

**Ministry of Higher Education and Scientific Research
Scientific Supervision and Scientific Evaluation Apparatus
Directorate of Quality Assurance and Academic Accreditation
Accreditation Department**



Academic Program and Course Description Guide

2024

Introduction:

The educational program is a well-planned set of courses that include procedures and experiences arranged in the form of an academic syllabus. Its main goal is to improve and build graduates' skills so they are ready for the job market. The program is reviewed and evaluated every year through internal or external audit procedures and programs like the External Examiner Program.

The academic program description is a short summary of the main features of the program and its courses. It shows what skills students are working to develop based on the program's goals. This description is very important because it is the main part of getting the program accredited, and it is written by the teaching staff together under the supervision of scientific committees in the scientific departments.

This guide, in its second version, includes a description of the academic program after updating the subjects and paragraphs of the previous guide in light of the updates and developments of the educational system in Iraq, which included the description of the academic program in its traditional form (annual, quarterly), as well as the adoption of the academic program description circulated according to the letter of the Department of Studies T 3/2906 on 3/5/2023 regarding the programs that adopt the Bologna Process as the basis for their work.

In this regard, we can only emphasize the importance of writing an academic programs and course description to ensure the proper functioning of the educational process.

Concepts and terminology:

Academic Program Description: The academic program description provides a brief summary of its vision, mission and objectives, including an accurate description of the targeted learning outcomes according to specific learning strategies.

Course Description: Provides a brief summary of the most important characteristics of the course and the learning outcomes expected of the students to achieve, proving whether they have made the most of the available learning opportunities. It is derived from the program description.

Program Vision: An ambitious picture for the future of the academic program to be sophisticated, inspiring, stimulating, realistic and applicable.

Program Mission: Briefly outlines the objectives and activities necessary to achieve them and defines the program's development paths and directions.

Program Objectives: They are statements that describe what the academic program intends to achieve within a specific period of time and are measurable and observable.

Curriculum Structure: All courses / subjects included in the academic program according to the approved learning system (quarterly, annual, Bologna Process) whether it is a requirement (ministry, university, college and scientific department) with the number of credit hours.

Learning Outcomes: A compatible set of knowledge, skills and values acquired by students after the successful completion of the academic program and must

determine the learning outcomes of each course in a way that achieves the objectives of the program.

Teaching and learning strategies: They are the strategies used by the faculty members to develop students' teaching and learning, and they are plans that are followed to reach the learning goals. They describe all classroom and extra-curricular activities to achieve the learning outcomes of the program.

Academic Program Description Form

University Name: .ALKut college..university.....

Faculty/Institute:Pharmacy.....

Scientific Department: Pharmacy.....

Academic or Professional Program Name: . Pharmacy.....

Final Certificate Name:

Academic System: courses.....

Description Preparation Date: 13/6/2024

File Completion Date: 13/6/2024

Signature:

Head of Department Name:

Wesam R Kadhum

Date:

Signature:

Scientific Associate Name:

Hadel Saeed

Date:

The file is checked by: *Dr. Ali Saad Alwan*

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Date:

Signature:

Approval of the Dean

1. Program Vision

Program vision is written here as stated in the university's catalogue and website.

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

1. Educational institution	Ministry of Higher Education and Scientific Research - Kut University College
2. Scientific department / Center	Pharmacist Department/ Department of Pharmacology and Toxicology
3. Academic program	Part of Bachelor in pharmacy science
4. The final granted degree	Bachelor in pharmacy science
5. The educational system	Semester
6. Accreditation program	ACPE
7. Other external influences	Laboratory teaching+ lab training+ Theoretical study
8. Date of description form preparation	2022
9. Academic Program Objective. a- Assist to understand the subjects and how to develop b- Providing a solid foundation for a successful career for graduates in the private and public sectors of pharmacy field. c- Enable students to develop the knowledge and skills of the laboratory during the laboratory work using many techniques and devices chemical d- Supply Student with some basic skills, such as the analysis results and the use of the Internet	

- e- Improve student's ability for self-study
- f- Alignment between theoretical styles and practical reality in the pharmaceutical sciences.
- g- Enabling students to familiarize themselves with all medical concepts, terms and symbols of pharmacology.
- h- Enabling students to get acquainted with the tools of scientific research and work to use them in the academic and practical fields.
- i- Keeping up-to-date of recent scientific developments in pharmacology and working to employ them.
- j- Preparing and qualifying students to pursue higher studies by developing their intellectual, scientific and research skills.

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- 1- Enabling students to acquire and understand physiology and pharmacology
- 2- Enabling students to acquire and understand general toxicology and clinical toxicology
- 3- Enabling students to get acquainted with the most important references and sources in pharmacy sciences

B. The skill goals of the program

- 1- Enabling students to acquire working skills in laboratories and conducting scientific experiments.
- 2 -Enabling students to read and interpret all medical and pharmaceutical terms and symbols.
- 3 -Enabling students to possess the capabilities of using modern devices and technologies for the science of pharmacy.
- 4 -Enabling students to acquire the skills of using scientific research tools in the academic and scientific fields.
- 5 -Enabling students to possess the skills of dialogue, discussion, listening to others and accepting their opinions.
- 6- Enabling students to possess self-learning skills to acquire new information, skills and

knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2 -Educating students to respect human dignity.
- 3 -Educating students on professional humanitarian work.
- 4 -Promote and consolidate professional and ethical values for students to practice the profession of pharmacist.
- 5 -Educating students on a culture of integrity and combating corruption in all its forms.
- 6 -Supporting drug culture among students and members of society.
- 7- Promoting the spirit of cooperation and teamwork among students

Teaching and learning methods for cognitive and skills goals:

- Research work.
- Encouraging reading books.
- Holding conferences and seminars.
- Participate in workshops.

Teaching and learning methods for Affective goals:

- 1 .Emphasis on the necessity of learning and experience in the field of teaching.
- 2 .Discuss teamwork.
- 3 .Writing self-reports.
- 4 .Use the strategy of cooperation and assistance during the education process.
- 5 .Field visits to the relevant ministries and educational institutions.
- 6 .Holding seminars, courses and workshops for students that encourage spiritual values.
7. Forming a discussion group during the lecture.

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 1 - Quizzes
- 2 - Oral examination
- 3 -Mid-term exam
- 4- The final exam

Evaluation methods for the levels of affective teaching and learning processes and values

-Surprising deductive questions during the discussion in various aspects of education

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- 1-Planning and implementing laboratory experiments using modern equipment and devices.
- 2 -Analyzing, interpreting, and evaluating the experimental data and making a quantitative evaluation of errors in the experimental measurements.
- 3 -Applying computer programs to analyze experimental data and write scientific reports.
- 4- Using literature and materials to write a report on the data of a particular experiment.

Teaching and learning methods for general and qualification skills transferred

- 1- writing the Report on the experience with the explanation of the result
- 2- use computer

The evaluation methods for the general skills and qualifications transferred

- Skills are evaluated through a written report and hold examinations editorial

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

-Curricula for teaching methods approved by the International Universities

11. The program structure

Educational stage	course code	course name	Hours	
			Theoretical	Practical
1 st class	50301101	Medical terminology	1	-
2 ^{ed} class	50301201	Physiology I	3	2
	50301206	Physiology II	3	2
3 rd class	50301306	Pharmacology I	3	-
4 th class	50301401	Pharmacology II	3	2
	50301406	Pharmacology III	2	-
	50301407	General toxicology	2	2
5 th class	50301501	Clinical toxicology	2	2

Scheme of curriculum skills																								
Please tick in the corresponding boxes for individual learning outcomes of the program under assessment																								
required learning outcomes of the program																								
Year / Level	Course code	Course name	Basic Or optiona l	Cognitive goals					Skill goals of the program					Affective and value goals					General and rehabilitative skills					
				A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5	D 6
1 st stage	50301101	Medical terminology	Basic	√					√						√					√				
2 nd stage	50301201	Physiology I	Basic		√					√						√					√			
	50301206	Physiology II	Basic		√					√						√					√			
3 rd stage	50301306	Pharma I	Basic			√					√					√						√		
4 th stage	50301401	Pharma II	Basic				√					√					√						√	
	50301406	Pharma III	Basic				√					√					√						√	
	50301407	G. Toxicology	Basic					√					√				√							√
5 th stage	50301501	C. Toxicology	Basic					√					√				√							√

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1 Educational institution	Ministry of Higher Education and Scientific Research / Kut University College/ Pharmacist Department
2 Scientific department \ enter	Pharmacology and Toxicology
3 Course name\ code	Medical Terminology /50301101
4 Available attendance forms	Full term
5 Semester \year	1 st semester /1 st stage 2023-2022
6 Hours/ week (total)	1 hour for theory only
7 Date of description	2022

8-Course outcomes, teaching methods, learning and evaluation

Course outcomes:

- Preparing qualified students who are able to practice the profession of pharmacist in the public and private sectors
- Enabling the student to develop laboratory knowledge and skills through laboratory work using many technologies and chemical devices
- Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities.
- Harmonization between theoretical trends and practical reality in the pharmaceutical sciences
- Enabling students to get acquainted with the tools of scientific research and to work on using them in the academic and practical fields.
- Keeping abreast of modern scientific developments in pharmacology and working to employ them.
- Preparing and qualifying students to pursue higher studies through developing their intellectual, scientific and research skills

A. Cognitive goals

- Enabling students to get acquainted with the most important references and sources in pharmacy sciences
- Study the different types of medicines used in treating different diseases

B. The skill goals of the program

- Enabling students to read and interpret all medical and pharmaceutical terms and symbols.
- Enabling students to acquire the skills of using scientific research tools in the academic and scientific fields.
- Enabling students to possess the skills of dialogue, discussion, listening to others and accepting their opinions.
- Enabling students to possess self-learning skills to acquire new information, skills and knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2 -Educating students to respect human dignity.
- 3 -Educating students on professional humanitarian work.
- 4 -Promote and consolidate professional and ethical values for students to practice the profession of pharmacist.
- 5 -Educating students on a culture of integrity and combating corruption in all its forms.
- 6 -Supporting drug culture among students and members of society.
- 7- Promoting the spirit of cooperation and teamwork among students

Teaching and learning methods for cognitive and skills goals:

- Research work.
- Encouraging reading books.
- Holding conferences and seminars.
- Participate in workshops.

Teaching and learning methods for Affective goals:

- 1 .Emphasis on the necessity of learning and experience in the field of teaching.
- 2 .Discuss teamwork.
- 3 .Writing self-reports.
- 4 .Use the strategy of cooperation and assistance during the education process.
- 5 .Field visits to the relevant ministries and educational institutions.
- 6 .Holding seminars, courses and workshops for students that encourage spiritual values.
7. Forming a discussion group during the lecture.

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 1 - Quizzes
- 2 - Oral examination
- 3 -Mid-term exam
- 4- The final exam

Evaluation methods for the levels of affective teaching and learning processes and values

-Surprising deductive questions during the discussion in various aspects of education

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Discussing various medical conditions and finding appropriate treatments for them
- Asking brainstorming questions through which the student can relate the study materials together and link them to the health reality

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	1	Study simple word roots and common suffixes	Principles of medical terminology	smart board Slideshow	Reports An oral or written exam
2.	1	Study of word prefixes related to pharmaceutical sciences	Principles of medical terminology	=	=

3.	2	Study basic anatomy and abnormal conditions	Principles of medical terminology	=	=
4.	1	Study of the genitals and urinary tract	Body System Terminology	=	=
5.	1	The study of the digestive system	Body System Terminology	=	=
6.	1	Study of the heart and blood vessels	Body System Terminology	=	=
7.	1	Study growth, development and the body	Body System Terminology	=	=
8.		Midterm exam			
9.	1	Study of gynecology, pregnancy and childbirth	Body System Terminology	=	=
10.	1	Eye study and respiratory system study	Body System Terminology	=	=
11.	2	The study of the nervous system	Body System Terminology	=	=
12.	1	Study of blood and its diseases and study of the immune system	Body System Terminology	=	=
13.	2	Study qualifications and statistics of symptoms, diagnosis, treatment and communication	Body System Terminology	=	=
14.		Final exam			

10. Teaching infrastructure	
1- Prescribed books required	Textbooks : A short course in medical terminology, 1st Ed.; Lippincott Williams and Wilkins;2008
2- Main references (sources)	<ol style="list-style-type: none"> 1. Textbooks: A short course in medical terminology, 1st Ed.; Lippincott Williams and Wilkins;2008 2. PC Networking for System Programmers
3- Recommended books and references (scientific journals, reports,)	Resources related to new medical terminology from the Internet or other recent books
11- Course development plan <ul style="list-style-type: none"> - Suggesting new topics and discussing them - Some curriculum vocabulary has changed in a simple way to keep pace with recent scientific developments - Conducting seminars and seminars inside the branch to discuss modern scientific topics 	

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1 Educational institution	Ministry of Higher Education and Scientific Research / Kut University College /Department pharmacy
2 Scientific department \ center	Pharmacology and Toxicology
3 Course name\ code	Pharmacology I / 50301306
4 Available attendance forms	Daily attendance/ full term
5 Semester \year	2 nd semester/ 3 rd stage 2023-2022
6 Hours/ week (total)	3 hours for theory only
7 Date of description	2022

8-Course outcomes, teaching methods, learning and evaluation

a. A. Cognitive goals

- 1- display concepts selected topics in pharmacology
- 2- knowledge of the relationship between drugs and disease
3. Enabling students to get acquainted with the most important references and sources in pharmacy sciences

B. The skill goals of the program

- 1-Enabling students to acquire working skills in laboratories and conducting scientific experiments.

