

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

2- www.drugs.com

I. COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after



one week of delay from the deadline given, unless you have valid reasons with supportive documents.

- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
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6- Plagiarism:

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7- Other policies: Using Internet Sources:

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- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites

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Course specification of Public Health

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Public Health
2	Course Code & Number:	CR4219
3	Credit hours:	C.H
		Theoretical Practical Training Seminar
		2 2 2 2
4	Study level/ semester at which this course is offered:	Fourth Year \ Second Semester
5	Pre –requisite (if any):	
6	Co –requisite (if any):	
7	Program (s) in which the course is offered:	Bachelor of Pharmacy
8	Language of teaching the course:	English
9	The department in which the course is offered:	Pharmacy
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University
11	Prepared by:	Dr. Ifrah Al-Dohani
12	Date of approval:	Dr. Majed Alwan

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- provide the student with knowledge, skills and attitudes in the field of environmental health & Nutrition.
- 2- Acquire knowledge, skills and attitudes in the field of health education and Family planning, enable him/her to participate efficiently in solving some of health problems affecting the community.
- 3- Understand the constituents of the food for the daily requirements of the body in health and illness and their sources, functions and deficiencies.
- 4- participate effectively in the health education process & Family planning .



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1 Identify health problems available in the environment that affect
- a2 the community.
- a3 Undertake the necessary steps for solving some of health problem affecting the environment and the community.
- a4 Understand knowledge in proper Nutrition.
- a5 Recognize the constituents of food, their sources, functions, deficiencies and daily requirements in health and illness.

B-Intellectual Skills:

- b1.Costruct simple Materials for the purpose of health education.
- b2. Differentiate between sanitary methods of waste disposal.

C-Practical Skills:

- c1- Accepts Attitude on health team working.
- c2- Participate in health education activities in his field.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Introduction Definition: importance to practicing pharmacists. Epidemiology; quarantinable diseases; international public health programs. •	4	2
2	A. Health conception of health. • Public health. • Environment. • Environmental health B. Personal health :- • Food and drink. • Clothing.- cleanliness. • Physical exercises. • Rest and sleep. - habits. • Personal protection against infectious diseases. • Periodic medical examination	6	3
3	Water and Food Hygiene A. Water ;	10	5



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	<ul style="list-style-type: none">• Importance of water.• Composition of water.• Water requirement for man.• Sources of water.• Hard and soft water.• Contamination of water.• Diseases transmitted by water.• Steps for treating water. <p>B. <u>Food hygiene</u> :</p> <ul style="list-style-type: none">• Definition of food• Definition of food hygiene.• Preservation of food.• General requirements relating to food premises.• Cleanliness of equipment			
4	<p><u>Disposal of Human wastes</u></p> <ul style="list-style-type: none">• Sanitary principles of waste disposal• Methods of disposal	8	4	
Number of Weeks/and Units Per Semester		28	14	
E. TEACHING AND LEARNING METHODS				
<ul style="list-style-type: none">• Lectures• Seminars• Solving Problem• Method• Discussion				
F. ASSIGNMENTS AND POJECTS				
No	Assignments	Week Due	Mark	
1	Homework Assignments	1-12	100	
G. STUDENT ASSESSMENT METHODS;				
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%



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5	Final Exam (theoretical)	12	50	50%
Total			100	100%

H. REFERENCES:

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.
- 3- Community health Nursing (Promoting & protecting the public health) Allender , Judith.

2. Essential References.

- Evad.Wilson and others (Principles of Nutrition) 4th edition. Wilcy & Sons - New York
- Robbin, S.P.2002. Management Concepts and Practice. Prentice-Hall Inc.New Jersey
- 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.

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/>

I. COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.

- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
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- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply.

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Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites





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Course specification of Parasitology

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Parasitology				
2	Course Code & Number:	ASS4288				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fourth Year \ Second Semester				
5	Pre –requisite (if any):	Biology				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ghamdan Al-Tahesh				
12	Date of approval:	Dr. Majed Alwan				

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Provide knowledge on the classification of parasites.
2. Illustrate the morphology and life cycle of parasites.
3. Explain the treatment, prevention and control of parasites.
4. Express the modes of parasitic infections and the role of vectors in disease transmission.
5. Differentiate between various stages of each parasite.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Acquire basic information on morphology and life cycle of parasites.
- a2-Classify different parasites and discuss modes of parasitic infections.
- a3-Recognize various stages of each parasite .
- a4-Identify methods of parasites transmission, prevention & control.

B-Intellectual Skills:

- b1- Differentiate between parasites.
- B2- Diagram parasites at various stages.

C-Practical Skills:

- c1-Evaluate the role of vector in disease transmission.
- c2- Plan for prevention, treatment and control procedures

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Introduction of parasitology: Definition of parasites Types of hosts. Types of vectors and source of infections. Basic rules of classifications (Phylum, class, order, family, genus, species, genus and species name). Epidemiological terms of common use in parasitology Summery on: Host immune response Pathogenesis Diagnosis Treatment Prevention and control	8	4
2	Trematoda: General chaacters of trematoda. Schistosomiasis: Historical introduction Epidemiology and geographical distribution Description of the organism Classification of the organism <i>S. mansoni</i> , <i>S. hematobium</i> and <i>S. japonicum</i> Characteristics of different types of schistosomes	6	3



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	<p>Morphological types</p> <p>Transmission</p> <p>Life cycle</p> <p>Egg and meracidia, snails (types), cercaria, skin penetration, somatic migration, lifespan, egg release</p> <p>Intermediate hosts</p> <p>Pathology</p> <p>Egg granuloma, hepatosplenomegally, urinary bladder cancer and immunology</p> <p>Clinical features (symptoms and signs)</p> <p>Prevention and control of transmission</p>		
3	<p><u>Fasciola (hepatobiliary flukes)</u></p> <p>Historical introduction</p> <p>Epidemiology and geographical distribution</p> <p>Description of the organism</p> <p>Classification of the organism</p> <p><i>F. hepatica</i> and <i>F. gigantica</i></p> <p>Characteristics of different types of Fasciolidae</p> <p>Morphological types</p> <p>Transmission</p> <p>Life cycle</p> <p>Pathology and immunology</p> <p>Clinical features (symptoms and signs)</p> <p>Methods of laboratory diagnosis.</p> <p>Prevention and control of transmission</p>	6	3
4	<p>Cestoda (Tapeworms):</p> <p>General features of cestoda.</p> <p>Geographical distribution., description of organism, transmission, morphology (worms, eggs & larva), life cycle, pathology, immunology of the following organisms:</p> <p><i>Taenia saginata</i></p> <p><i>Taenia solium</i> and <i>cysticercosis</i></p> <p><i>Hymenolepis nana</i></p> <p><i>Hymenolepis diminuta</i></p> <p><i>Diphyllobothrium latum</i></p> <p><i>Diphyllobothrium mansoni</i></p> <p><i>Echinococcus granulosus</i>, <i>hydatidosis</i> and <i>coenurosis</i></p> <p><i>Dipylidium caninum</i></p> <p>Laboratory diagnosis for each organism</p> <p>Prevention and control for each organism</p>	8	4
Number of Weeks/and Units Per First semester		28	14
b - Practical Aspect:			



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Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Schistosomiasis	1	2
2	Fasciolasis	1	2
3	Taeniasis	1	2
4	Hymenolepis	1	2
5	Diphylobothriumlatum	1	2
6	Diphylobothrium mansoni	1	2
7	Echinococcus granulosus	1	2
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		11	22

E. TEACHING AND LEARNING METHODS

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

F. ASSIGNMENTS AND POJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS:



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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)	12	50	50%
Total			100	100%

H. REFERENCES:

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

- David T, William P Marell and Voges. Medical Parasitology 9th edition, 2006 Saunders Eieevier, PA, USA
- Monica Cheesbrough, Medical Laboratory Manual For tropical countries, vol I 2004Butter worth, Heinemann Ltd Oxford Britain
- Stephen HG, Richared DP: *Principles and Practice of clinical parasitology*, Jhon Wiely & Sons Ltd; New York 2001

2. Essential References.

- RamnikSood, Medical laboratory technology 6th Edition 2009, Jaypee Brothers Medical Publisher New Delhi - India.
- Ursus-Nikolaus Riede, Martin Werner: *Color Atlas of Pathology: Pathologic Principles· Associated Diseases*; Thieme Stuttgart· New York 2004

3. Electronic Materials and Web Sites etc.

- 1-WWW. WILEY SHORT COURSE PARASITOLOGY.COM
- 2- WWW. JAYPEEBROTHERS PARASITOLOGY.COM

I. COURSE POLICIES:

- 1- Class Attendant:
Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
- 4- Assignments & Projects:
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- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



التاريخ / /

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Course specification of Biopharmaceutics & Pharmacokinetics II

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Biopharmaceutics & Pharmacokinetics II			
2	Course Code & Number:	CEU4229			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2			
4	Study level/ semester at which this course is offered:	Fourth Year \ Second Semester			
5	Pre –requisite (if any):	Biopharmaceutics & Pharmacokinetics I			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	Pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Majed Alwan			
12	Date of approval:	Dr. Hamoud Abdullah			

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Provide a conceptual and quantitative background in pharmacokinetic theory
- 2- Explain different pharmacokinetic models.
- 3- Acquire knowledge on order of drug degradation reaction and its application in half-life & volume of drug distribution in the body.



2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Describe the use of pharmacokinetics in relation to the appropriate administration of drugs, particularly intravenous infusion and multiple dose administration.
- a2-Understand the theoretical and practical issues of assessment of drug bioavailability and bioequivalence.
- a3-Explain the difference between bioavailability and bioequivalence.
- a4-Illustrate pharmacokinetic parameters used in clinical pharmacokinetics and biopharmaceutics using plasma and urine drug level data.

B-Intellectual Skills:

- b1-Design of bioavailability and bioequivalence studies.
- b2. Analyze empirical pharmacokinetic models to devise and optimize dosage regimens.
- b3. Classify pharmacokinetic models.

C-Practical Skills:

- c1. Adjust and optimize the dose and dosage regimen.
- c2. Estimate of drug half life
- c3. Identify order of each degradation reaction.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Terminology and definitions Rates and orders <ul style="list-style-type: none"> • Kinetic of drug absorption 	2	1
2	Compartment models Definition Basis of Classification Model selection criteria One compartment open model with first order elimination kinetics Pharmacokinetics of single dose as oral and intravenous (rapid/bolus). Intravenous infusion Multiple oral and intravenous administrations. Pharmacokinetic of sustained releases formulations Two compartment open model with first order elimination kinetics Pharmacokinetics of single dose as oral and intravenous (rapid/bolus). Intravenous infusion	10	5



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	Multiple oral and intravenous administrations. Pharmacokinetic of sustained releases formulation		
3	Absorption kinetics Methods of Estimation of absorption rate constants Wagner-Nelson Method of residuals	4	2
4	Blood level data and urinary data analysis Drug elimination and clearance: -Renal clearance: -Hepatic elimination of drug	4	2
5	Non-linear pharmacokinetics (dose dependent kinetics) Michaels- Menten's kinetics Pharmacokinetic characteristics. In-vivo estimation of Km and Vm Application in bioavailability determination	8	4
Number of Weeks/and Units Per Semester		28	14

E. TEACHING AND LEARNING METHODS

- Lectures using data show
- Video animation and seminars
- Laboratory work
- Directed reading
- Group discussion

F. ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%



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H. REFERENCES:

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

- Leon Shargel Andrew (2012). Applied Biopharmaceutics and Pharmacokinetics, Sixth edition, Lippincott's and Williams, Philadelphia.
- Handbook of Basic Pharmacokinetics-Ritschel, W.A., Drug Intelligence Publication, M Hamilton, 1977.
- Fundamentals of Clinical Pharmacokinetics-Wagner, J.C., Drug Intelligence Publication, M. Hamilton, 1975.

2. Essential References.

- Remington's Pharmaceutical Sciences - Gennaro A.R., ed., 19th Edition, Mack Publishing Co., Easton, PA. 1995.
- Clinical Pharmacokinetics - Rowland, M. & Tozer, N., 2nd edition, Lea and Febiger, Philadelphia, 1989
- Michel E. Winter (2011). Basic clinical pharmacokinetics, Fifth edition, Lippincott's and Williams, San Francisco

3. Electronic Materials and Web Sites etc.

www.boomer.org

I. COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the beginning of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.

- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- Cheating:

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
- 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.
- If the student's 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.

6- Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
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Course specification of Phytochemistry II

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Phytochemistry II				
2	Course Code & Number:	COG4235				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fourth Year \ Second Semester				
5	Pre –requisite (if any):	phytochemistry I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Labib Noman				
12	Date of approval:	Dr. Majed Alwan				

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Provide the basic phytochemical knowledge.
- 2- Recognize the natural source, classification, extraction, detection, isolation, pharmacological and toxicological effects.
- 3- Illustrate chemistry of natural pesticides as well as drugs of marine origin.
- 4- Discuss the major pharmaceutically important secondary metabolites from natural sources (phenolics, terpinoids & glycosides) of pharmaceutical interest.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1. Acquire knowledge on the scope and importance of Phytochemistry in drug discovery and modern medicine.
- a2. Recognize the chemical structure, medicinal value, natural source, detection, isolation, characterization and medicinal applications of phenolicsterpinoids, glycosides and their importance in orthodox medicine..
- a3. Identify the medicinally important phenolics, steroids, terpinoids, glycosides their chemical structure, natural sources, detection, isolation and characterization and medicinal applications

B-Intellectual Skills:

- b1. Analyze importance and the sources of marine drugs, their toxicities and their promising medicinal applications
- b2. Differentiate between different types of phenolics, steroids, terpinoids, glycosides.

C-Practical Skills:

- C1. Interpret the nature, source, production, and medicinal uses of naturally occurring antibiotics.
- C2. Apply chromatography in identification ,differentiation and isolation of phenolic, terpinoids, glycosides

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	<u>Glycosides</u> Introduction : (Definition, classification, distribution extraction and isolation, pharmacological properties). <ul style="list-style-type: none"> • Cardioactive glycosides : (cardenolides, bufadienolids, sugars, structure- activity-relationship, distribution, extraction, chemical and physical properties, hydrolysis of cardiac glycoside, biogenesis, pharmacological properties, mechanism of action, chemical tests, chief drugs containing cardiac glycosides, Digitalis, Strophanthus, Adonis, Convalaria and Squill). 	6	3



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2	<p><u>Glycosides</u></p> <ul style="list-style-type: none"> • Saponin-glycosides : (Definition, distribution, classification, structures, biogenesis, extraction, chemical and physical properties, Characterization biological and pharmacological properties, drugs as expectorant and antitusive, anti-exudative, Adaptogens and as diuretic). • Anthracen glycosides : (distribution, classification, structures, biosynthesis, extraction, chemical and physical properties, characterization, pharmacological properties, Senna, Rhamnus, Rhabarub and Aloe). • Flavonoid glycosides : (Classification, biosynthesis, chemical structure, physico-chemical properties, extraction, characterization, biological properties, rutin, hesperidin and Flavonoid containing drugs). • Cyanogenic glycosides : (Cynogenesis, distribution, structure, biogenesis properties, detection, extraction, pharmacological activities, and cyanogenic plants). Glucosinolates (Thioglycosides) : (Definition, distribution, structure, biogenesis, Hydrolysis, toxicity and drugs containing glucosinolates). 	6	3
3	<p><u>Terpenoids:</u></p> <ul style="list-style-type: none"> • Introduction (definition, classification, biosynthesis and distribution). Monoterpenes: (regular- and irregular monoterpenoids, irodoids, structures, chemical and physical properties and drugs containing monoterpenoids). • Sesquiterpenes and sesquiterpen lactones: (structures, chemical and biological properties, and drugs containing sesquiterpenes and sequiterpene lactones). Diterpenes : (structures, chemical and biological properties, and drugs containing diterpenes <ul style="list-style-type: none"> ○ Triterpenes : (classification, structures, and drugs containing triterpenes). 	6	3



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	<ul style="list-style-type: none"> Tetraterpenes : (chemical and biological properties, vitamin A, and drugs containing tetraterpenes) . 		
4	<u>Tannins</u> <ul style="list-style-type: none"> Definition, classification, structure, hydrolyzable- and condensed-, complex- and pseudo-tannins, distribution, biosynthesis, physico-chemical properties characterization, extraction, biological properties and drugs containing tannins). 	2	1
5	<u>Phenylpropane-derivatives</u> <ul style="list-style-type: none"> Introduction : (definition, classification, and biogenesis). Phenols and phenolic acids : (Structures, physico-chemical properties. characterization, extraction, pharmacological properties and drugs containing Phenols and drugs containing phenols and phenolic acids). 	2	1
6	Coumarins : (Definition, chemical structures, classification, biosynthesis, physico-chemical properties, characterization, extraction, pharmacological properties and uses, drugs containing coumarines, furocoumarin, pyranocoumarines).	2	1
7	Lignans : (definition, classification, distribution, biological and pharmacological properties, and drugs containing lignans). Lignin : (definition, structure, biological and pharmacological properties of some lignins).	2	1
8	<u>Volatile oils :</u> <ul style="list-style-type: none"> Definition, classification, distribution and occurrence Preparation : distillation methods and solvent extraction. Chemical and physical and pharmacological properties Drug containing volatile oil used as counter-irritating agents, expectorants, and diuretic and as stomachic and carminative 	2	1
Number of Weeks/and Units Per Semester		28	14
b - Practical Aspect:			



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Order	Tasks/ Experiments	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	Evaluation of Medicinal Crude drugs	1	2
10	Extraction and identification of tannins (Tea, Galls)	1	2
11	Extraction and identification of phenylpropanoids (Ammi visnaga)	1	2
12	Final exam	1	2
Number of Weeks /and Units Per Semester		12	24

E. TEACHING AND LEARNING METHODS

- Lectures
- Video animation
- Seminars
- Solving Problem method,
- Laboratory work, independent study and discussion

ASSIGNMENTS AND PROJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

A. STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
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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)	12	50	50%
Total			100	100%

B. REFERENCES;

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

- PHarmacognosy and phamacobiotechnology by James E. Robbers, Marilyn k. Speedie and Varro E. Tyler (1996). Williams and Wilkins.
- Pharmacognosy, Phytochemistry, medicinal plants by Jean Brueton (1995), english edition.
- Busse, Licia Gldberg, Joerg Gruenwald, Tara Hall, Chance E. Riggins and Robert s. Riste (1999)

2. Essential References.

- 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.medicalbotanyin>

C. COURSE POLICIES:

1- Class Attendant:

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Course specification of Medicinal Chemistry II

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Medicinal Chemistry II				
2	Course Code & Number:	MCH4256				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fourth Year \ Second Semester				
5	Pre –requisite (if any):	Medicinal Chemistry I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mokhtar Al-Qhorafi				
12	Date of approval:	Dr. Majed Alwan				

B. 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

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Provide the knowledge of chemistry of drugs with special references to their pharmaceutical and medicinal usage.
- 2- Acquire the knowledge about the relationship of chemical structure and therapeutic properties.
- 3- Correlate medical chemistry facts with manufacture drugs & clinical application.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A- KNOWLEDGE & UNDERSTANDING:

- a1-Understand the principles of medicinal chemistry.
- a2- Describe the basic principles of mechanism action for active groups in pharmaceuticals chemistry
- a3-Recognize different reaction between active groups in pharmaceutical chemistry especially in preparations of drugs
- a3-Explain of nomenclature chemically of medical chemistry.

B- INTELLECTUAL SKILLS

- b1- Apply preparation (synthesis) of medical compound drugs
- b2- Identify the different of medical compound drugs by assay& titration
- b3- Determine medically used & roles of important medical compound drugs.

C-PROFESSIONAL AND PRACTICAL SKILLS

- c1- Maintain the name of chemical compound &derivatives or chemical modification effects.
- c2- Classify of medical compound drugs according to medically used& active group.

d- GENERAL AND TRANSFERABLE SKILLS

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS SUBTOPICS	NO OF HOURS	No of Lectures
1	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for CNS stimulants as <ul style="list-style-type: none"> • Methylxanthines • Psychomotor stimulants • Mao-inhibitors • Tricyclic antidepressant • Psychedelics 	6	3
2	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Expectorants and anti-tussive agents	4	2
3	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for	4	2



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	Local anesthetic agents as: <ul style="list-style-type: none"> Mechanism of action of LA Classification Clinical uses Individual drugs 		
4	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Antihistamines as: <ul style="list-style-type: none"> H1-antihistamines H2-antihistamines 	4	2
5	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Analgesics as: <ul style="list-style-type: none"> NSAID Opioid analgesics 	4	2
6	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for CNS depressants: <ul style="list-style-type: none"> Anxiolytics Muscle relaxants Antipsychotics Anticonvulsants Hypnotic & sedative 	6	3
Number of Weeks/and Units Per Semester		28	14

b - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Identification of aspirin	1	2
2	Assay of aspirin	1	2
3	Qualitative and quantitative analysis of chloral hydrate	1	2
4	Synthesis of aspirin	2	4
5	Assay of naproxen	1	2
6	Assay of ibuprofen tab	1	2



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7	Identification of ranitidine	1	2
8	Assay of ranitidine	1	2
9	Identification of Propranolol	1	2
10	Assay of Propranolol	1	2
11	Final Exam	1	2
Number of Weeks /and Units Per Semester		12	24

E. TEACHING AND LEARNING METHODS

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

F. ASSIGNMENTS AND POJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%



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H. REFERENCES:

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
- 3- Wilson Gisvold, Doerge, 2010, Text book of organic medical pharmaceutical chemistry 12th edition, LWW, USA

2. Essential References.

- Remington's -1995-Pharmaceutical Sciences - Gennaro A.R., ed., 19th Edition, Mack Publishing Co., Easton, PA.,
- Donald J. Abraham, "BURGER'S Medicinal Chemistry and Drug Discovery" 6th edition, A John Wiley and Sons, Inc., Virginia.
- Thomas L. Lemke, Victoria F. Roche, David A. Williams and S. William Zito "Foye's Principles of Medicinal Chemistry", 2008, 6th, Edition, Lippincott Williams.