- 2- Enabling students to possess the capabilities of using modern devices and technologies for the science of pharmacy.
- 3 -Enabling students to acquire the skills of using scientific research tools in the academic and scientific fields.
- 4 -Enabling students to possess the skills of dialogue, discussion, listening to others and accepting their opinions.
- 5- Enabling students to possess self-learning skills to acquire new information, skills and knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2 -Educating students to respect human dignity.
- 3 -Educating students on professional humanitarian work.
- 4 -Promote and consolidate professional and ethical values for students to practice the profession of pharmacist.
- 5 -Educating students on a culture of integrity and combating corruption in all its forms.
- 6 -Supporting drug culture among students and members of society.
- 7- Promoting the spirit of cooperation and teamwork among students

Teaching and learning methods for cognitive and skills goals:

1. Using white board
2. Using power point slide
3. Make periodic reports and seminars

Evaluation methods for the levels of cognitive and skill teaching and learning processes

1. Make periodic reports
2. Oral and written exams
3. Questions and answer during Lecture

Evaluation methods for the levels of affective teaching and learning processes and values

-Surprising deductive questions during the discussion in various aspects of education

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- 1-Planning and implementing laboratory experiments using modern equipment and devices.
- 2 -Analyzing, interpreting, and evaluating the experimental data and making a quantitative evaluation of errors in the experimental measurements.
- 3- Using literature and materials to write a report on the data of a particular experiment.

9-Course structure
Theory pharmacology I/ stage 3

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	3	Students gained information about the drug absorption, distribution , metabolism and excretion	Kinetics	The use of scientific references and use the board	Monthly written examinations and oral examinations
2.	3	Students gained information about binding of drugs with receptors	Dynamics	The use of scientific references and use the board	Monthly written examinations and oral examinations
3.	3	Students gained information about the autonomic nerves system	Autonomics ANS	The use of scientific references and use the board	Monthly written examinations and oral examinations
4.	3	Students gained information about adrenergic drugs (agonists)	Adrenergic	The use of scientific references and use the board	Monthly written examinations and oral examinations
5.	3	Students gained information about adrenergic drugs (antagonists)	antiadrenergic	The use of scientific references and use the board	Monthly written examinations and oral examinations
6.	3	Students gained information about cholinergic drugs (agonists)	cholinergic	The use of scientific references and use the board	Monthly written examinations and oral examinations
7.	3	Students gained information about	anticholonergic	The use of scientific	Monthly written examinations

		cholinergic drugs (antagonists)		references and use the board	and oral examinations
		Mid-exam			
8.	3	Students gained information about antibacterial drugs (cell wall synthesis inhibitors)	Antibacterial (cell wall synthesis inhibitors)	The use of scientific references and use the board	Monthly written examinations and oral examinations
9.	3	Students gained information about antibacterial drugs (protein synthesis inhibitors)	Antibacterial (protein synthesis inhibitors)	The use of scientific references and use the board	Monthly written examinations and oral examinations
10.	3	Students gained information in the field about antibacterial drugs (urinary antiseptics)	Antibacterial (urinary antiseptics)	The use of scientific references and use the board	Monthly written examinations and oral examinations
11.	3	Students gained information about antiviral drugs	Antiviral drugs	The use of scientific references and use the board	Monthly written examinations and oral examinations
12.	3	Students gained information about antiparasitic drugs	Antiparasitic drugs	The use of scientific references and use the board	Monthly written examinations and oral examinations
13.	3	Students gained information about antiprotozoal drugs	Antiprotozoal drugs	The use of scientific references and use the board	Monthly written examinations and oral examinations
14.	3	Students gained information about antifungal drugs	Antifungal drugs	The use of scientific references and use the board	Monthly written examinations and oral examinations
15.	3	Students gained information about Anthelmintic drugs	Anthelmintic drugs	The use of scientific references and use the board	Monthly written examinations and oral examinations
	Final exam				

10. Teaching infrastructure

1- Prescribed books required	Pharmacology; Lippincott Latest edition 2019
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2- Main references (sources)	Pharmacology; Katzung Latest edition.
3- Recommended books and references (scientific journals, reports,)	Resources related to new medical terminology from the Internet or other recent books
11. Course development plan Maintain the scientific teaching through the use of valuable resources and books , as well as the lectures are updated annually according to the global development	

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1 Educational institution	Ministry of Higher Education and Scientific Research/ Kut University College /Department pharmacy
2 Scientific department \ enter	Pharmacology and Toxicology
3 Course name\ code	Pharmacology (II, III) /50301401 /50301406
4 Available attendance forms	Daily attendance/ full term
5 Semester \year	1 st and 2 nd semester / 4 th stage 2023-2022
6 hours /week (total)	-3 hours for theory and 2 hours for practical (5 hours total) in 1 st semester -2 hours for theory only in 2 nd semester
7 Date of description	2022

8-Course outcomes, teaching methods, learning and evaluation

1. Preparing qualified students who are able to practice the profession of pharmacist in the public and private sectors
2. Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities.

3. Harmonization between theoretical trends and practical reality in the pharmaceutical sciences
4. Enabling students to get acquainted with the tools of scientific research and work to use them in the academic and practical fields.
5. Keeping abreast of modern scientific developments in pharmacology and working to employ them.
6. Preparing and qualifying students to pursue higher studies through developing their intellectual, scientific and research skills.

A. Cognitive goals

- Display concepts selected topics in pharmacology
- knowledge of the relationship between drugs and disease
- Enabling students to get acquainted with the most important references and sources in pharmacy sciences
- Study the different types of medicines used in treating different diseases

B. The skill goals of the program

- Enabling students to read and interpret all medical and pharmaceutical terms and symbols.
- Enabling students to acquire the skills of using scientific research tools in the academic and scientific fields.
- Enabling students to possess the skills of dialogue, discussion, listening to others and accepting their opinions.
- Enabling students to possess self-learning skills to acquire new information, skills and knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2 -Educating students to respect human dignity.
- 3 -Educating students on professional humanitarian work.
- 4 -Promote and consolidate professional and ethical values for students to practice the profession of pharmacist.
- 5 -Educating students on a culture of integrity and combating corruption in all its forms.
- 6 -Supporting drug culture among students and members of society.
- 7- Promoting the spirit of cooperation and teamwork among students

Teaching and learning methods for cognitive and skills goals:

- Research work.

-Encouraging reading books.

-Holding conferences and seminars.

-Participate in workshops.

Teaching and learning methods for Affective goals:

- 1 .Emphasis on the necessity of learning and experience in the field of teaching.
- 2 .Discuss teamwork.
- 3 .Writing self-reports.
- 4 .Use the strategy of cooperation and assistance during the education process.
- 5 .Field visits to the relevant ministries and educational institutions.
- 6 .Holding seminars, courses and workshops for students that encourage spiritual values.
7. Forming a discussion group during the lecture

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 1 - Quizzes
- 2 - Oral examination
- 3 -Mid-term exam
- 4- The final exam

Evaluation methods for the levels of affective teaching and learning processes and values

-Surprising deductive questions during the discussion in various aspects of education

D. General and professional skills transferred:

(Other skills related to employability and personal development).

Discussing various medical conditions and finding appropriate treatments for them

Asking brainstorming questions through which the student can relate the study materials together and link them to the health reality

9-Course structure: Pharmacology II 1st semester

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	3	Familiarity with the CNS drugs	Introduction to the CNS drugs	Smart board, power point	Oral, written
2.	3	Familiarity with Antianxiety drugs	Antianxiety drugs	=	=
3.	3	Familiarity with Antidepressant drugs	Antidepressant drugs	=	=
4.	3	Familiarity with Antischezophrenic drugs	Antischezophrenic drugs	=	=
5.	3	Familiarity with Anesthetic drugs	Anesthetic drugs	=	=
6.	3	Familiarity with Centrally acting analgesic drugs	Centrally acting analgesic drugs	=	=
7.	3	Familiarity with Antiparkisons drugs	Antiparkisons drugs	=	=
8.	3	Familiarity with Antiepileptic drugs	Antiepileptic drugs	=	=
9.			Mid-term exam		
10.	3	Familiarity with Anti-hypertensive drugs	Anti-hypertensive drugs	=	=
11.	3	Familiarity with	Drugs for heart	=	=

		Drugs for heart failure	failure		
12.	3	Familiarity with Antianginal drugs	Antianginal drugs	=	=
13.	3	Familiarity with Drugs for dyslipidaemia	Drugs for dyslipidaemia	=	=
14.	3	Familiarity with Antidysrhythmic drugs	Antidysrhythmic drugs	=	=
15.	3	Familiarity with drugs for coagulation disorder	Drugs for coagulation disorder	=	=
16.			Final exam		

10-Course structure: Pharmacology III/ 2nd semester

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Familiarity with the pituitary gland medication	Pituitary gland drugs	Smart board, power point	Oral, written
2.	2	Familiarity with the Antidiabetic drugs	Antidiabetic drugs	=	=
3.	2	Familiarity with the Adrenal gland	Adrenal gland	=	=
4.	2	Familiarity with the Male and female hormones	Male and female hormones	=	=
5.	2	Familiarity with the Drugs for obesity	Drugs for obesity	=	=
6.	2	Familiarity with the Anticancer drugs	Anticancer drugs	=	=

7.	2	Familiarity with the Immunosuppressive drugs	Immunosuppressive drugs	=	=
8.			Mid-term exam		
9.	2	Familiarity with the Anti-inflammatory	Anti-inflammatory	=	=
10.	2	Familiarity with the Drugs for anaemia	Drugs for anaemia	=	=
11.	2	Familiarity with the Drugs for osteoporosis	Drugs for osteoporosis	=	=
12.	2	Familiarity with the Drugs for dermatological disorder	Drugs for dermatological disorder	=	=
13.	2	Familiarity with the Drugs for erectile dysfunction	Drugs for erectile dysfunction	=	=
14.	2	Familiarity with the Antiasthma drugs	Antiasthma drugs	=	=
15.	2	Familiarity with the Drugs for peptic ulcer disease	Drugs for peptic ulcer disease	=	=
16.			Final exam		

10. Teaching infrastructure	
1- Prescribed books required	Pharmacology; Lippincott Latest edition 2019
2- Main references (sources)	Pharmacology; Katzung Latest edition.
3- Recommended books and references (scientific journals, reports,)	Resources related to new medical terminology from the Internet or other recent books
11. Course development plan	
The unified curriculum was adhered to, but by relying on modern references and books, and thus updating the lectures in light of these sources in the latest edition.	

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1 Educational institution	Ministry of Higher Education and Scientific Research / Kut University College /Department pharmacy
2 Scientific department \ enter	Pharmacology and Toxicology
3 Course name\ code	Physiology I, II / 50301201 /50301206
4 Available attendance forms	Daily attendance/ full term
5 Semester \year	1 st and 2 nd semester / 2 nd stage 2023-2022
6 Hours/ week (total)	3 hours for theory and 2 hours for practical (5 hours total) in 1 st semester 3 hours for theory and 2 hours for practical (5 total) in 2 nd semester
7 Date of description	2022

8-Course outcomes, teaching methods, learning and evaluation

1. Preparing qualified students who are able to practice the profession of pharmacist in the public and private sectors.
2. Enabling the student to develop laboratory knowledge and skills through laboratory work using many techniques and chemical devices.

3. Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities.
4. Harmonization between theoretical trends and practical reality in the pharmaceutical sciences
5. Enabling students to get acquainted with the tools of scientific research and work to use them in the academic and practical fields.
6. Keeping abreast of modern scientific developments in pharmacology and working to employ them.
7. Preparing and qualifying students to pursue higher studies through developing their intellectual, scientific and research skills.

A. Cognitive goals

- Enabling students to acquire and understand physiology
- Enabling students to get acquainted with the most important references and sources in pharmacy sciences

B. The skill goals of the program

- Enabling students to acquire working skills in laboratories and conducting scientific experiments.
- Enabling students to possess the capabilities of using modern devices and technologies for the science of pharmacy
- Enabling students to acquire the skills of using scientific research tools in the academic and scientific fields.
- Enabling students to possess the skills of dialogue, discussion, listening to others and accepting their opinions.
- Enabling students to possess self-learning skills to acquire new information, skills and knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2 -Educating students to respect human dignity.
- 3 -Educating students on professional humanitarian work.
- 4 -Promote and consolidate professional and ethical values for students to practice the

profession of pharmacist.

5 -Educating students on a culture of integrity and combating corruption in all its forms.

6 -Supporting drug culture among students and members of society.

7- Promoting the spirit of cooperation and teamwork among students

Teaching and learning methods for cognitive and skills goals:

-Research work.

-Encouraging reading books.

Teaching and learning methods for Affective goals:

1 .Emphasis on the necessity of learning and experience in the field of teaching.

2 .Discuss teamwork.

3 .Writing self-reports.

4 .Use the strategy of cooperation and assistance during the education process.

5 .Field visits to the relevant ministries and educational institutions.

6 .Holding seminars, courses and workshops for students that encourage spiritual values.

7. Forming a discussion group during the lecture

Evaluation methods for the levels of cognitive and skill teaching and learning processes

1 - Quizzes

2 - Oral examination

3- Make periodic reports on topics related to the material

4- Mid-term exam

5- The final exam

Evaluation methods for the levels of affective teaching and learning processes and values

-Surprising deductive questions during the discussion in various aspects of education

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources

- Following up on modern scientific topics through the Internet

- Trying to solve external questions and homework by referring to modern sources and the Internet.