3. Electronic Materials and Web Sites etc.

- 1- <http://www.chemaxon/marvin>
- 2- <http://www.webmolecules.com>
- 3- <http://www.acdlabs.com>

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Fifth Year / First Semester



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Course specification of Applied Pharmacognosy

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Applied Pharmacognosy			
2	Course Code & Number:	COG5136			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Fifth Year \ first semester			
5	Pre –requisite (if any):	Pharmacognosy I,II & Phytochemistry I,II			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	Pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Labib Noman			
12	Date of approval:	Dr. Majed Alwan			

B. COURSE DESCRIPTION:

The course deals with the study of non-classical methods of therapy such as medicines-based traditional medicine including phytotherapy and have information about herbal drugs production, biosynthesis of natural products, tissue culture and its application in the production of active constituents. Also, the student should be able to identify the major constituents of drugs using spectral analysis.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Formulation of herbal mixtures
2. Quantitative and qualitative evaluation of medicinal plants
3. Identification of major constituents



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Giving the knowledge about formulation of suitable herbal drug
- a2- Recognize different methods used to detect adulterants of natural products
- a3- Identify the major active constituents
- a4- Explain different types of isolation of active constituents through chromatography

B-Intellectual Skills:

- b1. Plan for solving problems
- b2- Search for suitable method for herbal drug administration
- b3- Establish a suitable method for herbal drug analysis

C-Practical Skills:

- c1-Carry out simple and adequate method for identification of major herbal drug constituents.
- c2- Find methods for isolation of some herbal a drug constituents
- c3- Detect adulteration of any supplied natural drugs.
- c4- Determine the Pharmacopeial constants of herbal drugs

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	TOPICS	Sub Topics List	NO OF HOURS	No of Lectures
1	Production of medicinal plants	I . Sources of Medicinal Plants II. Factors causing variability in Drug production and activity.	2	1
2	Evaluation of medicinal crude drugs	I. Ultraviolet spectroscopy II. Infra-red spectroscopy III. Mass spectrometry NuclearMagnetic resonance (1H & 13C	2	1
3	Biosynthesis of natural products	I. 1 st metabolites and their metabolic process II. 2 nd metabolites and the biosynthetic techniques	2	1
4	Methods of Pharmacbgno	I. Evaluation of Medicinal Crude drugs II. Pharmacoepeial Standards	4	2



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	sy used in quality control Droplet Counter Current Chromatography	III. Natural Products between modern and Traditional Medicine		
5	Structure elucidation:	Physical properties, chromatographic data (GC, HPLC, Ion exchange), determination of molecular formula, spectroscopic data (UV, IR, mass NMR).	6	3
6	Drugs of biological origin:.	Traditional medicine and medicinal plants : traditional medicine and methods utilized in traditional medicine, herbal medicine, virtues and shortcomings, the scientific basis of herbal medicine, treatment of constipation, asthma, inflammation and peptic ulcer, therapeutic effects of ginseng	6	3
7	Tissue culture and molecular biology	Basic principles of plant tissue culture, techniques, callus culture, cell culture, organ culture, meristem culture, protoplast culture, biotransformation using cell culture, cryopreservation of germplasm, plant cell immobilization	6	3
Number of Weeks /and Units Per Semester			28	14

b - Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Ash value	1	2
2	Moisture content	1	2
3	Radioimmunoassay	1	2
4	Derivatization in HPLC	1	2



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5	Ultraviolet spectroscopy	1	2
6	Infra-red spectroscopy	1	2
7	Mass spectrometry	1	2
8	NuclearMagnetic resonance	1	2
9	Evaluation of Medicinal Crude drugs	1	2
10	Final Exam	1	2
Number of Weeks /and Units Per Semester		10	20

E. TEACHING AND LEARNING METHODS

- (a) Lectures
- (b) Class discussion
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Seminars
- (j) Lab Practice

F. ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-15	40
2	Work group Assignments	4, 8, 14	60

G. STUDENT ASSESSMENT METHODS

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%
Total			100	100%

H. REFERENCES



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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. Essential References.

- 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 etc.

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

I. COURSE POLICIES:

1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show progression until the week of deadline. 80% attendance is the basic requirement of the course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Progression checks after due dates will NOT be accepted, unless you have valid reasons and supportive documents.
2- Tardy	Students will be allowed to enter 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 an undertaking for not repeating the offense, 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"> • Student will not be allowed to appear in the final exam if he/she is late 30 minutes before the beginning of the exam. • Students will not be allowed to leave the exam room until unless half of the examination time has passed. • 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. • If the student misses the final exam he will be considered as failed and if the student repeats the exam, the marks will be calculated as the minimum of 50%. • The student will be considered as failed if he broke the regulations and roles of examination. • In the practical courses failing in either part is marked as failing in the course and student must appear in the failing part and the marks will be given as the minimum mark. • Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
4- Assignments & Projects	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer.</p> <p>Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted for each late submission.</p>



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	<p>subsequent day after failure to submit on the deadline set by the lecturers. Deduction a weekdays and Saturday. No work will be accepted after one week of delay from the given, unless you have valid reasons with supportive documents.</p> <p>Extensions can only be granted if a student can show adequate progress towards complete assessment and there are extenuating circumstances preventing them from delivering assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must provide original medical certificate. The lecturer will only give extensions for a total amount of exceeding the equivalent number of days the medical certificate considered valid.</p>
5- Cheating:	<ul style="list-style-type: none"> ❑ Cheating in examinations or tests is prohibited which may be in the form of copying another student or bringing unauthorized materials into the exam room (e.g., crib notes, cell phones) etc. ❑ Midterm Exam cheating results in giving the student a mark of zero ❑ Cheating in the final exam will result in failing the student in that subject if he/she does not benefit in that subject, if he/she gets benefits he/she will be considered as failed in two cases if the cheating occurs in the last day of exam the student will be considered as failed in that case the previous one. ❑ If the student repeats cheating in a single examination period he will be discontinued for the academic year or permanently if he repeated cheating more than twice.
6- Plagiarism:	<p>Plagiarism is a breach of intellectual property; the act of using or copying someone else's work and trying to present it as your own. It is taking and using someone else's work without proper attribution.</p>
7- Other policies:	<p>Using Internet Sources</p> <p>The World Wide Web has become a popular source of information for students' papers, and questions have arisen about how to avoid plagiarizing these sources.</p> <p>In most cases, the same rules apply as for a printed source: when you refer to ideas or quote a WWW site, you must cite that source.</p> <p>If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites.</p>



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Course specification of Community Pharmacy

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Community Pharmacy				
2	Course Code & Number:	MAC5166				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fifth Year \ first semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):	Pharmacology I,II,III,IV				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Majed Alwan				
12	Date of approval:	Dr. Hamoud Abdullah				

B. COURSE DESCRIPTION:

This course provides well-structured guide to making differential diagnosis for different body system carried out by the community pharmacist. And the accordingly the medicine to be used which are suitable to different patient category and age group

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Provide the student with roles of community pharmacist
2. Learn the student with the methods of patient assessment and care as they relate specifically to the drug and non-drug management of minor ailments.
3. Assess the pathogenesis, clinical features, management and treatment outcomes of some disorders.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1- Explain the roles of community pharmacist.
- a2- Enumerate the non-prescription drugs.
- a3- Understand the method of patient assessment and care.
- a4- Apply in practice setting the knowledge and understanding required to assess the pathogenesis, clinical features, management and treatment outcomes of some disorders

B-Intellectual Skills:

- b1- Differentiate the symptoms of different causing diseases.
- b2- Identify the drug manufacturing relating problems and solve
- b3-Apply in practice setting the knowledge and understanding required to meet the needs of patient and other health professionals
- b3 Apply in practice setting the knowledge and understanding required to asses the pathogenesis, clinical features, management and treatment outcomes of some disorders

C-Practical Skills:

- c1- Diagnose and treatment of some minor illnesses.
- c2- Dispense the drug prescription.
- c3- Manage the drug adverse effect or drug interaction

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a – Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	The practice of community pharmacy <ul style="list-style-type: none"> Definitions Roles of community pharmacist 	2	1



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2	Non-prescription drugs: <ul style="list-style-type: none"> • Introduction • Types 	2	1
3	<ul style="list-style-type: none"> • Community pharmacy organization • Structure of retail and wholesale drug store- • Types of drug stores and design • Legal requirements for establishment • Maintenance of drug store • Dispensing of proprietary products • Maintenance of records of retail and whole sale 	8	4
4	1. Methods of patient assessment and care as they relate specifically to the drug and non-drug management of minor ailments, including <ul style="list-style-type: none"> ○ Infestations; ear, nose and throat conditions ○ Genitourinary tract infections ○ Skin disorders ○ Hemorrhoids' ○ Insomnia ○ Allergy ○ Cough ○ Diarrhea ○ Constipation ○ Common cold 	8	4
5	1. A review of pain management 2. Wound care 3. Immunization 4. Adverse drug reactions and drug interactions 5. As well as the pathogenesis, clinical features, management and treatment outcomes of major disorders of <ul style="list-style-type: none"> ○ Respiratory ○ Rheumatological ○ Neurological ○ Dermatological ○ Ocular diseases and disorders Diabetes mellitus.	8	4
Number of Weeks/and Units Per Semester		28	14
b - Practical Aspect:			



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Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Structure of retail and wholesale drug store-	1	2
2	Types of drug stores and design	1	2
3	Dispensing of proprietary products Maintenance of records of retail and whole sale	2	4
4	Methods of patient assessment and care as they relate specifically to the drug and non-drug management of minor ailments, including	1	2
5	1. A review of pain management 2. Wound care 3. Immunization 4. Adverse drug reactions and drug interactions 5. As well as the pathogenesis, clinical features, management	3	6
6	Treatment outcomes of major disorders of o Respiratory o Rheumatological o Neurological o Dermatological o Ocular diseases and disorders Diabetes mellitus.	4	8
7	Final Exam	1	2
Number of Weeks /and Units Per Semester		13	26

E. TEACHING AND LEARNING METHODS

- Lectures using data show
- Video animation and seminars
- Directed reading
- Independent study
- Tutorial

F. ASSIGNMENTS AND POJECTS



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No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS

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)	14	50	50%
Total				100%

H. F-REFERENCES

- **Required Textbook(s) (maximum two).**
- **1- Alan Nathan (2008). Managing symptoms in pharmacy. Second edition Pharmaceutical press. London.**
- **2- Paul Rutter (2008).Community Pharmacy: Symptoms, Diagnosis and Treatment, second edition, Elsevier, London.**
- **Essential References.**
- **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.**
- **Electronic Materials and Web Sites etc.**

I. COURSE POLICIES:

- Class Attendant
- Students **MUST** attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will **NOT** be accepted, unless you have valid reasons with supportive documents.
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repeating that, otherwise his guardian will be notified and the student will miss the classes and will be considered as failed.

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- 5- Cheating:
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- Midterm Exam cheating results in giving the student a mark of zero
- 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.
- 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.
- 6- Plagiarism:



- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies:

- Using Internet Sources
- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
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Course specification of Quality Control

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Quality Control				
2	Course Code & Number:	MAC5165				
3	Credit hours: 3	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fifth Year \ first semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mohammed Abas				
12	Date of approval:	Dr. Majed Alwan				

B- COURSE DESCRIPTION:

Quality control is a discipline aimed to develop methods and using instrument that guarantee the quality and safety of the drugs products. By focusing on the quality control system and quality assurance and good manufacturing practice and on drug stabilities, sampling , validation for procedure and qualify instrument , documentation and in vitro quality control for different dosage form and the instrument used for qualitative and quantitative analysis

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1- Recognize the sources of quality variation
- 2- Understand the testing Programs and methods for assuring quality and compliance with official standards and specifications.
- 3- Appreciate the tremendous professional, social and legal responsibilities associated with the assurance of product quality.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Acquire knowledge on general principles of drug quality control and assurance systems
- a2. Recognize organization and functions of a Quality Control Department.
- a3. Illustrate analytical techniques use in purity determination & drug identification.
- a4. Identify Sources of impurities in pharmaceutical substances

B-Intellectual Skills:

- b1. Analyze Monographs and specifications for drugs and drug products
- b2. Differentiate between chemical and physicochemical analytical techniques in purity.