9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	3	Introduction to cell physiology	information about the Cell composition	The use of references and use the smart board	Monthly written examinations and oral examinations
2.	3	The general and cellular basis of medical physiology	Body cells and Cell membrane, Ion channels	The use of references and use the smart board	Monthly written examinations and oral examinations
3.	3	Physiology of the nervous system and muscles, Nerve cells; excitation and conduction;	Properties of mixed nerves; glia; neurotrophins	The use of references and use the smart board	Monthly written examinations and oral examinations
4.	3	Nerve fiber types	Nerve functions Graded potentials, action potential	The use of references and use the smart board	Monthly written examinations and oral examinations
5.	3	Muscles: Skeletal muscle; contraction	Smooth muscle; cardiac muscle	The use of references and use the smart board	Monthly written examinations and oral examinations
6.	3	Synaptic transmission: Reflexes, Cutaneous, deep and visceral sensations	Alert behavior, sleep and electrical activity of the brain; control of posture and movement	The use of references and use the smart board	Monthly written examinations and oral examinations
7.	3	Higher function of the nervous system: central regulation of visceral function	The autonomic nervous system	The use of references and use the smart board	Monthly written examinations and oral examinations

8.	3	Respiration : Respiratory zones; Mechanics of respiration; air volumes; respiratory muscles; compliance of the lungs and chest wall	Surfactants; differences in ventilation and blood flow in deferent parts of the lung	The use of references and use the smart board	Monthly written examinations and oral examinations
9.	3	Respiration: Dead space and uneven ventilation; Pulmonary circulation: Pressure, volume and flow	Gas transport between the lungs and tissue.	The use of references and use the smart board	Monthly written examinations and oral examinations
10.	3	Regulation of respiration: Neural control of breathing; Respiratory centers; Regulation of respiratory activity: Chemical factors; non chemical factors.	Respiratory adjustment in health and disease; Effect of exercise; Hypoxia; Emphysema; Asthma	The use of references and use the smart board	Monthly written examinations and oral examinations
11.	3	Renal physiology: Introduction; innervations of the renal vessels; renal clearance; renal blood flow.	Glomerular filtration rate (GFR): Measurements; factor affecting GFR	The use of references and use the smart board	Monthly written examinations and oral examinations
12.	3	Filtration fraction: Reabsorption of Na ⁺ , Cl ⁻ and glucose. Tubuloglomerular feedback and glomerulotubular balance; water excretion in: proximal tubules; loop of henle; distal tubules;	The counter current mechanism; role of urea; water diuresis and osmotic diuresis.	The use of references and use the smart board	Monthly written examinations and oral examinations

		collecting ducts.			
13.	3	Acidification of the urine: H ⁺ secretion; reaction with buffers; ammonia secretion; factors affecting acid secretion.	Bicarbonate excretion; regulation of Na ⁺ , K ⁺ and Cl ⁻ excretion; uremia; acidosis; micturition	The use of references and use the smart board	Monthly written examinations and oral examinations
14.	3	Cardiovascular: origin and spread of cardiac excitation.	The electrocardiogram; cardiac arrhythmias.	The use of references and use the smart board	Monthly written examinations and oral examinations
15.	3	Electrographic findings in cardiac diseases; mechanical events of the cardiac cycle	Cardiac output	The use of references and use the smart board	Monthly written examinations and oral examinations
16.	3	Cardiovascular regulatory mechanisms: Local regulatory mechanisms; systemic regulation by the nervous system; systemic regulation by hormones.	Coronary circulation; Hypertension; Heart failure; Angina pectoris.	The use of references and use the smart board	Monthly written examinations and oral examinations
17.	3	Digestive system Gastrointestinal function: Digestion and absorption of carbohydrates; proteins; lipids.	Absorption of water and electrolytes; vitamins and minerals.	The use of references and use the smart board	Monthly written examinations and oral examinations
18.	3	Regulation of gastrointestinal function: Introduction; gastrointestinal hormones.	Mouth and esophagus.	The use of references and use the smart board	Monthly written examinations and oral examinations
19.	3	Stomach; exocrine portion of the pancreas.	liver and biliary system; small intestine; colon.	The use of references and use the smart board	Monthly written examinations and oral

					examinations
20.	3	Circulatory body fluid: Introduction; blood. Bone marrow.	Circulatory body fluid: Introduction; blood. Bone marrow.	The use of references and use the smart board	Monthly written examinations and oral examinations
21.	3	White blood cells.	Immunity	The use of references and use the smart board	Monthly written examinations and oral examinations
22.	3	Platelets; red blood cells; anemia; polycythemia.	Blood group and Rh factor.	The use of references and use the smart board	Monthly written examinations and oral examinations
23.	3	Hemostasis: The clotting mechanism	Blood coagulation	The use of references and use the smart board	Monthly written examinations and oral examinations
24.	3	Anti clotting mechanism; the plasma; the lymph.	Abnormalities of hemostasis.	The use of references and use the smart board	Monthly written examinations and oral examinations
25.	3	Endocrinology: Introduction; energy balance.	Metabolism and nutrition.	The use of references and use the smart board	Monthly written examinations and oral examinations
26.	3	The pituitary gland, The thyroid gland	Endocrine function	The use of references and use the smart board	Monthly written examinations and oral examinations
27.	3	The gonads	Development/function of reproductive system	The use of references and use the smart board	Monthly written examinations and oral examinations

28.	3	The adrenal medulla, The adrenal cortex	Adrenal functions	The use of references and use the smart board	Monthly written examinations and oral examinations
29.	3	Hormonal control of calcium metabolism	The physiology of the bone	The use of references and use the smart board	Monthly written examinations and oral examinations
30.	3	Endocrine functions of the pancreas and regulation of carbohydrate metabolism	Cont. Regulation of carbohydrate metabolism.	The use of references and use the smart board	Monthly written examinations and oral examinations

10. Teaching infrastructure

1-	Prescribed books required	Vander's human physiology-The Mechanisms of Body Function. Latest edition
2-	Main references (sources)	Textbook of Medical Physiology by Guyton AC; latest edition.
3-	Recommended books and references (scientific journals, reports,.....)	Resources related to physiology field from the Internet or other recent books

11. Course development plan

-Access to curricula in international universities and modern curricula

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1 Educational institution	Ministry of Higher Education and Scientific Research / Kut University College/ Department Pharmacy
2 Scientific department \Center	Pharmacology and Toxicology
3 Course name\ code	General Toxicology / 50301407
4 Available attendance forms	Full term
5 Semester \year	2 nd semester /4 th stage 2023-2022
6 Hours/ week (total)	2 hours for theory and 2 hours for practical (4 hours total)
7 Date of description	2022

8-Course outcomes, teaching methods, learning and evaluation

Course outcomes:

1. Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities.
2. Harmonization between theoretical trends and practical reality in the pharmaceutical sciences
3. Enabling students to get acquainted with the tools of scientific research and work to use them in the academic and practical fields.
4. Keeping abreast of modern scientific developments in pharmacology and working to employ them.
5. Preparing and qualifying students to pursue higher studies through developing their intellectual, scientific and research skills.

A. Cognitive goals

- 1- Enabling students to acquire and understand general toxicology
- 2- Enabling students to get acquainted with the most important references and sources in pharmacy sciences

B. The skill goals of the program

- 1- Enabling students to possess work skills in conducting scientific experiments
- 2- Enabling students to acquire skills in using scientific research tools in the academic and scientific fields
- 3- Enabling students to acquire the skills of dialogue, discussion, listening to others and accepting their opinions.
- 4- Enabling students to possess self-learning skills to acquire new information, skills and knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2- Educating students to respect human dignity.
- 3- Educating students on professional humanitarian work.
- 4- Promote and consolidate professional and ethical values for students to practice the profession of pharmacist.
- 5- Educating students on a culture of integrity and combating corruption in all its forms.
- 6- Supporting drug culture among students and members of society.
- 7 - Enhancing students' spirit of cooperation and teamwork.

Teaching and learning methods for cognitive and skills goals:

1. Using a smart board
2. Using slideshow
3. Periodic reports are required to be submitted by students.

Teaching and learning methods for Affective goals:

- To emphasize the necessity of learning and experience in the field of teaching
2. Discuss teamwork
 3. Writing self-reports

4. Use the strategy of cooperation and assistance during the education process
5. Field visits to the relevant ministries and educational institutions
6. Holding seminars, courses and workshops for students that encourage spiritual values
7. Forming a discussion group during the lecture.

Evaluation methods for the levels of cognitive and skill teaching and learning processes

1. Periodic reports submitted by students.
2. Conducting oral and written tests.
3. Discussion in the classroom by asking questions that encourage linking the material with other study subjects.

Evaluation methods for the levels of affective teaching and learning processes and values

1. Periodic reports submitted by students.
2. Conducting oral and written tests
3. Discussion in the classroom by asking questions that encourage linking the material with other study subjects

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Discussing the toxicity of various toxic agents.
- Asking brainstorming questions through which the student can relate the study materials together and link them to the health reality

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Principles of toxicology	Introduction	smart board Slideshow	Reports An oral or written exam
2.	2	Mechanisms of toxicity	Introduction	=	=
3.	2	Determination of mechanisms of	Carcinogenesis and mutagenesis		

		carcinogenesis and mutagenesis			
4.	2	Determination of the hepatotoxicity of some toxic agents	Toxic responses of the liver	=	=
5.	2	Determination of pulmonary toxicity of some toxic agents	Toxic responses of the pulmonary system	=	=
6.	2	Determination of renal toxicity of some toxic agents	Toxic responses of the kidney	=	=
7.	2	Determination of blood toxicity of some agents	Toxic responses of the blood	=	=
8.	2	Determination of the cardiovascular toxic effects of some agents	Toxic responses of the cardiovascular system	=	=
		Midterm exam			
9.	2	Determination of the cardiovascular toxic effects of some agents	Toxic responses of the cardiovascular system	=	=
10.	2	Determination of the toxic effects of some agents on the nervous system	Toxic responses of the nervous system	=	=
11.	2	Determination of the toxic effects of some agents on the skin	Toxic responses of the skin	=	=
12.	2	Determination of the toxicity of food additives and concomitants, pesticides and metals	Toxic substances	=	=
13.	2	Determination of the toxicity of radiation,	Toxic substances		

		radioactive substances, plants and solvents.			
14.	2	Determination of air pollution, water and soil pollutants	Environmental toxicology		
15.		Determination of toxicity of gases, CO and cyanide	Environmental toxicology		

10. Teaching infrastructure

1- Prescribed books required	Casarett and Doull, Toxicology, the Basic Science of Poisons; latest edition.
2- Main references (sources)	Casarett and Doull, Toxicology, the Basic Science of Poisons; latest edition.
3- Recommended books and references (scientific journals, reports,.....)	Resources related to general toxicology from the Internet or other recent books
11- Course development plan <ul style="list-style-type: none"> - Suggesting new topics and discussing them - Some curriculum vocabulary has changed in a simple way to keep pace with recent scientific developments - Conducting seminars and seminars inside the branch to discuss modern scientific topics 	

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1 Educational institution	Ministry of Higher Education and Scientific Research / Kut University College/ Department Pharmacy
2 Scientific department \ enter	Pharmacology and Toxicology
3 Course name\ code	Clinical Toxicology / 50301501
4 Available attendance forms	Full term
5 Semester \year	1 st semester/5 th stage 2023-2022
6 Hours/week (total)	2 hours for theory 2 hours for practical (4 hours total)
7 Date of description	2022

8-Course outcomes, teaching methods, learning and evaluation

Course outcomes:

- a. Preparing qualified students who are able to practice the profession of pharmacist in the public and private sectors
- b. Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities.
- c. Harmonization between theoretical trends and practical reality in the pharmaceutical sciences
- d. Enabling students to get acquainted with the tools of scientific research and work to use them in the academic and practical fields.
- e. Keeping abreast of modern scientific developments in pharmacology and working to employ them.

A. Cognitive goals

- 1- Enabling students to acquire and understand clinical toxicology
- 2- Enabling students to get acquainted with the most important references and sources in pharmacy sciences.

B. The skill goals of the program

- 1- Enabling students to possess the capabilities of using modern devices and technologies for the science of pharmacy
- 2- Enabling students to possess the skills of using scientific research tools in the academic and scientific fields
- 3- Enabling students to acquire the skills of dialogue, discussion, listening to others and accepting their opinions.
- 4- Enabling students to possess self-learning skills to acquire new information, skills and knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2- Educating students to respect human dignity.
- 3- Educating students on professional humanitarian work.
- 4- Promote and consolidate professional and ethical values for students to practice the profession of pharmacist.
- 5- Educating students on a culture of integrity and combating corruption in all its forms.
- 6- Supporting drug culture among students and members of society.
- 7 - Enhancing students' spirit of cooperation and teamwork.

Teaching and learning methods for cognitive and skills goals:

1. Using a smart board
2. Using slideshow
3. Periodic reports are required to be submitted by the students

Teaching and learning methods for Affective goals:

- 1 .Emphasis on the necessity of learning and experience in the field of teaching.
- 2 .Discuss teamwork.
- 3 .Writing self-reports.
- 4 .Use the strategy of cooperation and assistance during the education process.
- 5 .Field visits to the relevant ministries and educational institutions.
- 6 .Holding seminars, courses and workshops for students that encourage spiritual values.
7. Forming a discussion group during the lecture.

Evaluation methods for the levels of cognitive and skill teaching and learning processes

1. Periodic reports submitted by the students
2. Conducting oral and written exams
3. Discussion in the classroom by asking questions that encourage linking the material with other study subjects

Evaluation methods for the levels of affective teaching and learning processes and values

- Surprising deductive questions during the discussion in various aspects of education

D. General and professional skills transferred:

(Other skills related to employability and personal development).

1. Discussing various cases of intoxication and finding appropriate treatments for them.
2. Ask brainstorming questions through which the student can relate the study materials to each other and link them to the health reality

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Learning how to evaluate and manage the poisoned patients	Introduction to clinical toxicology	smart board Slideshow	Reports An oral or written exam
2.	2	Determination of intoxication in	Pediatric poisoning and special	=	=

		pediatric and geriatric patients	consideration in the geriatric patient		
3.	2	Toxicity of caffeine, theophylline, antihistamines and decongestants	Over the counter drugs	=	=
4.	2	Toxicity of non-steroidal anti-inflammatory drugs and vitamins	Over the counter drugs	=	=
5.	2	Toxicity of beta blockers and ACE inhibitors	Prescription Medications	=	=
6.	2	Toxicity of digoxin and calcium channel blockers	Prescription Medications	=	=
7.	2	Toxicity of antiarrhythmic agents and hypoglycemic agents	Prescription Medications	=	=
8.		Midterm exam			
9.	2	Toxicity of opioids and CNS depressants	Prescription Medications	=	=
10.	2	Toxicity of tricyclic antidepressants	Prescription Medications	=	=
11.	2	Toxicity of anti-cholinergic phenothiazines	Prescription Medications	=	=
12.	2	Toxicity of CNS stimulants	Prescription Medications	=	=
13.	2	Toxicity of opioids; cocaine; phencyclidine; marijuana; and lysergic acid.	Drug of Abuse	=	=
14.	2	Toxicity of hydrocarbons; household toxins; antiseptic; disinfectants; camphor; and moth	Chemical and environmental toxins		

		repellents.			
15.	2	Toxicity of herbal preparation; toxic plants; and poisonous mushrooms.	Botanicals and plants-derived toxins		

10. Teaching infrastructure

1- Prescribed books required	Textbooks: Gossel TA, Bricker TD, (EDS.); Principles of clinical toxicology; lasts edition.
2- Main references (sources)	Textbooks: Gossel TA, Bricker TD, (EDS.); Principles of clinical toxicology; lasts edition. Viccellio P, (ED.); Handbook of medical toxicology; lasts edition Goldfrank's Toxicologic Emergencies, latest edition
3- Recommended books and references (scientific journals, reports,)	Resources related to clinical toxicology from the Internet or other recent books


11- Course development plan


- a. Suggesting new topics and discussing them
- b. Some curriculum vocabulary has changed in a simple way to keep pace with recent scientific developments
- c. Conducting seminars and seminars inside the branch to discuss modern scientific topics

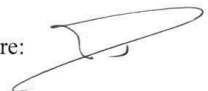
Ministry of higher Education and Scientific Research
Supervisory and Scientific Evaluation division
Quality Assurance and Academic Accreditation Department


The academic program description form for colleges and institutes

University: Mustansiriyah University
College \ institute: College of Pharmacy
Scientific Department: Pharmaceutical Chemistry
Date of form completion: 2022-2023


Signature:
Dr. Wathiq Al-Hachami
Head of department:
Date: 2/3/2023

Signature: 
Dean Assistant for scientific affairs:
Date:

The file verified by
Quality Assurance and Performance Evaluation Division
Head of Quality Assurance and Performance Evaluation Division name:
Dr. Rana Alaa Badri
Date:
Signature: 


Dean

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

1. Educational institution	Ministry of Higher Education and Scientific Research
2. Scientific department / Center	Kut University College/ Department Pharmacy/ Pharmaceutical Chemistry
3. Academic program	Bachelor of Pharmacy
4. The final granted degree	Bachelor
5. The educational system	Courses
6. Accreditation program	ACPE
7. Other external influences	Experimental work
8. Date of description form preparation	2022-2023

9. Academic Program Objective.

To provide students with a good theoretical background in chemical principals that is essential to practice chemical analysis. It enables students to understanding the importance of judging the accuracy and precision of experimental data and techniques of quantitative analysis, and also to show that theory frequently serves as useful guide to the solution of analytical problems. It enables the student to recognize the types of titrations to determine the chemical materials and pharmaceutical compounds.

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

1. Statement of the basic principles in analytical chemistry.
2. Conducting practical experiments of theoretical concepts.
3. Preparing short reports.
4. Enabling the students to develop knowledge and laboratory skills through laboratory work and by using many chemical technologies and devices.

B. The skill goals of the program

1. Enabling the students to use the instruments and laboratory devices.
2. Enabling the students to acquire self-learning skills to acquire new information, skills and knowledge.
3. Enabling the students to acquire the skills of using scientific research tools in the academic and scientific fields.

C. Affective and value goals

1. Developing students' sense of belonging and loyalty to the homeland.
2. Educating the students to respect human dignity.
3. Educating the students on professional humanitarian work.
4. Promote and consolidate the professional and ethical values among students to practice the profession of pharmacist

Teaching and learning methods for cognitive and skills goals:

1. Using the strategy of cooperation and assistance during the learning process.
2. Conducting Field tours to the relevant ministries and educational institutions.
3. Forming discussion groups during the lecture.

Teaching and learning methods for Affective goals:

1. Lectures
2. Conducting experiments
3. Reading textbooks
4. Conducting scientific discussions

Evaluation methods for the levels of cognitive and skill teaching and learning processes

1. Asking Surprising deductive questions during the lecture.

11. The program structure

Educational stage	course code	course name	Credits	
			Theoretical	Practical
First	50102102	Analytical Chemistry	2	2
	50302107	Organic Chemistry I	3	2
Second	50302202	Organic Chemistry II	3	2
	50302207	Organic Chemistry III	2	2
D. General and professional skills transferred:				
Third	50302301	Inorganic Pharmaceutical Chemistry	3	2
	50302307	Organic Pharmaceutical Chemistry I	3	2
Fourth	503 02 402	Organic Pharmaceutical Chemistry II	3	2
	503 02 408	Organic Pharmaceutical Chemistry III	3	2
		scientific reports.		
Fifth	50302502	Organic Pharmaceutical Chemistry IV	2	-
	50302509	Advanced Pharmaceutical Analysis	2	2

1. Writing an experiment report with an explanation of the results.
2. Using the personal computer.

The evaluation methods for the general skills and qualifications transferred

Skills are evaluated through writing a report and continuing with written examinations.

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

1. Fundamentals of Analytical chemistry by skoog and West 8th.ed.(2008).
2. Modern Pharmaceutical Drug Analysis, by L. Zechmeister And L. Von Cholnoky, ISBN (13) : 978-81-224-2718-9

Scheme of curriculum skills																							
Please tick in the corresponding boxes for individual learning outcomes of the program under assessment																							
required learning outcomes of the program																							
Year / Level	Course code	Course name	Basic Or optional	Cognitive goals					Skill goals of the program					Affective and value goals					General and rehabilitative skills				
				A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5
First	20102102 50302107	Analytical Chemistry Organic Chemistry I	Basic		√	√	√	√	√			√		√							√		
Second	20302202 50302207	Organic Chemistry II Organic Chemistry III	Basic		√		√	√	√			√			√						√	√	
Third	50302301	Inorganic Pharmaceutical Chemistry	Basic	√	√		√	√	√		√	√				√						√	

Scheme of curriculum skills

Please tick in the corresponding boxes for individual learning outcomes of the program under assessment

	50302307	Organic Pharmaceutical Chemistry I																						
Four	50302402 50302408	Organic Pharmaceutical Chemistry II Organic Pharmaceutical Chemistry III	Basic	√	√		√	√	√		√	√					√		√		√			
Five	50302502 50302509	Organic Pharmaceutical Chemistry IV Advanced Pharmaceutical Analysis	Basic	√	√		√	√	√	√			√					√	√	√				

required learning outcomes of the program

Year / Level	Course code	Course name	Basic Or optional	Cognitive goals					Skill goals of the program					Affective and value goals					General and rehabilitative skills					
				A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5	D 6
First	50102102	Analytical chemistry	Basic	√	√	√	√		√	√	√			√	√	√	√		√	√	√	√		

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Ministry of Higher Education and Scientific Research
Scientific department \ center	Mustansiriyah University/College of Pharmacy/Pharmaceutical chemistry
2. Course name\ code	Analytical Chemistry\ 503 021 02
3. Available attendance forms	
4. Semester \year	First\ 2022-2023
5. Credits (total)	2
6. Date of description	1-9-2022

8-Course outcomes, teaching methods, learning and evaluation

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	3		Review of elementary concept important to analytical chemistry: strong and weak electrolytes , importance weight and	Lecture	Quiz

			concentration		
2.	3		Review of elementary concept important to analytical chemistry: strong and weak electrolytes , importance weight and concentration	Lecture	Quiz
3.	3		The evaluation to gravimetric data, definition of terms.	Lecture	Quiz
4.	3		The evaluation to gravimetric data, definition of terms.	Lecture	Quiz
5.	3		An introduction to gravimetric analysis statistical analysis of data, rejection of data, precipitation methods	Lecture	Quiz
6.	3		An introduction to gravimetric analysis statistical analysis of data, rejection of data, precipitation methods	Lecture	Quiz
	2		Mid-term exam		
7.	3		The scope of application of gravimetric analysis , inorganic and organic precipitating agents	Lecture	Quiz
8.	3		The scope of application of gravimetric analysis , inorganic and organic precipitating agents	Lecture	Quiz
9.	3		An introduction to volumetric methods of analysis, volumetric calculations acid-base equilibria and PH calculations	Lecture	Quiz
10.	3		An introduction to volumetric methods of analysis, volumetric calculations acid-base equilibria and PH calculations	Lecture	Quiz
11.	3		Theory of neutralization titrations of complex systems	Lecture	Quiz
12.	3		Theory of neutralization titrations of complex systems	Lecture	Quiz
13.	3		Calculation of PH in complex system	Lecture	Quiz
14.	3		Calculation of PH in complex system	Lecture	Quiz
	3		Final exam		

11. Course development plan

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Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

1. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
2. Scientific department / Center	pharmaceutical chemistry
3. Academic program	Part of Bachelor in pharmacy science
4. The final granted degree	Bachelor in pharmacy science
5. The educational system	Semester
6. Accreditation program	Accreditation Council for Pharmacy Education
7. Other external influences	Laboratory teaching+ Theoretical study
8. Date of description form preparation	03/2023
9. Academic Program Objective.	
<ul style="list-style-type: none">• Knowledge of the student and how to synthesize chemical compounds• Knowing the student about the importance of medicines• Student knowledge of how to create drugs.	

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparation of explanatory aids
- Preparing brief reports

B. The skill goals of the program

- Students will demonstrate knowledge in fields of organic chemistry
- Solve samples of questions related to the course

C. Affective and value goals

- Asking questions about topics subject to discussion by students
- Asking questions that students solve for the classroom
- Conducting quick intellectual examinations

Teaching and learning methods for cognitive and skills goals:

Teaching and learning methods for Affective goals:

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparing short reports

Evaluation methods for the levels of affective teaching and learning processes and values

- Oral tests
- Quarterly theoretical exam
- Final theoretical exam

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources
- Generate external questions from these sources
- Urging students to follow educational sequences

Teaching and learning methods for general and qualification skills transferred

- Action Research

- Encouraging readers to read books
- Make raised and seminars
- Participate in workshops

The evaluation methods for the general skills and qualifications transferred

- Quiz
- Oral exam
- Mid-term exam
- Final exam

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

7. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
8. Scientific department \ enter	/ Pharmacist Department / pharmaceutical chemistry
9. Course name\ code	Organic chemistry III / 50302207
10. Available attendance forms	semester
11. Semester \year	2 st / 2023-2024
12. Credits (total)	5
13. Date of description	14-3-2023

8-Course outcomes

- To teach students the principles of heterocyclic chemistry including the fundamental principles and the features, classes and reactions of heterocyclic compounds; it enable students to apply these principles in complicated reactions that involve heteroatoms.

To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. As a result of this knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration

teaching methods

- reading different correlated books
- -use Scientific references
- participate in workshops

, learning

- Power Point, Smart Whit board
- Seminars
- Lecture/ questions and answer
- Power point slide

evaluation

- Homework
- Quiz
- Oral exam
- Report

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	1		Aldol Condensation - Synthesis of Dibenzalacetone	Practical	quiz
	1		Aldol Condensation - Synthesis of Dibenzalacetone (quiz and unknown)	Practical	quiz
	1	Synthesis and reaction	Synthesis of p-Nitro acetanilide from Acetanilide (Electrophilic Aromatic Substitution)	Practical	quiz
	1	Synthesis and reaction	(quiz- unknown Synthesis of p-Nitro acetanilide from Acetanilide (Electrophilic Aromatic Substitution)	Practical	quiz
	1	Synthesis and reaction	Synthesis of p-nitroaniline from aniline based on protection/deprotection of amine group	Practical	quiz
	1	Synthesis and reaction	(Synthesis of p-nitroaniline from aniline based on protection/deprotection of amine group quiz- unknown)	Practical	quiz
	1	reaction	Cross aldol condensation Preparation of 1-(4-	Practical	quiz

			methoxyphenyl)-3-phenylprop-2-en-1-one		
	1		Cross aldol condensation Preparation of 1-(4-methoxyphenyl)-3-phenylprop-2-en-1-one (quiz- unknown)	Practical	
	1	reaction	Canizzaro reaction	Practical	quiz
	1	Synthesis and reaction	Canizzaro reaction (quiz- unknown)	Practical	quiz
	1	Synthesis and reaction	Mechanochemical synthesis of racemic 1,1'-bi-2-naphthol and 2,3-diphenylquinoxaline	Practical	quiz
	1		Mechanochemical synthesis of racemic 1,1'-bi-2-naphthol and 2,3-diphenylquinoxaline (quiz- unknown)	Practical	quiz
	1			Practical	quiz
	1	Synthesis and reaction		Practical	quiz
	3		Final Examination		

11. Course development plan

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Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

9. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
10. Scientific department / Center	pharmaceutical chemistry
11. Academic program	Part of Bachelor in pharmacy science
12. The final granted degree	Bachelor in pharmacy science
13. The educational system	Semester
14. Accreditation program	
15. Other external influences	Laboratory teaching+ Theoretical study
16. Date of description form preparation	/03/2023
9. Academic Program Objective.	
<ul style="list-style-type: none"> • The student's knowledge of the types of effective groups • How to detect these groups • Distinguish between one group and another 	

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparation of explanatory aids
- Preparing brief reports

B. The skill goals of the program

- Students will demonstrate knowledge in fields of organic chemistry
- Solve samples of questions related to the course

C. Affective and value goals

- Asking questions about topics subject to discussion by students
- Asking questions that students solve for the classroom
- Conducting quick intellectual examinations

Teaching and learning methods for cognitive and skills goals:

Teaching and learning methods for Affective goals:

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparing short reports

Evaluation methods for the levels of affective teaching and learning processes and values

- Oral tests
- Quarterly theoretical exam
- Final theoretical exam

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources
- Generate external questions from these sources

<ul style="list-style-type: none"> • Urging students to follow educational sequences
<p>Teaching and learning methods for general and qualification skills transferred</p> <ul style="list-style-type: none"> • Action Research • Encouraging readers to read books • Make raised and seminars • Participate in workshops
<p>The evaluation methods for the general skills and qualifications transferred</p> <ul style="list-style-type: none"> • Quiz • Oral exam • Mid-term exam • Final exam

<p>12. Planning for personal development</p>
<p>1-Preparing a curriculum plan for each subject by the teaching staff.</p> <p>2- Follow the program carefully.</p> <p>3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.</p> <p>4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation</p>
<p>13. Admission Criteria</p> <p>(establishing regulations related to college or institute admission)</p> <p>The central admission standards have been applied to the college since the 2015 academic year</p>
<p>14. The most important sources of information about the program</p>

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

14. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
15. Scientific department \ enter	/ Pharmacist Department / pharmaceutical chemistry
16. Course name\ code	Organic chemistry II / 50302202
17. Available attendance forms	semester
18. Semester \year	1 st / 2022-2023
19. Credits (total)	45
20. Date of description	1-9-2022

8-Course outcomes

- Be able to explain the reactivity of substituted aromatic compounds.
- Be looking to the relationship between aromatic structure and reactivity.
- To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds.