C-Practical Skills:

- c1. Interpret the evaluation of sterile and non-sterile pharmaceutical products.
- c2. Classify chemical and physicochemical analytical techniques in purity determination & identification and quantitation of drugs.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a. Theoretical Aspect:

NO	TOPICS	Sub topic	NO OF HOURS	No of Lectures
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 three separate standards, Pharmaceutical Quality Control System, Control Charts,	2	1
2	Documentation	The purposes of documentation, Good documentation in QA system, Types of documentation for QA.	2	1
3	Sampling	Types, Handling the Sample in the Laboratory, the information that may be take in consideration during sampling, Sampling Procedures And Errors, sampling of solid, liquid and gas, Sample preservation: Why Sample preservation? Common steps in sample preservation	4	2



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		Sample preparation		
4	Errors In Pharmaceutical Analysis	Meaning of errors, Classification of Errors	4	2
5	Method Validation.	Meaning, method of validation. Validation approaches, Method of validation according to USP or ICH, Some Important Terminology	6	3
6	Application of chemical and physicochemical analytical techniques in purity determination,	identification and quantitation of drugs in pharmaceutical and radiopharmaceutical preparations, including multicomponent formulations from a regulatory and quality control standpoint	6	3
7	Evaluation of crude drugs	<ul style="list-style-type: none"> Validation principles. Validation of analytical methods. Quality control and validation of experimental results. Dissemination of research results. Intellectual property 	2	1
8	Stability studies of drugs.	<ul style="list-style-type: none"> Stability studies in drug research. Basic notions of a pharmaceutical dossier. <p>Creating of a work plan of license thesis; preparation of a research report</p>	2	1
Number of Weeks /and Units Per Semester			28	14

a. Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	QC, QA and GMP p	1	2
2	Quality control in vitro for tablets	1	2
3	Quality control in vitro for capsule	1	2
4	Quality control in vitro for ointment	1	2
5	Basic notions in analysis of the experimental results.	1	2
6	Basic notions in statistics. Statistical tests of significance	1	2



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7	Regression and calibration	1	2
8	Validation principles. Validation of analytical methods	1	2
9	Preparation of the validation report	1	2
10	Stability studies in drug research.	1	2
11	Basic notions of a pharmaceutical dossier.	1	2
12	Control assessments – 1	1	2
13	Control assessments – 2	1	2
14	Final Exam	1	2
Number of Weeks /and Units Per Semester		14	28

E- TEACHING AND LEARNING METHODS

- (a) Lectures
- (b) Training
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Home work and Report
- (j) Office Hours

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- STUDENT ASSESSMENT METHODS

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	30	30%



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5	Final Exam (theoretical)	14	50	50%
Total			100	100%

H- REFERENCES

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

- European Pharmacopoeia - 8th edition. Council of Europe, 67075 Strasbourg Cedex, France – 2013.
- Bojiță M., Roman L., Săndulescu R., Oprean R. Analiza și Controlul medicamentelor. Vol. I. - Cluj-Napoca: Editura Intelcredo, 2003

2. Essential References.

- J. Ermer and J. H. McB. Miller, Method Validation in Pharmaceutical Analysis, 2005, WILEY-VCH Verlag GmbH and Co. KGaA, Weinheim.
- Robert A. Nash, Alfred H. Wachter, Pharmaceutical Process Validation, Volume 129, Marcel Dekker Inc.
- Andrew J Fletcher, Lionel D Edward, Anthony W Fox Peter Stonie, Principle and practice of medicine, 2002, John Wiley and Sons Ltd. London, UK.

3. Electronic Materials and Web Sites etc.

I- COURSE POLICIES:

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failed if he did so.

4. Assignments & Projects

- Assignments **MUST** be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
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Course specification of Industrial Pharmacy I

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Industrial pharmacy I			
2	Course Code & Number:	MAC5161			
3	Credit hours: 3	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Fifth Year \ first semester			
5	Pre –requisite (if any):	Pharmaceutics I,II,III			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	Pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Majed Alwan			
12	Date of approval:	Dr. Hamoud Abdullah			

B. COURSE DESCRIPTION:

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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1-To provide a basic specialized knowledge in the areas of analytical techniques, research and development, production and quality assurance with reference to industrial pharmacy
2. Explore in detail the types of equipment & instruments used in the preparation, separation, extraction & sterilization.
3. Carryout a good manufacturing practice.
5. Develop the basic scientific research skills as well as effective communication and team work attitudes.



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2-INTENDED LEARNING OUTCOMES: (ILOs)

A-Knowledge and Understanding:

- a1. Acquire knowledge on steps of manufacturing of injections, tablets, capsules & drops .
- a2. Recognize all the lines of drugs industry
- a3. Illustrate the methods of drug separations.

B-Intellectual Skills:

- b1. Interpret the most important unwanted drug changed that may occur after preparation e.g.: contamination, separation.
- b2. Comment on suitable methods evaporation, filtration, crystallization, evaporation, filtration, crystallization, & extraction.
- b3. Integrate industrial pharmacy with other pharmacy sciences e.g. pharmaceuticals, medicinal chemistry.

C-Practical Skills:

- C1. Perform the most important separations tests: evaporation, filtration, crystallization, & extraction.
- C2. Apply the GMP regulations in pharmaceutical manufacturing.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a. Theoretical Aspect:

NO	TOPICS	Sub topics	NO OF HOURS	No of Lectures
1	Particle size reduction:	<ul style="list-style-type: none"> Mechanism of size reduction Factors influencing size reduction Pharmaceutical application Energy requirements Types of mills Closed circuit grinding 	4	2
2	Particle size separation	<ul style="list-style-type: none"> Size separation standard screens Oscillating tray sitter grating sifters Cyclone separators Sedimentation Elutriation Handling of powders 	2	1
3	Filtration:	<ul style="list-style-type: none"> Mechanism of Filtration Factors affecting filter selection Filter media Filter selection 	4	2



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		<ul style="list-style-type: none"> Filter aids Classification of filters Leaf filters Rotator continuous Meta filters Membrane filters : 		
4	Packaging	<ul style="list-style-type: none"> Packaging Packing materials Glass & Glass containers Metal & Metal containers plastics & Plastic containers Paper & Board Films, foils & laminates Rubber - Based compounds Closures Filling Labeling 	4	2
5	Centrifugation	<ul style="list-style-type: none"> Centrifuge theoretical consideration Laboratory equipment Large scale equipment Low temperature centrifuge for biological work. 	2	1
6	Extraction	<ul style="list-style-type: none"> Extraction leaching process Factors affecting the efficiency of leaching process. Diffusion batteries Continuous diffusion batteries Continuous counter current extraction Cragg's apparatus 	4	2
7	Crystallization	<ul style="list-style-type: none"> Crystallization classification <ul style="list-style-type: none"> Batch crystallizers Simple vacuum crystallizers Nucleation and crystal growth Critical humidity prevention of caking 	2	1
8	Mixing.	<ul style="list-style-type: none"> Mechanism of mixing Mixing equipments Mixing selection Solid-solid, solid-liquid and liquid –liquid mixers used in pharmaceutical industry. Mechanism of mixing Mixing equipments Mixing selection 	4	2



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		<ul style="list-style-type: none"> Solid-solid, solid-liquid and liquid –liquid mixers used in pharmaceutical industry 		
9	Drying	<ul style="list-style-type: none"> Classification of dryers <ul style="list-style-type: none"> Compartment Tunnel Rotary Cylindrical Vacuum Spry driers Fluidized bed dryers. Theory of drying loss on drying and moisture content. Equilibrium moisture content Principles of freeze drying and freeze dryers 	2	1
Total			28	14

b. Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1.	Formulation and evaluation of tablets	2	4
2.	Formulation and evaluation of filling capsules	1	2
3.	Formulation and evaluation of injections	2	4
4.	Formulation and evaluation of emulsion	2	4
5.	Formulation and evaluation of suspension.	2	4
6.	Formulation and evaluation of enteric coating tablets.	2	4
7.	Preparation and evaluation of a freeze dried formulation	1	2
Number of Weeks /and Units Per Semester		12	24

E. TEACHING AND LEARNING METHODS

- (a) Lectures
- (b) Class discussion
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (f) Discussion of Training report and presentation.



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F. ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G. E-STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H. F-REFERENCES

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. Essential References.

- 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 etc.

- 1- www. Pharmaceutical manufacturing process.com
- 2- CD production lines and Quality control in different factory

I. COURSE POLICIES:

1. Class Attendant

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.



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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:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam.
- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4. Assignments & Projects

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5. Cheating:

- 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.
- Midterm Exam cheating results in giving the student a mark of zero
- 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.
- if the students repeats cheating in a single examination period he will be discontinued for a full



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academic year or permanently if he repeated cheating more than twice.

6. Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7. Other policies:

- Using Internet Sources
- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Pharmacology IV

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Pharmacology IV				
2	Course Code & Number:	COL5145				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Fifth Year \ First semester				
5	Pre –requisite (if any):	Pharmacology III				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ali Al-Yahoi				
12	Date of approval:	Dr. Hamoud Abdullah				

B. 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.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Determine pharmacokinetics (absorption, distribution, metabolism and excretion) and drug benefits (therapeutic actions, indications, efficacy and potency) & Drugs for endocrine glands disorders & drug posology of drugs affecting central nervous systems and analgesic drugs.
2. Discuss drug limitations (side effects, contraindications, precautions, use in special patent categories and drug interactions) of Drugs for endocrine glands disorders and drugs affecting central nervous systems and analgesic drugs.
3. Comprehend his/her role as a pharmacist in providing correct information on rational use of medications.
4. Classify drugs affecting central nervous systems and analgesics into various categories
5. Compare between therapeutically related drugs based on drug benefits (in particular efficacy and potency) and drug limitations.



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6. Relate drug indications to MAO of drugs & Predict drug limitations on the basis of Drug MOA.

7. Select an appropriate drug for patients based on drug benefits and limitation.

2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

a1. Determine pharmacokinetics (absorption, distribution, metabolism and excretion) and drug benefits (therapeutic actions, indications, efficacy and potency) & Drugs for endocrine glands disorders & drug posology of drugs affecting central nervous systems and analgesic drugs.

B-Intellectual Skills:

b1. Classify drugs affecting central nervous systems and analgesics into various categories
b2. Compare between therapeutically related drugs based on drug benefits (in particular efficacy and potency) and drug limitations

C-Practical Skills:

C1. Compare between therapeutically related drugs based on drug benefits (in particular efficacy and potency) and drug limitations.