It includes understanding the basic structure and properties of Benzene, Aromatic compounds, Carboxylic acids, Functional derivatives of carboxylic acids, Aldehydes, Ketones, Phenols and Amines, in addition to the principles and application of these compounds

teaching methods

- reading different correlated books

- -use Scientific references
- participate in workshops

, learning

- Power Point, Smart Whit board
- Seminars
- Lecture/ questions and answer
- Power point slide

evaluation

- Homework
- Quiz
- Oral exam
- Report

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	2	Synthesis	Solubility class	Practical	quiz
	2	reaction	Solubility class(quiz and unknown)	Practical	quiz
	2	Synthesis and reaction	Identification of Alcohols	Practical	quiz
	2	Synthesis and reaction	Identification of Alcohols (quiz-unknown)	Practical	quiz
	2	Synthesis and reaction	Identification of Phenols	Practical	quiz
	2	Synthesis and reaction	Identification of Phenols (quiz-unknown)	Practical	quiz
	2	Synthesis and reaction	Identification of Aldehydes and ketones	Practical	quiz
	1.5		Mid Examination		
	2	Synthesis and reaction	Identification of Aldehydes and ketones (quiz-	Practical	quiz

			unknown)		
	2	Synthesis and reaction	Identification of Carboxylic acid	Practical	quiz
	2	Synthesis and reaction	Identification of Carboxylic acid (quiz- unknown)	Practical	quiz
	2	Synthesis and reaction	Identification of Amines	Practical	quiz
	2	Synthesis and reaction	Identification of Salt of carboxylic acid	Practical	quiz
	2	Synthesis and reaction	Identification of Salt of carboxylic acid (quiz- unknown)	Practical	quiz
	3		Final Examination		

11. Course development plan

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

17. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
18. Scientific department / Center	pharmaceutical chemistry
19. Academic program	Part of Bachelor in pharmacy science
20. The final granted degree	Bachelor in pharmacy science
21. The educational system	Semester
22. Accreditation program	Accreditation Council for Pharmacy Education
23. Other external influences	Laboratory teaching+ Theoretical study
24. Date of description form preparation	/03/2023
<p>9. Academic Program Objective.</p> <ul style="list-style-type: none"> • Be able to explain the reactivity of substituted aromatic compounds. • Be looking to the relationship between aromatic structure and reactivity. • To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. • It includes understanding the basic structure and properties of Benzene, Aromatic compounds, Carboxylic acids, Functional derivatives of carboxylic 	

acids, Aldehydes, Ketones, Phenols and Amines, in addition to the principles and application of these compounds.

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparation of explanatory aids
- Preparing brief reports

B. The skill goals of the program

- Students will demonstrate knowledge in fields of organic chemistry
- Solve samples of questions related to the course

C. Affective and value goals

- Asking questions about topics subject to discussion by students
- Asking questions that students solve for the classroom
- Conducting quick intellectual examinations

Teaching and learning methods for cognitive and skills goals:

Teaching and learning methods for Affective goals:

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparing short reports

Evaluation methods for the levels of affective teaching and learning processes and values

- Oral tests
- Quarterly theoretical exam
- Final theoretical exam

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources
- Generate external questions from these sources
- Urging students to follow educational sequences

Teaching and learning methods for general and qualification skills transferred

- Action Research
- Encouraging readers to read books
- Make raised and seminars
- Participate in workshops

The evaluation methods for the general skills and qualifications transferred

- Quiz
- Oral exam
- Mid-term exam
- Final exam

11. The program structure

Educational stage	course code	course name	Credits	
			Theoretical	Practical
2 nd stage	50302202	Organic chemistry II	3	2

12. Planning for personal development

1-Preparing a curriculum plan for each subject by the teaching staff.

2- Follow the program carefully.

3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.

4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

21. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
22. Scientific department \ enter	/ Pharmacist Department / pharmaceutical chemistry
23. Course name\ code	Organic chemistry II / 50302202
24. Available attendance forms	semester
25. Semester \year	1 st / 2022-2023
26. Credits (total)	45
27. Date of description	1/09/2022

8-Course outcomes

- Be able to explain the reactivity of substituted aromatic compounds.
- Be looking to the relationship between aromatic structure and reactivity.
- To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds.

It includes understanding the basic structure and properties of Benzene, Aromatic compounds, Carboxylic acids, Functional derivatives of carboxylic acids, Aldehydes, Ketones, Phenols and Amines, in addition to the principles and application of these compounds

teaching methods

- reading different correlated books
- -use Scientific references
- participate in workshops

, learning

- Power Point, Smart Whit board
- Seminars
- Lecture/ questions and answer
- Power point slide

evaluation

- Homework
- Quiz
- Oral exam
- Report

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	3	Synthesis	Benzene and aromatic compounds	Lectures	quiz
	3	reaction	Electrophilic Aromatic Substitution	Lectures	quiz
	3	Synthesis and reaction	Phenols I	Lectures	quiz
	3	Synthesis and reaction	Phenols II	Lectures	quiz
	3	Synthesis and reaction	Carboxylic acids I	Lectures	quiz
	3	Synthesis and reaction	Carboxylic acids II	Lectures	quiz
	4.5	Synthesis and reaction	Functional Derivatives of Carboxylic acids I	Lectures	quiz

	1.5		Mid Examination		
	3	Synthesis and reaction	Functional Derivatives of Carboxylic acids II	Lectures	quiz
	3	Synthesis and reaction	Aldehydes I	Lectures	quiz
	3	Synthesis and reaction	Aldehydes II	Lectures	quiz
	3	Synthesis and reaction	Ketones	Lectures	quiz
	3	Synthesis and reaction	Amines I	Lectures	quiz
	3	Synthesis and reaction	Amines II	Lectures	quiz
	3		Final Examination		

11. Course development plan

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

25. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
26. Scientific department / Center	pharmaceutical chemistry
27. Academic program	Part of Bachelor in pharmacy science
28. The final granted degree	Bachelor in pharmacy science
29. The educational system	Semester
30. Accreditation program	Accreditation Council for Pharmacy Education
31. Other external influences	Laboratory teaching+ Theoretical study
32. Date of description form preparation	03/2023

9. Academic Program Objective.

- Be able to explain the reactivity of substituted aromatic compounds.
- Be looking to the relationship between aromatic structure and reactivity.
- To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds.
- It includes understanding the basic structure and properties of Benzene, Aromatic compounds, Carboxylic acids, Functional derivatives of carboxylic acids, Aldehydes, Ketones, Phenols and Amines, in addition to the principles and application of these compounds.

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparation of explanatory aids
- Preparing brief reports

B. The skill goals of the program

- Students will demonstrate knowledge in fields of organic chemistry
- Solve samples of questions related to the course

C. Affective and value goals

- Asking questions about topics subject to discussion by students
- Asking questions that students solve for the classroom
- Conducting quick intellectual examinations

Teaching and learning methods for cognitive and skills goals:

Teaching and learning methods for Affective goals:

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- Statement of knowledge and basic principles in chemistry
- Conducting practical experiments of theoretical concepts
- Preparing short reports

Evaluation methods for the levels of affective teaching and learning processes and values

- Oral tests
- Quarterly theoretical exam
- Final theoretical exam

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources
- Generate external questions from these sources
- Urging students to follow educational sequences

Teaching and learning methods for general and qualification skills transferred

- Action Research
- Encouraging readers to read books
- Make raised and seminars
- Participate in workshops

The evaluation methods for the general skills and qualifications transferred

- Quiz
- Oral exam
- Mid-term exam
- Final exam

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

28. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
29. Scientific department \ enter	/ Pharmacist Department / pharmaceutical chemistry
30. Course name\ code	Organic chemistry III / 50302207
31. Available attendance forms	semester
32. Semester \year	1 st / 2022-2023
33. Credits (total)	30
34. Date of description	03/2023

8-Course outcomes

- To teach students the principles of heterocyclic chemistry including the fundamental principles and the features, classes and reactions of heterocyclic compounds; it enable students to apply these principles in complicated reactions that involve heteroatoms.

To understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. It aids the pharmacists in their attempt to predict the solubility, compatibility and biological activity of drug products. As a result of this knowledge it will help in the development of new drugs and dosage forms as well as in improvement of various modes of administration

teaching methods

- reading different correlated books
- -use Scientific references
- participate in workshops

, learning

- Power Point, Smart Whit board
- Seminars
- Lecture/ questions and answer
- Power point slide

evaluation

- Homework
- Quiz
- Oral exam
- Report

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	1.5		Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal products. I (Theory)	Lectures	quiz
	2		Heterocyclic system: Classes of heterocyclic systems; general structures; properties; Occurrence in nature and in medicinal	Lectures	quiz

			products. II		
	2	Synthesis and reaction	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen. I	Lectures	quiz
	2	Synthesis and reaction	Five-membered ring heterocyclic compounds: pyrrole; furan and thiophen. II	Lectures	quiz
	2	Synthesis and reaction	Source of pyrrole, furan and thiophen. I	Lectures	quiz
	2	Synthesis and reaction	Source of pyrrole, furan and thiophen. II	Lectures	quiz
	2	reaction	Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation. I	Lectures	quiz
	1.5		Mid Examination		
	2	reaction	Electrophilic substitution in pyrrole, furan and thiophen: Reactivity and orientation. II	Lectures	quiz
	2	Synthesis and reaction	Six-membered ring heterocyclic compounds: Structure & reactions of pyridine. I	Lectures	quiz
	2	Synthesis and reaction	Six-membered ring heterocyclic compounds: Structure &	Lectures	quiz

			reactions of pyridine. II		
	2		Saturated five-membered heterocyclic compounds I	Lectures	quiz
	2		Saturated five-membered heterocyclic compounds II	Lectures	quiz
	2	Synthesis and reaction	Heterocyclic of five & six member rings with two & three heteroatoms.	Lectures	quiz
	3		Final Examination		

11. Course development plan

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

33. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
34. Scientific department / Center	Pharmaceutical Chemistry Department / AL-Mustansiriyah University
35. Academic program	In organic Pharamaceutical chemistry / 1 st course
36. The final granted degree	B.Sc. pharmacy
37. The educational system	Year / courses
38. Accreditation program	Part of B.Sc. of pharmacy
39. Other external influences	Work in laboratory
40. Date of description form preparation	1/09/2022

9. Academic Program Objective.

- 1- know the biological activity , if present in chemical structure
- 2-study all the functional groups for the drugs
- 3- study the relationship between functional groups and biological activity
- 4-know some of drug classes including preparation and identification
- 5-explain how to avoid the side effects of drugs during the study

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- 1-knowing the principle of pharmaceutical chemistry
- 2-Experimental work for theoretical concepts
- 3-prepare brief reports
- 4- prepare illustrative means

B. The skill goals of the program

- 1-illustrative means
- 2-solve some of problems related to the program

C. Affective and value goals

- 1-ask questions about topics can be discussed by the students
- 3-ask questions and the student try to solve it
- 2- make short Quizzes

Teaching and learning methods for cognitive and skills goals:

- 1- Lectures
- 2- Reading the methodology books
- 3- Scientific discussions

Teaching and learning methods for Affective goals:

- 1- Oral exams
- 2- Sudden written exams
- 3- Discussion between students in presence of the lecturer

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 1- Lectures
- 2- Experimental work
- 3- Homework
- 4- rapid quizzes

Evaluation methods for the levels of affective teaching and learning processes and values

- 1- oral exam
- 2- sudden written exams
- 3- Discussion between students in presence of the lecturer

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- 1- Read external references
- 2- Prepare external questions from these sources

Teaching and learning methods for general and qualification skills transferred

Make the student more confident for the scientific discussions

The evaluation methods for the general skills and qualifications transferred

Make the student more informative

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

- 1-Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry

12^{ve} ed. John M. Beale, Jr., John H. Block

2 -Inorganic Medicinal and Pharmaceutical Chemistry by block, Roche Soine and Wilson.

Latest addition.

3- Foye's Principles of Medicinal Chemistry by David A. Williams and Thomas L.Lemke.

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

35. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
36. Scientific department \ enter	Pharmaceutical chemistry
37. Course name\ code	Inorganic pharmaceutical chemistry / 503 02 301
38. Available attendance forms	courses
39. Semester \year	First /2022-2023
40. Credits (total)	Theory(2) practical (2) total (4)
41. Date of description	1/09/2022

8-Course outcomes, teaching methods, learning and evaluation

- 1- know the biological activity , if present in chemical structure
- 2- study all the functional groups for the drugs
- 3- study the relationship between functional groups and biological activity
- 4- know some of drug classes including preparation and identification
- 5- explain how to avoid the side effects of drugs during the study

9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	2hrs / theory	Medical & pharmaceutical application	Atomic and molecular structure/complications	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Atomic and molecular structure/complications	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Atomic and molecular structure/complications	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Atomic and molecular structure/complications	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Gastrointestinal agents: Fluoride, bromide, lithium, gold, silver and mercury	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Protective adsorbents	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Topical agents	lectures	Quiz and discussion
		Mid-examination			
	2hrs / theory	Medical & pharmaceutical application	Dental agents	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Dental agents	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Radiopharmaceutical preparations	lectures	Quiz and discussion
	2hrs / theory	Medical & pharmaceutical application	Radiopharmaceutical preparations	lectures	Quiz and discussion
	2hrs / theory	Medical	Radio opaque and	lectures	Quiz and

		&pharmaceuti- cal application	contrast media		discussion
	2hrs / theory	Medical &pharmaceuti- cal application	Dental agents	lectures	Quiz and discussion
		Final examination			

11. Course development plan

1- Books :

Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry
12^{ve} ed. John M. Beale, Jr., John H Block.

2- Refrences: -

.Inorganic Medicinal and Pharmaceutical Chemistry by block, Roche Soine and Wilson

.Latest addition

Foye's Principles of Medicinal Chemistry by David A. Williams and
Thomas L.Lemke

3- internet websites:

Google for searching practical pharmaceutical chemistry

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

41. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
42. Scientific department / Center	Kut University College/ / Pharmacist Department/ Department of Pharmaceutical Chemistry
43. Academic program	Practical Inorganic Pharmaceutical Chemistry
44. The final granted degree	Bachelors' of Pharmacy
45. The educational system	Semester System
46. Accreditation program	ACPE
47. Other external influences	Performing laboratory experiments
48. Date of description form preparation	1/09/2022
9. Academic Program Objective. 1st semester:	
The program aims to teach the 3 rd year student:	
1- The chemical calculations	
2- Principles of the chemical equilibrium of acids, bases and buffers' solution	
3- Calibrations of the acids and bases in aqueous and non-aqueous solutions	

- 4- Calibrations of precipitations, complexes formations and oxidation-reduction
- 5- Emphasize that the analytical applications should include inorganic and organic pharmaceuticals
- 6- Calculate the percentage weight of the active materials
- 7- The procedure of samples' identification and evaluation

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goalst

- 1- Explain the knowledge and principle concepts of chemistry
- 2- Perform the practical experiments related to the theoretical concepts
- 3- Prepare illustration tools
- 4- Prepare briefed reports

B. The skill goals of the program

- 1- The illustration tools
- 2- Answer samples of the questions related to the syllabus
- 3- Perform the practical experiments

C. Affective and value goals

- 1- The student should consider the opinions of his/her colleagues that related to the discussion of any subject
- 2- Encourage the student to offer the help and support to his/her colleagues to complete their assignments and researches
- 3- The students should perform some of the practical experiments based on the teamwork

Teaching and learning methods for cognitive and skills goals:

- 1- Using smart board to present the lectures
- 2- Performing scientific experiments
- 3- Reading the scientific books that are related to the syllabus
- 4- Performing the scientific discussions

Evaluation methods for the levels of cognitive and skill teaching and learning processes

1. Performing unexpected oral and written exams
2. Performing practical exams after completing each experiment
3. The students perform discussions in groups under the supervision of the lecturer

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- 1- Identify and improve students' laboratory practical skills
- 2- Identify and improve students' computer skills that are related to the subject
- 3- Teach students how to perform and present the scientific discussions.
- 4- Enhance the confidence of the students by conducting scientific discussions using modern methods.

Teaching and learning methods for general and qualification skills transferred

- 1- Lectures
- 2- Perform practical experiments
- 3- Home works
- 4- Unexpected exams

The evaluation methods for the general skills and qualifications transferred

- 1- Oral exams
- 2- Unexpected written exams.
- 3- Practical exams after each experiments
- 4- Write a report to discuss the performed experiments

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2005 academic year

14. The most important sources of information about the program

- 1-Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry 12^{ve} ed. John M. Beale, Jr., John H. Block
- 2 - Inorganic Medicinal and Pharmaceutical Chemistry by block, Roche Soine and Wilson.
- 3- Practical pharmaceutical chemistry A.H.Beckett ,J.B.Stenlake. First Edition.)practical)
- 4- Foye's Principles of Medicinal Chemistry by David A. Williams and Thomas L.Lemke.
- 5- Selected Experiments of pharmaceutical analysisBy Anees A.Siddiqui. First Edition,2010. (practical)

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

42. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
43. Scientific department \ enter	Mustansiriyah University / College of Pharmacy/ Department of Pharmaceutical Chemistry
44. Course name\ code	Practical Inorganic Pharmaceutical Chemistry 50302301
45. Available attendance forms	
46. Semester \year	1 st and 2 nd semester 2022-2023
47. Credits (total)	Theory (3hours. Practical(2 hours) total 5 hours
48. Date of description	1/09/2022

8-Course outcomes, teaching methods, learning and evaluation

- 1- The chemical calculations -1
- 2- Principles of the chemical equilibrium of acids, bases and buffers' solution
- 3- Calibrations of the acids and bases in aqueous and non-aqueous solutions
- 4- Calibrations of precipitations, complexes formations and oxidation-reduction
- 5- Emphasize that the analytical applications should include inorganic and organic pharmaceuticals
- 6- Calculate the percentage weight of the active materials
- 7- The procedure of samples' identification and evaluation

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	2h Practical	Medical and pharmaceutical Identification and application	Assay of sodium carbonate.	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of NaOH solution	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of zinc oxide	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Preparation and standardization of 0.1N Potassium Permanganate solution	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of ferrous sulfate	Practical part	Oral and written exams Discussions

		application			
	2h Practical	Medical and pharmaceutical Identification and application	Iodometric and iodometric titration	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Preparation and standardization of 0.1N Iodine solution.	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of copper sulfate		Oral and written exams Discussions
		Medical and pharmaceutical Identification and application	Preparation and standardization of 0.1N silver nitrate solution	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Partition coefficient of succinic acid	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of indomethacin	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of aspirin by direct titration	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of aspirin by indirect	Practical part	Oral and written exams Discussions

			titration		
	2h Practical	Medical and pharmaceutical Identification and application	Assay of Furosemide (Lasix(Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Review before final exam	Practical part	Oral and written exams Discussions

11. Course development plan

The syllabus is planned based on two stages :

The first stage includes writing the description of the syllabus. The second stage aims to prepare the syllabus's plan to be the basic leader of the teaching process in terms of application and evaluation. The aim of that planning is to enhance the communication between students and the teaching staff member, help the students to evaluate their ability to complete the syllabus, monitor the students' achievements and provide the students with the basics to evaluate the .syllabus and determine to what extent that syllabus is beneficial

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

49. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
50. Scientific department / Center	Kut University College/ / Pharmacist Department/ Department of Pharmaceutical Chemistry
51. Academic program	Practical Inorganic Pharmaceutical Chemistry
52. The final granted degree	Bachelors' of Pharmacy
53. The educational system	Semester System
54. Accreditation program	ACPE
55. Other external influences	Performing laboratory experiments
56. Date of description form preparation	1/09/2022
9. Academic Program Objective. 1st semester: The program aims to teach the 3 rd year student: 1- The chemical calculations 2- Principles of the chemical equilibrium of acids, bases and buffers' solution	

3- Calibrations of the acids and bases in aqueous and non-aqueous solutions

4- Calibrations of precipitations, complexes formations and oxidation-reduction

5- Emphasize that the analytical applications should include inorganic and organic pharmaceuticals

6- Calculate the percentage weight of the active materials

7- The procedure of samples' identification and evaluation

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goalst

1- Explain the knowledge and principle concepts of chemistry

2- Perform the practical experiments related to the theoretical concepts

3- Prepare illustration tools

4- Prepare briefed reports

B. The skill goals of the program

1- The illustration tools

2- Answer samples of the questions related to the syllabus

3- Perform the practical experiments \

C. Affective and value goals

1- The student should consider the opinions of his/her colleagues that related to the discussion of any subject

2- Encourage the student to offer the help and support to his/her colleagues to complete their assignments and researches

3- The students should perform some of the practical experiments based on the teamwork

Teaching and learning methods for cognitive and skills goals:

- 1- Using smart board to present the lectures
- 2- Performing scientific experiments
- 3- Reading the scientific books that are related to the syllabus
- 4- Performing the scientific discussions

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 5- Performing unexpected oral and written exams
- 6- Performing practical exams after completing each experiment
- 7- The students perform discussions in groups under the supervision of the lecturer

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- 5- Identify and improve students' laboratory practical skills
- 6- Identify and improve students' computer skills that are related to the subject
- 7- Teach students how to perform and present the scientific discussions.
- 8- Enhance the confidence of the students by conducting scientific discussions using modern methods.

Teaching and learning methods for general and qualification skills transferred

- 5- Lectures
- 6- Perform practical experiments
- 7- Home works
- 8- Unexpected exams

The evaluation methods for the general skills and qualifications transferred

- 5- Oral exams
- 6- Unexpected written exams.
- 7- Practical exams after each experiments
- 8- Write a report to discuss the performed experiments

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

1-Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry 12^{ve} ed. John M. Beale, Jr., John H. Block

2 - Inorganic Medicinal and Pharmaceutical Chemistry by block, Roche Soine and Wilson.

3- Practical pharmaceutical chemistry A.H.Beckett ,J.B.Stenlake. First Edition.)practical)

4- Foye's Principles of Medicinal Chemistry by David A. Williams and Thomas L.Lemke.

5- Selected Experiments of pharmaceutical analysisBy Anees A.Siddiqui. First Edition,2010. (practical)

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

49. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
50. Scientific department \ enter	Mustansiriyah University / College of Pharmacy/ Department of Pharmaceutical Chemistry
51. Course name\ code	Practical Inorganic Pharmaceutical Chemistry 50302301 Practical organic pharmaceutical Chemistry (5030230
52. Available attendance forms	Semester System
53. Semester \year	1 st semester 2022-2023
54. Credits (total)	Theory (3hours. Practical(2 hours) total 5 hours
55. Date of description	1/09/2022

8-Course outcomes, teaching methods, learning and evaluation

- 1- The chemical calculations -2
- 2- Principles of the chemical equilibrium of acids, bases and buffers' solution
- 3- Calibrations of the acids and bases in aqueous and non aqueous solutions
- 4- Calibrations of precipitations, complexes formations and oxidation-reduction
- 5- Emphasize that the analytical applications should include inorganic and organic pharmaceuticals
- 6- Calculate the percentage weight of the active materials
- 7- The procedure of samples' identification and evaluation

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	2h Practical	Medical and pharmaceutical Identification and application	Assay of sodium carbonate.	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of NaOH solution	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of zinc oxide	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Preparation and standardization of 0.1N Potassium Permanganate solution	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of ferrous sulfate	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification	Iodometric and iodometric	Practical part	Oral and written exams Discussions

		and application	titration		
	2h Practical	Medical and pharmaceutical Identification and application	Preparation and standardization of 0.1N Iodine solution.	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of copper sulfate		Oral and written exams Discussions
	2h practical	Medical and pharmaceutical Identification and application	Preparation and standardization of 0.1N silver nitrate solution	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Partition coefficient of succinic acid	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of indomethacin	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of aspirin by direct titration	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of aspirin by indirect titration	Practical part	Oral and written exams Discussions
	2h Practical	Medical and pharmaceutical Identification and application	Assay of Furosemide (Lasix)	Practical part	Oral and written exams Discussions

	2h Practical	Medical and pharmaceutical Identification and application	Review before final exam	Practical part	Oral and written exams Discussions

11. Course development plan

The syllabus is planned based on two stages :

The first stage includes writing the description of the syllabus. The second stage aims to prepare the syllabus's plan to be the basic leader of the teaching process in terms of application and evaluation. The aim of that planning is to enhance the communication between students and the teaching staff member, help the students to evaluate their ability to complete the syllabus, monitor the students' achievements and provide the students with the basics to evaluate the .syllabus and determine to what extent that syllabus is beneficial

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

57. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
58. Scientific department / Center	pharmaceutical chemistry
59. Academic program	Part of Bachelor in pharmacy science
60. The final granted degree	Bachelor in pharmacy science
61. The educational system	Semester
62. Accreditation program	Accreditation Council for Pharmacy Education
63. Other external influences	Laboratory teaching+ Theoretical study
64. Date of description form preparation	/03/2023
9. Academic Program Objective.	
<ul style="list-style-type: none"> • The course discusses different drugs affecting adrenergic and cholinergic receptors and CNS depressant; CNS stimulant. Analgesics either these having narcotic action and those of non- narcotic activity as well as non - steroidal anti-inflammatory agents and drugs used for the treatment of gout will be studied. Moreover, the drugs acting as H1 and H2 antagonists are presented. Steroidal and non- steroidal hormones. The chemical structure,, 	

the mechanism of action and structure activity relationship of such group of the studied drugs will be illustrated

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- Statement of knowledge and basic principles in organic pharmaceutical chemistry
- Conducting practical experiments of theoretical concepts
- Preparation of explanatory aids
- Preparing brief reports

B. The skill goals of the program

- Students will demonstrate knowledge in fields of organic pharmaceutical chemistry
- Solve samples of questions related to the course

C. Affective and value goals

- Asking questions about topics subject to discussion by students
- Asking questions that students solve for the classroom
- Conducting quick intellectual examinations

Teaching and learning methods for cognitive and skills goals:

Teaching and learning methods for Affective goals:

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- Statement of knowledge and basic principles in organic pharmaceutical chemistry
- Conducting practical experiments of theoretical concepts
- Preparing short reports

Evaluation methods for the levels of affective teaching and learning processes and values

- Oral tests
- Quarterly theoretical exam
- Final theoretical exam

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources
- Generate external questions from these sources
- Urging students to follow educational sequences

Teaching and learning methods for general and qualification skills transferred

- Action Research
- Encouraging readers to read books
- Make raised and seminars
- Participate in workshops

The evaluation methods for the general skills and qualifications transferred

- Quiz
- Oral exam
- Mid-term exam
- Final exam

12. Planning for personal development

1-Preparing a curriculum plan for each subject by the teaching staff.

2- Follow the program carefully.

3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.