D-General Skills and Attitudes:

d1. Work separately or in a team to research and prepare a scientific topic.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS AND SUB TOPICS	NO OF HOURS	No of Lectures
1	Drugs for endocrine glands disorders (Hormones) <ul style="list-style-type: none"> Introduction to the Hormones in the body and explain how to work and illustration the Pharmacokinetics, Pharmacodynamics [drug benefits : MOA, therapeutic action, indications, efficacy and potency) and drug limitation (side effects, precautions, contraindications) and comparison of sub topics of drugs for endocrine glands: Anterior and posterior pituitary hormones Antidiabetic drugs: insulin, oral hypoglycemic Drugs for thyroid gland disorders Corticosteroids Estrogens, progesterons, hormonal contraceptives and antiestrogens Androgens and antiandrogens 	10	5
2	CNS drugs <ul style="list-style-type: none"> Introduction to the chemical neurotransmitter in the central nervous system Illustration the pharmacokinetics, pharmacodynamics [drug benefits: MOA, therapeutic action, indications, efficacy and 	10	5



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	potency) and drug limitation (side effects, precautions, contraindications) and comparison of the sub topics of CNS		
	<ul style="list-style-type: none"> General anaesthetics Local anesthetics Sedatives, hypnotics Antiepileptics 		
3	Analgesics <ul style="list-style-type: none"> Pharmacokinetics, Pharmacodynamics drug benefits : MOA, therapeutic action, indications, efficacy and potency) and drug limitation (side effects, precautions, contraindications) and comparison of Analgesic Narcotic analgesics& opioids and hypnotics. 	8	4
Number of Weeks/and Units Per First semester5 30		28	14

E. TEACHING AND LEARNING METHODS

- 1- Lectures
- 2- Tutorials
- 3- Student oral and written presentation

F. ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100



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G. ASSESSMENT METHOD

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)	12	50	50%
Total			100	100%

H. REFERENCES

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. Essential References.

- 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
- 2- www.drugs.com

I. COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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:



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4- Assignments & Projects:

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5- Cheating:

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- If the student's 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.

6- Plagiarism:

- Plagiarism is a breach of intellectual property; the act of using or copying someone



else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.

7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.
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Course specification of Clinical Pharmacy I

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Clinical Pharmacy I				
2	Course Code & Number:	MAC5163				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Fifth Year \ first semester				
5	Pre –requisite (if any):	Pharmacology I,II,III,IV				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ali Al-Yahoi				
12	Date of approval:	Dr. Hamoud Abdullah				

B. COURSE DESCRIPTION:

This course introduces you to your professional responsibilities as pharmacists. The course is intended to provide you with a systematic approach to patient-centered pharmaceutical care that will be applied and practiced throughout the curriculum

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Give knowledge about the diagnosis of disease.
2. Analyze the all information about patient's state according the patient history, clinical features and laboratory findings.
3. Solve the given case according to the correct therapeutic way.
4. Detect the complications of the diseases.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

A1. Define the Epidemiology, Etiology, Risk factors for particular condition under study.

a2- Recognize the Clinical features & laboratory tests for each case study & the correct diagnosis of diseases.

B-Intellectual Skills:

b1- list precaution to be taken for each prescribed drugs individually or in combination.

b2 -Explain how to deal with patient when side effect occurred.

C-Practical Skills:

c1-Acquire skills to diagnosed the case studies precisely.

c2-Evaluate critically observations and measurements, in terms of their significance and theory underlying them.

D-General Skills and Attitudes:

d1. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a. Theoretical Aspect:

NO	Units/Topics List	Sub Topics List	NO OF HOURS	No of Lectures
1	General introduction to Therapeutics:	will be studied in each individual disease state Definition, Etiology, Pathology, Pathophysiology, Epidemiology, History, Clinical features, Investigations diagnosis, Management Drug selection ... Etc;.	4	2
2	The Cardiovascular System.	Hypertension. Angina pectoris. Congestive heart failure. Acute myocardial infraction. Thromboembolic diseases	8	4
3	Respiratory System.	Cough therapy Bronchial asthma Chronic obstructive pulmonary disease (COPD)	8	4



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		Upper respiratory infections (URI)		
4	Gastrointestinal System.	Peptic ulcers. Hepatitis.	2	1
5	The Endocrine System.	- Diabetes mellitus -Thyroid and Parathyroid disease	4	2
6	Renal System.	-Renal failure. -Urinary tract infections.	2	1
Number of Weeks/and Units Per First semester6			28	14

b. Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Case discussion according SOAP notes, and interpretation of laboratory data	1	2
2	Introduction to cardiovascular testing	1	2
3	Case-studies on hypertension	1	2
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		14	28

E. TEACHING AND LEARNING METHODS

- (a) Lectures
- (c) Exercises solving



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(d) Collaborative learning / pair work / group work

(e) Assignments

(i) Home work and Report

(j) Office Hours

(L) Lab Sessions

F. ASSIGNMENTS AND POJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. E-STUDENT ASSESSMENT METHODS

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)	14	50	50%
Total				100%

H. REFERENCES

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

Essential References.

1- Dipiro et al, Pharmacotherapy A pathophysiologic Approach, 7th edition 2008, McGraw Hill.

2- 2- Dipiro et al, Pharmacotherapy Principles and Practice, 7th edition 2008 McGraw Hill.

Electronic Materials and Web Sites etc.

1- www.dynamed.ebscohost.com

2- www.drugs.com

3- www.drugdigest.com

4- www.pharmacistletter.com

5- www.rxlist.com

I. COURSE POLICIES:

1- Class Attendant:

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until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

3- Tardy

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previous one.

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7- Other policies: Using Internet Sources:

- The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.

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Course specification of Medicinal Chemistry III

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Medicinal Chemistry III			
2	Course Code & Number:	MCH5157			
3	Credit hours:	C.H			
		Theoretical	Practical	Training	Seminar
		2	1		
4	Study level/ semester at which this course is offered:	Fifth Year / First Semester			
5	Pre –requisite (if any):	Medicinal Chemistry II			
6	Co –requisite (if any):				
7	Program (s) in which the course is offered:	Bachelor of Pharmacy			
8	Language of teaching the course:	English			
9	The department in which the course is offered:	pharmacy			
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University			
11	Prepared by:	Dr. Mokhtar Al-Qhorafi			
12	Date of approval:	Dr. Majed Alwan			

B- COURSE DESCRIPTION:

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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Provide the knowledge of chemistry of drugs with special references to their pharmaceutical and medicinal usage.
2. Acquire the knowledge about the relationship of chemical structure and therapeutic properties.
3. Correlate medical chemistry facts with manufacture drugs & clinical application.



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2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1. Understand the principles of medicinal chemistry
- a2. Describe the basic principles of mechanism action for active groups in pharmaceuticals chemistry.
- a3. Explain the different reaction between active groups in pharmaceuticals chemistry special in preparations of drugs and nomenclature chemically of medical chemistry.

B-Intellectual Skills:

- b1. Apply preparation (synthesis) of medical compound drugs
- b2. Identify the different of medical compound drugs by assay & titration
- b3. Determine medically used & roles of important medical compound drugs.

C-Practical Skills:

- c1. Maintain the name of chemical compound & derivatives or chemical modification effects.
- c2. Estimation of drug half life.
- c3. Classify of medical compound drugs according to medically used & active group

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a. Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use of Cardiovascular drugs as: <ul style="list-style-type: none"> • Anti anginal agents and vasodilators • Anti arrhythmic drugs • Antihypertensive drugs • Anti hyper lipidemic drugs • Anticoagulant drugs 	10	5
2	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use of Diuretics as <ul style="list-style-type: none"> • Carbonic anhydrase inhibitors • Thiazides diuretics • Loop diuretics 	6	3



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3	.Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use of Steroids hormones as: <ul style="list-style-type: none"> • Steroidal Hormones, their semisynthetic analogs and antagonists • Female sex hormones • Male sex hormones 	6	3
4	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use of Vitamins as: <ul style="list-style-type: none"> • Water soluble vitamins • Water insoluble vitamins Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use.	6	3
Number of Weeks/and Units Per First semester		28	14

b, Practical Aspect

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Qualitative analysis of nicotinic acid	1	2
2	Quantitative analysis of nicotinic acid	1	2
3	Quantitative estimation of nalidixic acid	1	2
4	Quantitative estimation of cyclophosphamide	1	2
5	Quantitative estimation of busulfan	1	2
6	Quantitative estimation of penicillin capsules	1	2
7	Identification of tetracyclines	1	2
8	Identification and assay of chloroquine	1	2
9	Identification of gresoflavins	1	2
10	Final Exam	1	2
Number of Weeks /and Units Per Semester		10	20



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E- TEACHING AND LEARNING METHODS:

- (a) Lecture
- (b) Practical
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Home work and Report
- (j) Office Hours

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- STUDENT ASSESSMENT METHODS:

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%
	Total			100%

H- REFERENCES:

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

- An introduction to Medicinal Chemistry by Graham L. Patrick. Fourth edition, Oxford, 2009.
- Wilson and Griswold's Text Book of Organic Medicinal and Pharmaceutical Chemistry by John M. Beale, Jr. and John H. Black, Twelfth edition, Lippincott Williams and Wilkins 2011.

2. Essential References.

- Foyes principle of medicinal chemistry by David H. Williams, Thomas L .
- Leuke, Williams O. Foye. Lippincott William and Wilkins. Seventh edition, 2012, ISBN



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3. Electronic Materials and Web Sites etc.

- 1- <http://www.chemaxon.com/marvin>
- 2- <http://www.webmolecules.com>
- 3- <http://www.acdlabs.com>
- 4- PASS Prediction of Activity Spectra for Substance) (<http://www.ibmh.msk.su/PASS>).

I- COURSE POLICIES:

1- Class Attendant	Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.
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"> • Student will not be allowed to appear in the final exam if he/she is late 30 minutes from the begging of the exam. • Students will not be allowed to leave the exam room until unless half of the examination time is passed. • 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. • 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%. • The student will be considered as failed if he broke the regulations and roles of examination. • 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. • Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
4- Assignments & Projects	<p>Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.</p> <p>Late Assignments / Extensions</p> <p>Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.</p>



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	<p>Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.</p> <p>In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.</p>
5- Cheating:	<ul style="list-style-type: none"> • <input type="checkbox"/> 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. • <input type="checkbox"/> Midterm Exam cheating results in giving the student a mark of zero • <input type="checkbox"/> 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. • f 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.
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7- Other policies:	<p>Using Internet Sources</p> <p>The World Wide Web has become a popular source of information for students' papers, and many questions have arisen about how to avoid plagiarizing these sources.</p> <p>In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.</p> <p>If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites</p>

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Fifth Year / Second Semester



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Course specification of Cosmetics

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Cosmetics				
2	Course Code & Number:	CEU5230				
3	Credit hours: 3	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			
4	Study level/ semester at which this course is offered:	Fifth Year / second semester				
5	Pre –requisite (if any):	Pharmaceutics I,II,III ,IV				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Majed Alwan				
12	Date of approval:	Dr. Hamoud Abdullah				

B- COURSE DESCRIPTION:

This course has been designed to provide students with a detailed knowledge and understanding of formulation, preparation and packaging of a different cosmetics preparation. Students will be given thorough knowledge on cosmetics preparation like skin, hair care products, dentifrices, deodorants and makeup preparations.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Provide students with an in-depth understanding in principles of drug delivery systems.
2. Acquire knowledge about the concept of cosmetic and dermatologic preparation.
3. Describe the Preparations of different types of cosmetic preparations.
4. Identify the safety concept of cosmetic preparation.
5. Interpret the new trends in cosmetic/dermatologic industry.