4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

56. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
57. Scientific department \ enter	/ Pharmacist Department / pharmaceutical chemistry
58. Course name\ code	Organic pharmaceutical chemistry II / 50302402
59. Available attendance forms	semester
60. Semester \year	1 st / 2022-2023
61. Credits (total)	45
62. Date of description	1/09/2023

8-Course outcomes

- ..Predict the biological response, if any from the chemical structure•
- .Know the chemistry of different groups of the studied drugs•
- .Relate between the chemical structure and biological activity of the drugs•
- .Know some drug classes including preparation, identity and assay procedures•
- .Demonstrate how to avoid undesirable side effects of the studied drugs•

teaching methods

- reading different correlated books
- -use Scientific references

- participate in workshops

, learning

- Power Point, Smart Whit board
- Seminars
- Lecture/ questions and answer
- Power point slide

evaluation

- Homework
- Quiz
- Oral exam
- Report

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	3	structure activity relationships and mechanism of action	Cholinergic receptors and their subtypes. Stereochemistry and structure activity relationships .(SAR); products	Lectures	quiz
	3	structure activity relationships and mechanism of action	Cholinesterase inhibitors. Structure activity relationships (SAR). Solanaceous alkaloid and analogues, synthetic cholinergic blocking agents, products	Lectures	quiz
	3	structure activity relationships	Ganglionic blocking agents	Lectures	quiz

		and mechanism of action	(neuromuscular blocking agents		
	3	structure activity relationships and mechanism of action	Structure and Physicochemical Properties, Biosynthesis Storage, Release, Uptake, and Metabolism	Lectures	quiz
	3	structure activity relationships and mechanism of action	α -Adrenergic Receptors, β -Adrenergic Receptors Drugs Affecting Catecholamine Biosynthesis	Lectures	quiz
	3	structure activity relationships and mechanism of action	Drugs Affecting Catecholamine Storage and Release, Direct-Acting Sympathomimetic endogenous catecholamines)(SAR	Lectures	quiz
	3	structure activity relationships and mechanism of action	α -adrenergic receptor agonists . B-adrenergic receptor agonists, and Indirect-Acting Sympathomimetics ,. α -blockers	Lectures	quiz
	3		Mid Examination		
	3	structure activity relationships and mechanism of action	Nonselective α – blockers, Irreversible α -blockers, Selective α 1-blockers. β -blockers, nonselective β -	Lectures	quiz

			.blockers		
	3	structure activity relationships and mechanism of action	Structure– Activity Relationships Of NSAIDs, Mechanism of Action and NSAID-Induced Side Effects, enzymatic structure of Cyclooxygenases, classes of COX ,inhibitor	Lectures	quiz
	3	structure activity relationships and mechanism of action	SAR of morphine, meperidine, type molecules, methadone , type molecules, N- methyl- benzomorphans, antagonist type analgesics in benzomorphans	Lectures	quiz
	3	structure activity relationships and mechanism of action	Endogenous opioids, structure- activity relationships (SAR), Products and. Antitussive .agents	Lectures	quiz
	3	structure activity relationships and mechanism of action	CNS depressant; . Benzodiazepines and related compounds. Analeptics, central sympathomimetic Agents, methyl xanthine. Barbiturates. Mechanism of	Lectures	quiz

			action of .Antipsychotics		
	3	structure activity relationships and mechanism of action	Anticonvulsants, Clinically important Anticonvulsants. Biological Activities of Mineralocorticoids and Glucocorticoids, Steroids Sex Hormones, progestins and androgens	Lectures	quiz
	3		Final Examination		

11. Course development plan

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

65. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
66. Scientific department / Center	pharmaceutical chemistry
67. Academic program	Part of Bachelor in pharmacy science
68. The final granted degree	Bachelor in pharmacy science
69. The educational system	Semester
70. Accreditation program	Accreditation Council for Pharmacy Education
71. Other external influences	Laboratory teaching+ Theoretical study
72. Date of description form preparation	03/2023
9. Academic Program Objective.	
<ul style="list-style-type: none"> The course discusses different drugs affecting adrenergic and cholinergic receptors and CNS depressant; CNS stimulant. Analgesics either these having narcotic action and those of non- narcotic activity as well as non - steroidal anti-inflammatory agents and drugs used for the treatment of gout will be studied. Moreover, the drugs acting as H1 and H2 antagonists are presented. Steroidal and non- steroidal hormones. The chemical structure,, the mechanism of action and structure activity relationship of such group of the studied drugs will be illustrated 	

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- Statement of knowledge and basic principles in organic pharmaceutical chemistry
- Conducting practical experiments of theoretical concepts
- Preparation of explanatory aids
- Preparing brief reports

B. The skill goals of the program

- Students will demonstrate knowledge in fields of organic pharmaceutical chemistry
- Solve samples of questions related to the course

C. Affective and value goals

- Asking questions about topics subject to discussion by students
- Asking questions that students solve for the classroom
- Conducting quick intellectual examinations

Teaching and learning methods for cognitive and skills goals:

Teaching and learning methods for Affective goals:

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- Statement of knowledge and basic principles in organic pharmaceutical chemistry
- Conducting practical experiments of theoretical concepts
- Preparing short reports

Evaluation methods for the levels of affective teaching and learning processes and values

- Oral tests
- Quarterly theoretical exam
- Final theoretical exam

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources
- Generate external questions from these sources
- Urging students to follow educational sequences

Teaching and learning methods for general and qualification skills transferred

- Action Research
- Encouraging readers to read books
- Make raised and seminars
- Participate in workshops

The evaluation methods for the general skills and qualifications transferred

- Quiz
- Oral exam
- Mid-term exam
- Final exam

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

63. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
64. Scientific department \ enter	/ Pharmacist Department / pharmaceutical chemistry
65. Course name\ code	Organic pharmaceutical chemistry II / 50302402
66. Available attendance forms	semester
67. Semester \year	1 st / 2022-2023
68. Credits (total)	45
69. Date of description	1/09/2022

8-Course outcomes

- ..Predict the biological response, if any from the chemical structure•
- .Know the chemistry of different groups of the studied drugs•
- .Relate between the chemical structure and biological activity of the drugs•
- .Know some drug classes including preparation, identity and assay procedures•
- .Demonstrate how to avoid undesirable side effects of the studied drugs•

teaching methods

- reading different correlated books
- -use Scientific references
- participate in workshops

, learning

- Power Point, Smart Whit board
- Seminars
- Lecture/ questions and answer
- Power point slide

evaluation

- Homework
- Quiz
- Oral exam
- Report

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
	3	structure activity relationships and mechanism of action	Cholinergic receptors and their subtypes. Stereochemistry and structure activity relationships .(SAR); products	Lectures	quiz
	3	structure activity relationships and mechanism of action	Cholinesterase inhibitors. Structure activity relationships (SAR). Solanaceous alkaloid and analogues, synthetic cholinergic blocking agents, products	Lectures	quiz
	3	structure activity	Ganglionic blocking agents	Lectures	quiz

		relationships and mechanism of action	(neuromuscular blocking agents)		
	3	structure activity relationships and mechanism of action	Structure and Physicochemical Properties, Biosynthesis Storage, Release, Uptake, and Metabolism	Lectures	quiz
	3	structure activity relationships and mechanism of action	α -Adrenergic Receptors, β -Adrenergic Receptors Drugs Affecting Catecholamine Biosynthesis	Lectures	quiz
	3	structure activity relationships and mechanism of action	Drugs Affecting Catecholamine Storage and Release, Direct-Acting Sympathomimetic endogenous catecholamines) (SAR	Lectures	quiz
	3	structure activity relationships and mechanism of action	α -adrenergic receptor agonists . B-adrenergic receptor agonists, and Indirect-Acting Sympathomimetics ,. α -blockers	Lectures	quiz
	3		Mid Examination		
	3	structure activity relationships and mechanism	Nonselective α – blockers, Irreversible α -blockers, Selective α 1-blockers. β -	Lectures	quiz

		of action	blockers, nonselective β - .blockers		
	3	structure activity relationships and mechanism of action	Structure– Activity Relationships Of NSAIDs, Mechanism of Action and NSAID-Induced Side Effects, enzymatic structure of Cyclooxygenases, classes of COX ,inhibitor	Lectures	quiz
	3	structure activity relationships and mechanism of action	SAR of morphine, meperidine, type molecules, methadone , type molecules, N- methyl- benzomorphans, antagonist type analgesics in benzomorphans	Lectures	quiz
	3	structure activity relationships and mechanism of action	Endogenous opioids, structure- activity relationships (SAR), Products and. Antitussive .agents	Lectures	quiz
	3	structure activity relationships and mechanism of action	CNS depressant; . Benzodiazepines and related compounds. Analeptics, central sympathomimetic Agents, methyl xanthine.	Lectures	quiz

			Barbiturates. Mechanism of action of .Antipsychotics		
	3	structure activity relationships and mechanism of action	Anticonvulsants, Clinically important Anticonvulsants. Biological Activities of Mineralocorticoids and Glucocorticoids, Steroids Sex Hormones, progestins and androgens	Lectures	quiz
	3		Final Examination		

11. Course development plan

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

73. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
74. Scientific department / Center	Kut University College– / Pharmacist Department
75. Academic program	Pharmacy/ Pharmaceutical Chemistry
76. The final granted degree	B.Sc. Pharmacy
77. The educational system	Term system
78. Accreditation program	ACPE
79. Other external influences	Lectures, Symposium
80. Date of description form preparation	03/2023

9. Academic Program Objective.

- a. Preparing qualified students and able to practice the profession of pharmacist in the public and private sectors
- b. Enabling students to acquire self-learning skills and familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general capabilities
- c. Enabling the student to develop laboratory knowledge and skills through

laboratory work using many techniques and chemical devices

- d. Provide the student with some basic skills for analyzing results and using the Internet
- e. Improving the student's ability to self-study

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- Statement of basic knowledge and principles in pharmaceutical chemistry
- Conducting practical experiments of theoretical concepts
- Learn the general principles of analytical chemistry
- Preparing short reports
- Enabling students to develop knowledge and laboratory skills through laboratory work and by using many chemical technologies and devices.

B. The skill goals of the program

- Theoretical application to practical experiments
- The use of devices by the student
- Enabling students to acquire self-learning skills to acquire new information, skills and knowledge.
- Enabling students to acquire working skills in laboratories and conducting scientific experiments.
- Enabling students to acquire the skills of using scientific research tools in the academic and scientific fields.

C. Affective and value goals

- Developing students' sense of belonging and loyalty to the homeland
- Educating students to respect human dignity
- Educating students on professional humanitarian work
- Promote and consolidate professional and ethical values for students to practice the profession of pharmacist
- Training students to respect the freedom of thinking, expression and creativity of others

Teaching and learning methods for cognitive and skills goals:

- Using the strategy of cooperation and assistance during the educational process
- Field visits to the relevant ministries and educational institutions
- Holding seminars, courses and workshops for students that encourage spiritual values
- Forming a discussion group during the lecture

Teaching and learning methods for Affective goals:

- Conclusion surprising questions during the discussion in the various aspects of education
- Discussions in small groups

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- Conclusion surprising questions during the discussion in the various aspects of education

Evaluation methods for the levels of affective teaching and learning processes and values

- Skills evaluation through report writing and written exams

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- Follow up on external sources
- Creating external questions from those sources
- Urging students to follow educational sequences

Teaching and learning methods for general and qualification skills transferred

- Writing a report about an experiment with explanation
- Using computer software

The evaluation methods for the general skills and qualifications transferred

- Skills evaluation through report writing and written exams

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

Curricula for teaching methods approved by the International University

Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

1. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
2. Scientific department / Center	Kut University College/ / Pharmacist Department
3. Academic program	Pharmaceutics
4. The final granted degree	BSc. pharmacy
5. The educational system	Semester
6. Accreditation program	ACPE
7. Other external influences	None
8. Date of description form preparation	2022-2023
9. Academic Program Objective.	
1- Enable students to become familiar with the principles of pharmacy and pharmaceutical accounts.	
2 .Enabling students to get acquainted with the physical and chemical characteristics of medicines and additives in preparing various medicinal formulations	

3 .Enabling students to acquire and understand the processes of preparing, manufacturing and storing medicines in an appropriate and good manner.
4 .Enabling students to get acquainted with the latest medical devices and technologies for the pharmacy and pharmacology sciences.
5 .Enabling students to become familiar with the principles of drug dosage design.
6 .Preparing students who are qualified and able to practice the profession of pharmacist in the public and private sectors.
7 .Enabling students to acquire self-learning skills and to familiarize themselves with the most important sources of knowledge and learning in order to develop their specialized and general abilities.
8. Enabling students to develop knowledge and laboratory skills through laboratory work using many techniques and chemical devices.
9. Harmonization between theoretical trends and practical reality in the pharmacy sciences.

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

1. Enable students to acquire and understand the physical pharmacy and pharmaceutical technology.
2. Enabling students to acquire and understand industrial pharmacy and dosage form design.
3. Enabling students to acquire and understand different drug dosage manufacturing processes and evaluation methods.
4. Enabling students to acquire and understand the biopharmaceutics and pharmacokinetics in the body.
5. Enabling students to acquire and understand pharmaceutical biotechnology in addition enabling students to identify the most important references and sources in pharmacy sciences.

B. The skill goals of the program

- 1- Enabling students to acquire drug preparation skills according to the medical conditions diagnosed by the physician, besides possessing the skills of preparing drug doses.
- 2- Enabling students to possess the skills of drug storage and possessing the capabilities of pharmaceutical accounts.
- 3- Enabling students to possess working skills in laboratories and conduct scientific experiments with possession of drug improvement capabilities.
- 4- Enabling students to read and interpret all medical and pharmacy terms and symbols to possess the skills of using scientific research tools in the academic field.
- 5- Enabling students to acquire the skills of calculating the validity period and degree of stability of the drug.

C. Affective and value goals

1. Educating students on professional humanitarian work and enhancing and consolidating professional and ethical values upon students to practice the profession of pharmacist.
2. Educating students' values of honesty and combating corruption in all its form.
3. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
4. Developing the students' sense of responsibility during the study period and during work and enhancing the spirit of cooperation and teamwork upon the students.