2-INTENDED LEARNING OUTCOMES: ILOs:

A-Knowledge and Understanding:

- a1- Discuss the formulation, manufacture, and evaluation of cosmetics for the different body parts like skin, hair, nail and lips.
- a2- Describe the morphology, physiology and structure of skin and hair, the problem associated with disorders and the suitable cosmeceuticals
- a3- Illustrate the formulation, manufacture, and evaluation of drugs obtained from natural and synthetic sources used for face cosmetics; cleansing preparations, aftershave, anti-acne products, and tooth and mouth care preparations.
- a4- ☐ Explain the toxicity and precautions required before using the cosmetics.

B-Intellectual Skills:

- b1- Analyze the need for cosmetics in modern society
- b2- Describe the different methods, techniques and instruments used in formulation of cosmetics.
- b3- Discover the rationale behind different cosmetics formulations and their quality control.
- b4- Create the safety issues related to the use of cosmetics

C-Practical Skills:

- c1- Apply in practice setting the need and working principle for different cosmetic ingredients required to meet the needs of patient and other health professionals
- c2- Demonstrate the excellent accomplishment of extraction, formulation and pharmacological action of different cosmetic ingredients and carry out the quality control test according to GMP.
- c3- Offer advices to patients and community on safe and effective use of cosmetics.

D-General Skills and Attitudes:

- d1- Work separately or in a team to research and prepare a scientific topic.
- d2- Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

a. Theoretical Aspect:

NO	TOPICS SUB TOPICS	NO OF HOURS	No of Lectures
1	Skin structure and function & Skin disorder	2	1
2	Hair structure and function	2	1
3	Skin care products	2	1
4	Sunscreen preparations and skin bleaches	2	1



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5	Skin cleansing preparations	2	1
6	Antiperspirants & deodorants	2	1
7	Anti-wrinkle preparations, vanishing and emollient creams	2	1
8	Shaving preparations	2	1
9	Anti-acne products	2	1
10	Mouth and oral care problems & products	2	1
11	Toothpaste	2	1
12	Hair cosmetic	2	1
Number of Weeks/and Units Per Semester		28	14

a. Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Preparation of Cold cream	1	2
2	Preparation of vanishing cream	1	2
3	Preparation of transparent shampoo	1	2
4	Preparation of egg shampoo	1	2
5	Preparation of hand and body lotion,	1	2
6	Preparation of Shaving cream	1	2
7	Preparation of toothpaste and powder	1	2
8	Preparation of After-shave lotion etc.	1	2
9	Preparation of lipsticks	1	2
10	Quality control of cosmetics products Determination of pH, rinse-ability and	1	2



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	sensitivity		
11	Quality control of cosmetics products checking the viscosity and related rheological properties	2	4
12	Quality control of cosmetics products Stability and microbiological aspec	1	2
13	Final exam	1	2
Number of Weeks /and Units Per Semester		14	28

E- TEACHING AND LEARNING METHODS:

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

F- ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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

1. Ralph Gordon Harry and Martin M. Rieger(2000). Harry's Cosmeticology. 8th Edition. England.



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2. 1-R. Schueller and P. Romamowski, 1999, Cosmetics and Personal Care, 1st edition,

I- COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- Assignments & Projects:

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
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5- Cheating:

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Course specification of Drug Design

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Drug Design				
2	Course Code & Number:	MCH5259				
3	Credit hours: 2	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Fifth Year \ Second semester				
5	Pre –requisite (if any):	Medicinal chemistry I, II, III, IV				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mokhtar Al-Qhorafi				
12	Date of approval:	Dr. Majed Alwan				

B. COURSE DESCRIPTION:

Drug design is a discipline aimed to develop skills for drug discovery and development and optimization to develop new drugs with good efficacy and safety. The course include drug design, x-ray crystallography, and some examples of rational drug design for drugs that clinically used.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Recognize the basic principles of drug discovery, design and development.
2. Illustrate the concepts of fragments, drug likeness and drugs properties and importance of combinatory and parallel synthesis in finding a drug likeness.
3. Discuss the basic concepts of drug targets.



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2-INTENDED LEARNING OUTCOMES:

A-Knowledge and Understanding:

- a1- Recognize the basic principles of drug discovery, design and development.
- a2- Illustrate the concepts of fragments, drug likeness and drugs properties and importance of combinatory and parallel synthesis in finding a drug likeness.

B-Intellectual Skills:

- b1- Determine the methods used to calculate the properties of drug molecules
- b2- Identify the 3D pharmacophore of drug and the binding sites
- b3- Diagram the schemes that describe the types drug designs.

C-Practical Skills:

- c1- Apply the docking procedures for design of some enzyme inhibitors

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	Units/Topics List Sub Topics List	NO OF HOURS	No of Lectures
1	Introduction to Drug discovery, design and development Terminology related to Drug discovery, design and development Stages of drug discovery, primary goals and major activities	4	2
2	Integral Part of Drug Discovery: from fragments, lead, drug-like molecule to drug molecule Lead compound and drug-like molecule Finding a fragment and lead compound, What is a drug-like molecule Lipinski's Rule Veber Rules -Basic concepts about drug targets What is drug molecule Structural Integrity of a Drug Molecule: Pharmaceutical, Pharmacokinetic and Pharmacodynamic Phases -Structural fragments of a drug molecule: pharmacophore, toxicophore, metabophore -The properties of drug molecules: 1. solubility and partition coefficient 2. Shape (steric, conformational, topological) properties 3. Stereochemical properties 4. Electronic properties - Combinatorial and parallel synthesis in medicinal chemistry projects	8	4
3	Basic concepts of drug targets - Protein as drug targets - Enzymes as drug targets - Receptors as drug targets - Nucleic acids as drug targets -Miscellaneous drug targets	6	3



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4	Drug discovery, design, and development Molecular and quantum mechanics Molecular mechanics Quantum mechanics Energy minimization -Molecular properties: Partial charges, Molecular electrostatic potentials, Molecular orbitals , Spectroscopic transitions , The use of grids in measuring molecular properties -Conformational analysis -Structure comparisons and overlays -Identifying the active conformation X-ray crystallography Comparison of rigid and non-rigid ligands -3D pharmacophore identification: X-ray crystallography Structural comparison of active compounds Automatic identification of Pharmacophores -Docking procedures -Types of Computer aided drug design 1-Structure-based drug design (direct design) strategy (SBDD) 2- Ligand –based drug design (indirect design) strategy (LBDD) -Docking procedures -Examples for drug modelling A- Optimizing target interactions - Drug optimization: strategies in drug design B- Optimizing access to the target	8	4
5	Getting the drug to market Preclinical and clinical trials Toxicity testing Drug metabolism studies Pharmacology, formulation, and stability tests Clinical trials	2	1
Number of Weeks /and Units Per Semester		28	12
E. TEACHING AND LEARNING METHODS			
(a) Lectures (b) Training (c) Exercises solving (d) Collaborative learning / pair work / group work (e) Assignments (i) Homework and Report (j) Office Hours			
F. ASSIGNMENTS AND PROJECTS:			



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No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 12	60

G. STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H. REFERENCES

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

- Richard B. Silverman, Mark W. Holladay-. The Organic Chemistry of Drug Design and Drug Action. Elsevier Inc. third edition 2014

2. Essential References.

- Patrick, G. L., An introduction to medicinal chemistry. Oxford university press: 2013
- Morris GM, Lim-Wilby M (2008) Molecular docking. In: Molecular modeling of proteins. Springer, pp 365-382
- Rees, D. C.; Congreve, M.; Murray, C. W.; Carr, R., Fragment-based lead discovery. Nature Reviews Drug Discovery 2004, 3, (8), 660..

3. Electronic Materials and Web Sites etc.

<https://santhoshkumarchittimalla.blogspot.com/2018/01/lipinski-rules.html>

A. COURSE POLICIES:

1- Class Attendant:

Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.



- 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.
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Course specification of Drug Marketing

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Drug Marketing				
2	Course Code & Number:	ASS5289				
3	Credit hours: 2	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				2
4	Study level/ semester at which this course is offered:	Fifth Year \ Second semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mohammed Abas				
12	Date of approval:	Dr. Majed Alwan				

B. COURSE DESCRIPTION:

In the field of Drug Marketing Principles, Environment, and Practice will be discussed. From the history and development of marketing pharmaceuticals to channel systems, legal requirements, budgeting, and product placement, this comprehensive course will help students prepare for successful careers in this expanding field. This course is based on the premise that marketing follows certain principles and that Drug Marketing is affected by a variety of environmental influences which lead to a rich array of marketing practices. These practices are presented to demonstrate how the successful application of marketing principles--with appropriate adaptation to environmental forces--can lead to success in the marketplace.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Explain the importance of Drug Marketing in business
2. Identify different types of Drug Marketing analysis
3. Describe the balance sheet and operating income management.



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2-INTENDED LEARNING OUTCOMES:

A-Knowledge and Understanding:

- a1-Explain the importance of Drug Marketing in business.
- a2- Know the importance of promotional activities in healthcare.

B-Intellectual Skills:

- b1- Illustrate market needs.
- b2- Analyze and control pharmacy business.

C-Practical Skills:

- c1- Handle of balance sheet and operating income management.
- c2- Interpret product life cycle.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS AND SUBTOPICS	NO OF HOURS	No of Lectures
1	Introduction to Drug Marketing	2	1
2	Marketing definition and importance	2	1
3	Drug Marketing promotional mix and promotional activities in the	2	1
4	Element of Drug Marketing plan and planning	2	1
5	Drug Marketing analysis	2	1
6	Management of product life cycle	2	1
7	Finance and accounting – relationship between marketing and finance	2	1
8	Managing profitability of business/brand	2	1
9	Balance sheet and operating income management	2	1
10	Pharmacy management- category management	2	1
11	Merchandizing and stock management	2	1



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12	Skills development- selling and negotiation skills	2	1
13	Interviewing skills	2	1
14	Writing Curriculum Vitae	2	1
Number of Weeks /and Units Per Semester		28	14

E. TEACHING AND LEARNING METHODS

- (a) Lectures
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Homework and Report
- (j) Office Hours

F. ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G. STUDENT ASSESSMENT METHODS

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)	12	50	50%
Total			100	100%

H. REFERENCES:



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

- Drug Marketing. Edit.:Brent L.Rollins, Matthew Perri. Pub.:Jones andBartlett Learning, 2014

2. Essential References.

- Drug Marketing: strategy and cases. Smith, E,M, Pub.:Pharamceuticalproduct press, 1991
- Drug Marketing. Brent L. Rollins, Matthew Perri , Pub: Jones & BartlettPublishers, 2013

3. Electronic Materials and Web Sites etc.

I. COURSE POLICIES:

- 1- Class Attendant:
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 - 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.
 - Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.
- 4- Assignments & Projects:
 - Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
 - Late Assignments / Extensions



- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
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Course specification of Clinical Pharmacy II

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Clinical Pharmacy II				
2	Course Code & Number:	MAC5264				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fifth Year \ Second semester				
5	Pre –requisite (if any):	Clinical Pharmacy I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Ali Al-Yahoi				
12	Date of approval:	Dr. Hamoud Abdullah				

B. COURSE DESCRIPTION:

This course is designed for pharmacy students to develop a broad understanding of pathophysiology, pharmacology, clinical pharmacokinetics, and pharmacotherapy in major areas of endocrinology, nephrology, and urology. The course will use a problem-based approach with emphasis on the integration and application of fundamental principles to specific clinical situations.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Acquire knowledge about the diagnosis of disease.
2. Analyze the all information about patient's state according the patient history, clinical features and laboratory findings.
3. Solve the given case according to the correct therapeutic way.
4. Detect the complications of the diseases.
5. Recognize the safety of drugs in special groups like children, elderly and pregnancy.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Define the Epidemiology, Etiology, Risk factors for particular condition under study.
- a2- Recognize the Clinical features & laboratory tests for each case study & the correct diagnosis of diseases..

B-Intellectual Skills:

- b1- list precaution to be taken for each prescribed drugs individually or in combination.

C-Practical Skills:

- c1-Acquire skills to diagnosed the case studies precisely.
- c2-Evaluate critically observations and measurements, in terms of their significance and theory underlying them.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.

D. COURSE CONTENTS:

a. Theoretical Aspect:

NO	Units/Topics List Sub Topics List t	NO OF HOURS	No of Lectures
1	• Providing instructions and supervised clinical experience.	4	2
2	• Training emphasizes effective monitoring of drug therapy, preventing, detection and correcting drug related problems, and managing and optimizing drug therapy.	6	3
3	• In-patient services including therapeutic drug monitoring utilizing clinical pharmacokinetic tools and knowledge	6	3
4	Consultations, communication with other members of the health care team as well as with patients	6	3
5	• Drug histories and discharge consultation are required as well as attending rounds with medical teams in <ul style="list-style-type: none"> ○ general medicine ○ pediatrics ○ and / or general surgery. 	6	3
Number of Weeks /and Units Per Semester		28	14

b. Practical Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Case studies on acute renal failure	1	2



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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 Semester		14	28

E. TEACHING AND LEARNING METHODS:

- (a) Lectures
- (c) Exercises solving
- (d) Collaborative learning / pair work / group work
- (e) Assignments
- (i) Homework and Report
- (j) Office Hours
- (L) Lab Session

F. ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40



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2	Work group Assignments	4, 8, 12	40
3	Websites search	12	20

G. STUDENT ASSESSMENT METHODS:

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%
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5	Final Exam (theoretical)	12	50	50%
Total			100	100%

H. REFERENCES:

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. Essential References.

- 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 etc.

- 1- www.dynamed.ebscohost.com
- 2- www.drugs.com
- 3- www.drugdigest.com
- 4- www.pharmacistletter.com
- 5- www.rxlist.com

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Course specification of Hospital pharmacy

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Hospital Pharmacy
2	Course Code & Number:	MAC5267
3	Credit hours:	C.H
		Theoretical Practical Training Seminar
		2 2 2 2
4	Study level/ semester at which this course is offered:	Fifth Year \ Second semester
5	Pre –requisite (if any):	Pharmacology I, II, III, IV
6	Co –requisite (if any):	
7	Program (s) in which the course is offered:	Bachelor of Pharmacy
8	Language of teaching the course:	English
9	The department in which the course is offered:	Pharmacy
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University
11	Prepared by:	Dr. Hamoud Abdullah
12	Date of approval:	Dr. Majed Alwan

B. COURSE DESCRIPTION:

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

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Develop an understanding of the complete process of the drug distribution system, from the purchasing and receipt of drugs by the hospital including their administration to the patient.
2. Understand of an intravenous admixture service, including total parenteral nutrition and chemotherapy
3. Provide student with a detailed knowledge and understanding concerning the responsibilities of a hospital pharmacist.



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2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1-Explain hospital organization/committee functions, interpret and enter patient orders and prepare intravenous admixtures.
- a2-Describe and demonstrate the steps involved in preparation of intermittent and continuous infusions, total parenteral nutrition, and chemotherapy.

B-Intellectual Skills:

- b1- Calculate the medicine doses and dosage regimen.
- b2-Interpret patient and clinical data, including patients records held within practice settings.

C-Practical Skills:

- c1- Design and evaluate therapeutic regimens to optimize drug use.

D-General Skills and Attitudes:

- D1. Work separately or in a team to research and prepare a scientific topic.

D. COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS AND SUBTOPICAL	NO OF HOURS	No of Lectures
1	Introduction <ul style="list-style-type: none"> Organization and Structure Organization of a hospital and hospital pharmacy Responsibilities of a hospital pharmacist Pharmacy and therapeutic committee Hospital formulary Contents, preparation and revision of hospital formulary. 	2	1
2	Drug Store Management and Inventory Control: <ul style="list-style-type: none"> Organization of a drug store Types of materials stocked Storage conditions 	2	1
3	Inpatient pharmacy services <ul style="list-style-type: none"> Dose adjustment. Intravenous admixture (TPN). Understand the basic principles of aseptic technique, as well as policies and procedures for parenteral drug administration Practice the appropriate aseptic technique used in the preparation of intravenous admixtures (liquid-liquid transfer, powder reconstitution, ampule transfer...) 	8	4



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	<ul style="list-style-type: none"> • Perform all calculations associated in all aspects of intravenous admixture preparation appropriately and accurately • Use information resources to locate and provide information on, or solve problems related to incompatibilities, drug stabilities, rates and routes of administration... • Therapy drug monitoring (TDM) • Unit dose Interpret/ check medication orders for completeness, appropriateness, and accuracy; • Evaluation of medication orders for drug allergy, interactions, and contraindications according to specific patient profiles • Correct dosage calculation problems • Process of adverse drug reaction reporting and analysis <p>Outpatient pharmacy services</p>		
4	<p>Drug Distribution Systems in Hospitals:</p> <ul style="list-style-type: none"> • Outpatient dispensing - methods adopted. • Dispensing of drugs to inpatients. • Types of drug distribution systems. • Charging policy – labeling • Dispensing of drugs to ambulatory patients. • Dispensing of controlled drugs 	4	2
5	<p>Central Sterile Supply Unit and its Management</p> <ul style="list-style-type: none"> • Types of materials for sterilization • Packing of materials prior to sterilization • Sterilization equipments <p>Supply of sterile materials</p>	2	1



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6	<p>Manufacture of Sterile and Non-sterile Products</p> <ul style="list-style-type: none"> • Policy making on manufacturable items • Demand and costing – • Master formula Card, • Production control, • Manufacturing records. 	2	1
7	<p>Drug Information Service Sources Information on drugs, disease,</p> <ul style="list-style-type: none"> • Treatment schedules • Procurement of information • Computerized services (e.g. MEDLINE) • Computer systems for prescription filing • Drug profile • Patient medication profile • Cases on drug interaction and adverse reactions, radiosynchroic cases, etc. • Retrieval of information • Medication error 	4	2
8	<p>Pharmaceutical services Quality control Clinical pharmacokinetics. Drug investigation Educational activities. Clinical trials and good clinical research practice</p>	2	1
Number of Weeks/and Units Per Semester		28	14

E. TEACHING AND LEARNING METHODS

- Lectures using data show
- Video animation and seminars
- Directed reading
- Independent study
- Group discussion
- Solving problem methods

F. ASSIGNMENTS AND PROJECTS



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No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G. STUDENT ASSESSMENT METHODS:

No.	Assessment Method	Week Due	Mark	Proportion of Final Assessment
1	Exercises and Home works Quizzes	2	5	5%
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Total			100	100%

H. REFERENCES:

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2. Essential References.

- W.E. Hassan (1986)."Hospital Pharmacy" Fifthed. Lea and Febiger, Philadelphi.

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عضو عامل باتحاد الجامعات العربية

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Course specification of Industrial Pharmacy II

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Industrial Pharmacy II				
2	Course Code & Number:	MAC5262				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fifth Year \ Second semester				
5	Pre –requisite (if any):	Industrial Pharmacy I				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Majed Alwan				
12	Date of approval:	Dr. Hamoud Abdullah				

B. COURSE DESCRIPTION:

The course enable technical setup for coordination of standards for to manufacture of typical dosage forms and the principles needed to learn mass production of different pharmaceutical dosage forms. The syllabus includes different dosage forms like tablets, capsules, aerosols, emulsion, etc, besides the advanced techniques like enteric coating and micro-encapsulation.

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. Outline the design and mechanism of action of the instruments included in the unite operation in pharmaceutical practice.
2. Point out the principles of each unites operation in pharmaceutical processes.
3. Support the equipment used for each unite operation in relation to its advantages, disadvantages and mechanism of action.
4. Predict the relationship between the equipment design and product characteristics. Explain and discuss the use of different equipment to achieve certain operation in pharmaceutical industry.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1- Identify the concept and scope of Industrial Pharmacy.
- a2- Acquire knowledge about the design of different equipment and unite operation used in the field of manufacturing of different dosage forms as per the characteristics of crude drugs used..
- a3- Explain the stages of pharmaceutical manufacturing and packaging of products as per cGMP and packaging technology..

B-Intellectual Skills:

- b1- Distinguish the stages of pharmaceutical manufacturing and packaging .
- B2- Apply pharmaceutical operations as per cGMP .

C-Practical Skills:

- c1- Use the laboratory instruments and devices required in the preparation .
- c2- Demonstrate the formulation, manufacturing and dispensing sterilized drugs and carry out the quality control test according to GMP.

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.

D. COURSE CONTENTS:

a. Theoretical Aspect:

NO	TOPICS AND Sub topical	NO OF HOURS	No of Lectures
1	Granulation	4	2
2	Pharmaceutical powder compaction technology	2	1
3	Force displacement and network measurements	2	1
4	Characterization of packing geometry and Consolidation mechanisms of powder	2	1
5	Porosity-pressure functions Porosity-pressure equations.	2	1
6	Tablet Coating & Sustained Release Tablets.	4	2
7	Encapsulation.	4	2
8	Materials of fabrication and corrosion	2	1
9	Sterilization Technology in industrial pharmacy.	2	1



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10	Current Good Manufacturing Practice (c.G.M.P).	4	2
Number of Weeks/and Units Per Semester		28	14

b. Practices Aspect:

Order	Tasks/ Experiments	Number of Weeks	contact hours
1	Liquids	2	4
2	Suppositories	2	4
3	Ointments	1	2
4	Creams	1	2
5	Gels and Emogels	1	2
6	Soft gelatin capsules	2	4
7	Final Exam	1	2
Number of Weeks /and Units Per Semester		10	20

E. TEACHING AND LEARNING METHODS

- Lectures
- Discussion
- Brainstorming
- Problem solving
- Simulation Method Practical presentations&
- Practical in computer Lab) Lab works(
- Projects
- Self-learning
- Cooperative Learning

F. ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60

G. STUDENT ASSESSMENT METHODS



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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)	12	50	50%
Total			100	100%

H. REFERENCES:

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

- Sudhakara Reddy Pondugula, M. Gopal Rao, Govinda Rajan Gudala, R. Vamsi Krishna, Pharmaceutical Engineering: Practical Manual (Unit Operations), Bsp, 2007.
- M.M Gupta, Dr. N .E S. Wesley, Text Book of Pharmaceutical Engineering including unit operations, Vardhaman Publisher and Distributors, Jaipur, Volume 1, Number 1, Jaipur, India, 2008

2. Essential References.

- Dukes MNG. **The Law and Ethics of the Pharmaceutical Industry**. 1st Ed. Elsevier Science; 2005.
- Gambardella A. **Science and innovation: The US pharmaceutical industry during the 1980**. 1st Ed. Cambridge Univ Press; 2008.

3. Electronic Materials and Web Sites etc.

- Industrial Pharmacy II/specifications:

I. COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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:

- Student will not be allowed to appear in the final exam if he/she is late 30 minutes from



the begging of the exam.

- Students will not be allowed to leave the exam room until unless half of the examination time is passed.
- 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.
- 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%.
- The student will be considered as failed if he broke the regulations and roles of examination.
- 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.
- Using mobile phones is strictly prohibited in examination time and the student will be considered as failed if he did so.

4- **Assignments & Projects:**

- Assignments MUST be submitted on the due date handed personally to your module lecturer. Assignments can be submitted before the due date outside of class with the prior agreement of the lecturer.
- Late Assignments / Extensions
- Work that is submitted after the due date will be PENALIZED. 2 marks will be deducted every subsequent day after failure to submit on the deadline set by the lecturers. Deduction applies on weekdays and Saturday. No work will be accepted after one week of delay from the deadline given, unless you have valid reasons with supportive documents.
- Extensions can only be granted if a student can show adequate progress towards completion of the assessment and there are extenuating circumstances preventing them from delivering the assessment on the due date.
- In the case of a request of an extension due to medical circumstances, students must produce an original medical certificate. The lecturer will only give extensions for a total amount of time not exceeding the equivalent number of days the medical certificate considered valid.

5- **Cheating:**

- 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, paggers or cell phones) etc.
- Midterm Exam cheating results in giving the student a mark of zero
- 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.
- If the student's 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.

6- **Plagiarism:**

- Plagiarism is a breach of intellectual property; the act of using or copying someone else's idea or work and trying to present it as your own. It is taking and using someone else's work without proper attribution.



7-

Other policies: Using Internet Sources:

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- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Medicinal chemistry IV

A. COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Medicinal chemistry IV				
2	Course Code & Number:	MCH5258				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2	1			3
4	Study level/ semester at which this course is offered:	Fifth Year \ Second semester				
5	Pre –requisite (if any):	Medicinal Chemistry III				
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	Pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Mokhtar Al-Qhorafi				
12	Date of approval:	Dr. Majed Alwan				

B. COURSE DESCRIPTION:

This course offers the students many important topics, the first part of the subject deals with the hormones aromatic steroid and poly peptide antidiabetics and the NSAIDs with opioid narcotic analgesic drugs and water soluble and oil soluble drugs and the last part is the drug acting in GIT and concentrate on studying SAR, with improve activity and minimize toxicity. .

C. PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

1. To provide the knowledge of chemistry of drugs with special references to their pharmaceutical and medicinal usage.
2. To acquire the knowledge about the relationship of chemical structure and therapeutic properties.
3. To correlate medical chemistry facts with manufacture drugs & clinical application.



2-INTENDED LEARNING OUTCOMES: ILOs

A-Knowledge and Understanding:

- a1. Understand the principles of medicinal chemistry
- a2. Describe the basic principles of mechanism action for active groups in pharmaceuticals chemistry.
- a3. Explain the different reaction between active groups in pharmaceuticals chemistry special in preparations of drugs
- a4. Explain of nomenclature chemically of medical chemistry.

B-Intellectual Skills:

- b1. Apply preparation (synthesis) of medical compound drugs
- b2. Identify the different of medical compound drugs by assay & titration
- b3. Determine medically used & roles of important medical compound drugs.

C-Practical Skills:

- c1. Maintain the name of chemical compound & derivatives or chemical modification effects.
- c2. Estimation of drug half life.
- c3. Classify of medical compound drugs according to medically used & active group

D-General Skills and Attitudes:

- d1. Work separately or in a team to research and prepare a scientific topic.
- d2. Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D. COURSE CONTENTS:

a. Theoretical Aspect:

NO	TOPICS and SUB TOPICS	NO OF HOURS	No of Lectures
1	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Anti-infective agents as: <ul style="list-style-type: none"> Alcohols, phenols, oxidizing agents iodine, chlorine comp, cationic surfactants Antihypertensive drugs dyes, mercury comp, preservatives. 	6	3
2	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Antifungal agents as: <ul style="list-style-type: none"> Carbonic anhydrase inhibitors Azoles, allylamines, fatty acids, phenols, nucleosides, polyenes, others 	4	2



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3	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Synthetic antibacterial agents:as: <ul style="list-style-type: none"> Quinolones, nitrofurans, methenamine urinary analgesics. Antitubercular agents Antiprotozoal agents Anthelminthics Antiscabious and antipedicular agents Sulfonamides Anti malarials 	6	3
4	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Antibiotics as: <ul style="list-style-type: none"> □-lactams, aminoglycosides, tetracyclines macrolides, lincomycins, polypeptides. Antiviral agents	6	3
5	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Antineoplastic agents: as: <ul style="list-style-type: none"> Alkylating agents, antimetabolites antibiotics, plant products, hormones immunotherapy, miscellaneous.	4	2
6	Nomenclature, classification, synthetic procedures of compounds mentioned under each category, structure activity relationship, mode of action and therapeutic use for Diagnostic agent	2	1
Number of Weeks/and Units Per Semester		28	14
b. Practical Aspect:			
Order	Tasks/ Experiments	Number of Weeks	contact hours
	With each lecture there is a session lab	14	28
Number of Weeks /and Units Per Semester		14	28
E. TEACHING AND LEARNING METHODS			
(a) Lectures (c) Exercises solving (d) Collaborative learning / pair work / group work			



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(e) Assignments

(i) Home work and Report

(j) Office Hours

F. ASSIGNMENTS AND PROJECTS:

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	40
2	Work group Assignments	4, 8, 14	60
Total			100

G. STUDENT ASSESSMENT METHODS:

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)	14	50	50%
Total			100	100%

H. REFERENCES:

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

- An introduction to Medicinal Chemistry by Graham L. Patrick. Fourth edition, Oxford, 2009
- Wilson and Griswold's Text Book of Organic Medicinal and Pharmaceutical Chemistry by John M. Beale, Jr. and John H. Black, Twelfth edition, Lippincott Williams and Wilkins 2011.

2. Essential References.

- Foyes principle of medicinal chemistry by David H. Williams, Thomas L .
- Leuke, Williams O. Foye. Lippincott William and Wilkins. Seventh edition, 2012, ISBN.

3. Electronic Materials and Web Sites etc.

- 1- <http://www.chemaxon/marvin>
- 2- <http://www.webmolecules.com>
- 3- <http://www.acdlabs.com>
- 4- PASS Prediction of Activity Spectra for Substance) (<http://www.ibmh.msk.su/PASS>).

I. COURSE POLICIES:

**1- Class Attendant:**

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 - If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites



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Course specification of Research Methodology

A- COURSE IDENTIFICATION AND GENERAL INFORMATION:

1	Course Title:	Research Methodology				
2	Course Code & Number:	CR5220				
3	Credit hours:	C.H				Total
		Theoretical	Practical	Training	Seminar	
		2				
4	Study level/ semester at which this course is offered:	Fifth Year / second semester				
5	Pre –requisite (if any):					
6	Co –requisite (if any):					
7	Program (s) in which the course is offered:	Bachelor of Pharmacy				
8	Language of teaching the course:	English				
9	The department in which the course is offered:	pharmacy				
10	Location of teaching the course:	Faculty of medical sciences – AL-Yemenia University				
11	Prepared by:	Dr. Hamoud Abdullah				
12	Date of approval:	Dr. Majed Alwan				

B- 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.

C- PROFESSIONAL INFORMATION:

1-AIMS OF THE COURSE:

- 1.Create academic work with integrity in Research Methodology and Application.
2. Apply efficiently research methodology .
3. Acquire knowledge of research methodology and application in industry
4. Systemically analyze problems and propose solutions in research methodology and application via research methodology
5. Work as a team with other disciplines related to research methodology and application
6. Communicate and select suitable method for presentation in research methodology and application



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2-INTENDED LEARNING OUTCOMES:ILOs

A-Knowledge and Understanding:

- a1- Acquire knowledge of basic concepts of research and its methodologies in research methodology
- a2-Describe the various types of research.
- a3-Illustrate various parts, types, methods and techniques of academic research.

B-Intellectual Skills:

- b1-Analyze various methods of sampling, data collection, analysis and interpretation of qualitative and quantitative data.
- b2- Differentiate between analytical & empirical research.

C-Practical Skills:

- c1- Demonstrate knowledge of qualities of a good research/researcher and the ethics of research.
- c2- Select proper research topic, design, instruments and sample for their proposal.

D-General Skills and Attitudes:

- d1-Work separately or in a team to research and prepare a scientific topic.
- d2-Present clearly and effectively scientific topic in a tutorial, a staff meeting or the yearly scientific day.

D- COURSE CONTENTS:

Theoretical Aspect:

NO	TOPICS	NO OF HOURS	No of Lectures
1	Introduction	2	1
2	Select a Research topic	2	1
3	Selecting and defining a research problem	2	1
4	Types of research	2	1
5	Literature review	2	1
6	Finding supporting Documents	2	1
7	Choosing your research methods and instruments	2	1
8	Choosing your participants	2	1



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9	How to prepare a research proposal	2	1
10	How to construct questionnaires and tests	2	1
11	Collecting data through interviews, focus groups and observation	2	1
12	Collecting data through interviews, focus groups , observation & report your findings	2	1
Number of Weeks/and Units Per Semester		28	14

E- TEACHING AND LEARNING METHODS:

1. Lectures.
2. Discussion.
3. Tutorials.
4. Seminars
5. Lab. Work.
6. Solving Problem method

F- ASSIGNMENTS AND POJECTS

No	Assignments	Week Due	Mark
1	Homework Assignments	1-12	100

G- STUDENT ASSESSMENT METHODS:

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)	12	50	50%
Total			100	100%

H- REFERENCES:

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



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1. Polgar Colton, T. 2000. *Statistics in Medicine*. Little Brown and Co. Boston. Fourth Ed.
2. Dawson, B. and Trapp, R.G. 2001. *Basic and Clinical Biostatistics*. Third Edition Prentice-Hall International Inc.
3. Dawson, C. (2007). *Practical research Methods: A user-friendly guide to mastering research*. UK: How To Books Ltd.

2. Essential References.

1. Geoffrey, R. M., David, D. and David, F. 2005. *Essentials of Research Design and Methodology*. Essentials of Behavioral Science. Prentice Hall Inc.
2. John, W. C. 2002. *Research Design Qualitative, Quantitative, and Mixed Methods Approaches* (Second Edition), Sage Publications.
3. Geoffrey, R. and David, L. S. 2000. *Biostatistics: The Bare Essentials*, Second Edition

3. Electronic Materials and Web Sites etc.

1- http://link.springer.com/chapter/10.1007/0-387-23273-7_3#page-1

I- COURSE POLICIES:

1- Class Attendant:

- Students MUST attend all the consultation sessions in class and constantly show individual progression until the week of deadline. 80% attendance is the basic requirement of this course. Students failing to meet this requirement will face a penalty of mark percentage deduction. Any progression checks after due dates will NOT be accepted, unless you have valid reasons with supportive documents.

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- In most cases, the same rules apply as for a printed source: when you refer to ideas or quote from a WWW site, you must cite that source.
- If you want to use visual information from a WWW site, many of the same rules apply. Copying visual information or graphics from a WWW site (or from a printed source) into a paper is very similar to quoting information, and the source of the visual information or graphic must be cited. These rules also apply to other uses of textual or visual information from WWW sites