Teaching and learning methods for Affective goal1

- 1- Using the strategy of cooperation and assistance during the educational process.
- 2- Field visits to the relevant ministries and educational institutions.
- 3- Holding seminars, courses and workshops for students that encourage spiritual values.
- 4- Forming a discussion group during the lecture.
- 5- Assigning students to duties that require self-explanations by causal methods

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 1 .Semester exams

- 2 .Short exams
- 3 .Conducting discussions and oral examinations
- 4 .Evaluating students' skills by evaluating students during practical lessons
5. The final exam

Evaluation methods for the levels of affective teaching and learning processes and values

- 1- Discussions in small groups

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- D1 - Using the Internet as a source of scientific information
- D2 - Do desk research on scientific articles
- D3 - Working with quality and efficiency within the team
- D4 - possession of self-management skills and the ability to manage time
- D5 - Strengthening the skill of recitation and presentation

Teaching and learning methods for general and qualification skills transferred

- 1-Holding workshops and seminars to encourage students to express themselves
- 2-Personal interviews of students

The evaluation methods for the general skills and qualifications transferred

- 1 .Short exams
2. Discussions in small groups

11. The program structure

Educational stage	course code	course name	Credits	
			Theoretical	Practical
First	50303103	Principle of pharmacy	2	-
First	50303108	Pharmaceutical calculation	2	2
Second	50303203	Physical pharmacy 1	3	2
Second	50303208	Physical pharmacy 2	3	2
Third	50303302	Pharmaceutical technology 1	3	2
Third	50303308	Pharmaceutical technology 2	3	2
Fourth	50303403	Biopharmaceutics	2	2
Fourth	50303409	Industrial pharmacy 1	3	2
Fifth	50303503	Industrial pharmacy 2	3	2
Fifth	50303508	Dosage form design	2	-
Fifth	50303507	Pharmaceutical Biotechnology	1	-

12. Planning for personal development

- 1-Preparing a curriculum plan for each subject by the teaching staff.
- 2- Follow the program carefully.
- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

- 1- Pharmaceutical Calculation, Howard C Ansel, 13th Edition 2010
Wolters Kluwer Lippincott Williams & Wilkins
- 2- Martin's physical pharmacy and pharmaceutical sciences, Patrick J. Sinko. Wolters Kluwer. Lippincott Williams & Wilkins. Philadelphia. 2011.
3. Lab manual for physical pharmacy adopted by the department of Pharmaceutics.
- 4- Lewis W. Dittert, "American pharmacy", Lippincott. Company, 1974.
- 5- Pharmaceutical dosage forms and drug delivery systems by Howard A. Ansel.
- 6- Lab manual for pharmaceutical technology by the department of pharmaceutics
- 7- Aulton's Pharmaceutics: The Design and Manufacture of Medicines, Third edition, [Michael E. Aulton](#) (Author). Churchill, Livingstone- Elsevier. (2007)
- 8- Shargel L., Yu AB., (Eds). Applied Biopharmaceutics and Pharmacokinetics, Fifth edition, International Edition 2005.
- 9- Lab manual for biopharmaceutics.
- 10- Theory and practice in industrial pharmacy by Lachmann (2009).
- 11- Pharmaceutical biotechnology by J.A. Crommelin, Robert D. Syinder.
- 12- Pharmaceutical biotechnology Fundamentals and Applications 4th Edition by Daan J. A. Crommelin, Robert D. Sindelar, Bernd Meibohm. 2013

Scheme of curriculum skills

Please tick in the corresponding boxes for individual learning outcomes of the program under assessment

required learning outcomes of the program

Year / Level	Course code	Course name	Basic Or option al	Cognitive goals					Skill goals of the program					Affective and value goals					General and rehabilitative skills					
				A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5	D 6
First	50303103	Principle of pharmacy	Basic					√		√		√		√				√			√			
First	50303108	Pharmaceutical calculation	Basic					√		√	√	√		√				√		√	√			
Second	50303203	Physical pharmacy 1	Basic	√						√							√	√		√	√			
Second	50303208	Physical pharmacy 2	Basic	√						√							√	√		√	√			
Third	50303302	Pharmaceutical technology1	Basic	√					√		√						√	√		√	√			
Third	50303308	Pharmaceutical technology 2	Basic	√					√		√						√	√		√	√			
Fourth	50303403	Biopharmaceutics	Basic				√			√		√					√	√		√	√			
Fourth	50303409	Industrial pharmacy 1	Basic		√	√			√		√						√	√		√	√			
Fifth	50303503	Industrial pharmacy 2	Basic		√	√			√						√			√		√	√			
Fifth	50303508	Dosage form design	Basic		√	√						√						√	√		√	√		
Fifth	50303507	Pharmaceutical Biotechnology	Basic					√			√						√	√			√	√		

Course description

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Kut University College / Pharmacist Department
2. Scientific department \ enter	Pharmaceutics
3. Course name\ code	Principles of pharmacy practice 50303103
4. Available attendance forms	Courses
5. Semester \year	First semester/2022-2023
6. Credits (total)	2 hours/week
7. Date of description	2022-2023
8- Course outcomes 1- Enable students to interpret a prescription or drug system 2- Use the metric system and the old pharmacy system in pharmaceutical calculations 3- To calculate the dose and use some basic measurements and calculations 4- Calculations of density, specific gravity and specific volume.	

Required program outcomes and teaching, learning, and assessment methods.

A) Cognitive goals

1. Enabling students to be familiar with the types of numbers, the abbreviations commonly used in prescriptions and their meanings.
2. Enable students to understand the components of the typical prescription, the system of different units and the relationship between them.
3. Enabling students to acquire and understand tools for measuring weights and volumes.
4. Enabling students to learn how to calculate drug doses on different bases.
5. Enabling students to collect and understand how to reduce and enlarge prescriptions.

B. The skill goals of the program

- B) Enabling students to have the abilities of pharmaceutical accounts.
- C) Enabling students to acquire the skills of writing scientific reports.
- D) Enable students to have skilled work in laboratories and conduct scientific experiments
- E) Enable students to read and interpret all medical and pharmacy terms and symbols

Teaching and learning methods

- 1. Use of smart board
- 2. Conducting scientific experiments
- 3. Writing scientific reports

Evaluation methods

- 1. Mid-term exam
- 2. Final exams
- 3. Short quizzes
- 4. Group discussions
- 5. Reports

C. Affective and value goals

- 1. Encouraging students on humanitarian work and promoting and consolidating professional and ethical values
- 2. Educating students on a culture of integrity and combating corruption in all its forms
- 3. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender, and ethnicity, and training students to respect the freedom of thought, expression and creativity in others
- 4. To develop in students a sense of responsibility during the study period and during work and to enhance the spirit of cooperation and teamwork upon the students
- 5. Educate communities on drug culture

Teaching and learning methods

- 1- Using the strategy of cooperation and assistance during the educational process
- 2- Field visits to the relevant ministries and educational institutions
- 3- Holding seminars, courses and workshops for students that encourage spiritual values
- 4- Forming a discussion group during the lecture
- 5- Assigning students to duties that require self-explanations

Evaluation methods

Small group discussion

D. General and professional skills transferred:

- 1- use of online sources**
- 2- ability to conduct research**

11. The program structure					
Week	Hours	Subject name	Learning outcomes	Education method	Evaluation method
First	2	Principles of pharmacy calculations	Principles of pharmacy calculations	Smart board and problem solving in class	Discussions and practical outcome evaluation
Second	2	Translate prescription and medication orders	Prescription and medication orders	Smart board and problem solving in class	Discussions and practical outcome evaluation
Third	2	Translate prescription and medication orders	Prescription and medication orders	Smart board and problem solving in class	Discussions and practical outcome evaluation
Fourth	2	Learning IS units and their calculation	International system of units	Smart board and problem solving in class	Discussions and practical outcome evaluation
Fifth	2	Learning IS units and their calculation	International system of units	Smart board and problem solving in class	Discussions and practical outcome evaluation
Sixth	2	Common system of measurements	Common system of measurements and intersystem conversion	Smart board and problem solving in class	Discussions and practical outcome evaluation
Seventh	2	Interconversion between IS and metric systems	Common system of measurements and intersystem conversion	Smart board and problem solving in class	Discussions and practical outcome evaluation
Eighth	2	How to calculate proper doses	Dose calculations general considerations	Smart board and problem solving in class	Discussions and practical outcome evaluation
Ninth	2	How to calculate proper doses	Dose calculations general considerations	Smart board and problem solving in class	Discussions and practical outcome evaluation
Tenth	2	How to calculate proper doses based on elevenpatient weight	Dose calculations patient parameters	Smart board and problem solving in class	Discussions and practical outcome evaluation
Eleven	2	How to calculate proper doses	Dose calculations	Smart board and problem	Discussions and practical

		based on patient age	patient parameters	solving in class	outcome evaluation
Twelve	2	How to calculate proper doses based on patient BSA	Dose calculations patient parameters	Smart board and problem solving in class	Discussions and practical outcome evaluation
Thirteen	2	How to calculate density and specific gravity	Density and specific gravity and specific volume	Smart board and problem solving in class	Discussions and practical outcome evaluation
Fourteen	2	How to calculate density and specific gravity	Density and specific gravity and specific volume	Smart board and problem solving in class	Discussions and practical outcome evaluation
Fifteen	2	Reducing and enlarging formula	Reducing and enlarging formula	Smart board and problem solving in class	Discussions and practical outcome evaluation
Sixteen	2	Reducing and enlarging formula	Reducing and enlarging formula	Smart board and problem solving in class	Discussions and practical outcome evaluation

13 .Infrastructure

1. Required textbooks	
Main textbook	Pharmaceutical Calculation ,Howard C Ansel,13 th Edition2010 Wolters Kluwer Lippincott Williams &Wilkins
A) Recommended books and references (Scientific journals, reports)	
b) Electronic references online	

Course development plan: currently none

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ center	/ Pharmacist Department/pharmaceutics
Course name\ code	Pharmaceutical calculation/50303108
Available attendance forms	Semester
Semester \year	2nd/ 2022-2023
Credits (total)	2hr theory & 2hr practical/ semester
Date of description	2022-2023

8- Aims of the Course

The use of calculations in pharmacy is varied and broad-based. As pharmaceutical calculations are concerned in several areas, including commercial and research, especially in industry, academies and government institutions.

Applications of pharmaceutical calculations include: the physical and chemical properties of the drug, the biological effectiveness and the speed of absorption of the drug, the spread of the drug in the body, the metabolic changes of the drug and its excretion, statistical information for research and clinical studies of drugs, the development and formulation of drug products, the calculation of drug doses, pharmacoeconomics and other fields.

Course outcomes, teaching methods, learning and evaluation

A. Cognitive goals

- 1- Enable students to become familiar with the types of numbers, the abbreviations commonly used in prescriptions and their meanings.
- 2- Enable students to understand the components of the typical recipe, the system of different units and the relationship between them
- 3- Enabling students to acquire and understand tools for measuring weights and volumes
- 4- Enabling students to learn how to calculate drug doses on different bases.
- 5- Enable students to obtain and understand how to reduce and enlarge prescriptions.

B. skill goals

- 1- Enable students to possess the capabilities of pharmaceutical calculations.
- 2- Enabling students to acquire the skills of writing scientific reports.
3. Enable students to have skilled work in laboratories and perform scientific experiments.
- 4- Enable students to read and interpret all medical and pharmaceutical terms and symbols

Teaching and learning methods

1. Use a smart board
2. Doing practical experiments
3. Writing scientific reports related to practical experiments

Assessment methods

1. Mid and final exams
2. Short exams (Quizzes)
3. Discussions in small groups
4. Evaluation of practical reports

Affective and value goals

1. Educating students on professional humanitarian work and promoting and consolidating professional and ethical values upon students to practice the profession of pharmacist.
2. Educating students on a culture of integrity and combating corruption in all its forms
3. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
4. Developing students' sense of a sense of responsibility during the study period and during work and enhancing the spirit of cooperation and teamwork upon the students
5. Supports the pharmaceutical culture when students and members of society

Teaching and learning methods

- 1- Using the strategy of cooperation and assistance during the educational process
- 2- Field visits to the relevant ministries and educational institutions
- 3- Holding seminars, courses and workshops for students that encourage spiritual values
- 4- Forming a discussion group during the lecture
- 5- Assigning students to duties that require self-explanations by causal methods

Assessment methods

Discussions in small groups

D - General and qualifying transferred skills (other skills related to employability and personal development).

D1 - Using sources from the internet

D2- Conduct a research study

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Differentiate between the terms isosmotic, isotonic, hypertonic and hypotonic.	Isotonic solutions	Smart & white board, handout, Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
2.	2	Apply physical chemical principles in the calculation of isotonic solutions.	Isotonic solutions	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
3.	2	Perform the calculations required to prepare isotonic component prescription.	Isotonic solutions	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
4.	2	Calculate the milliequivalent weight from and atomic or formula weight.	Electrolyte solutions: Milliequivalent, millimoles, and milliosmoles	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments

5.	2	Convert between milligrams and milliequivalents	Electrolyte solutions: Milliequivalents, millimoles, and milliosmoles	Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
6.	2	Calculate problems involving milliequivalents	Electrolyte solutions: Milliequivalent, millimoles, and milliosmoles	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
7.	2	Calculate problems involving millimoles and milliosmoles.	Electrolyte solutions: Milliequivalent, millimoles, and milliosmoles	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
8.	2	Perform calculations for altering product strength by dilution.	Altering product strength, use of stock solutions, and problem solving by allegation	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
9.	2	Perform calculations for altering product strength by concentration	Altering product strength, use of stock solutions, and problem solving by allegation	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
10.	2	Perform calculations for preparation and use of stock solutions.	Altering product strength, use of stock solutions, and problem solving by allegation	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments

11.	2	Apply allegation medial and allegation alternate in problem- solving.	Altering product strength, use of stock solutions, and problem solving by allegation	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
12.	2	Perform calculations for adults and paediatric intravenous infusions.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
13.	2	Perform calculations for intravenous additives.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
14.	2	Perform rate of flow calculations for intravenous fluids.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	Smart & white board, handout Electronic Schools, Free Conference call	Discussion and practical work evaluation and assessments
15.	2	Utilize correctly rate of flow tables and nomograms.	Intravenous infusions, Parenteral admixtures, and rate of flow calculations	Smart & white board Electronic Schools, free conference call	Discussion and practical work evaluation and assessments

11. Course development plan:

Adding experiment to practical part concerning isotonic solutions and how to adjust tonicity of pharmaceutical preparations.

12. Infrastructure

Required reading:

The textbooks required: Ansel Pharmaceutical Calculations 13th 2020; and 15th 2017

Edition; Howard C. Ansel; Wolters Kluwer.

Main references (sources):

1. Martin Physical Pharmacy 2010
2. Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E. Aulton (Author) Churchill Livingstone- Elsevier

Course description form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University/college of pharmacy
Scientific department \ center	Pharmaceutics
Course name\ code	Physical pharmacy I/50303203
Available attendance forms	Semester
Semester \year	First semester –second year
Credits (total)	3hrs theoretical &2hrs practical
Date of description	2022-2023

8-Course outcomes, teaching methods, learning and evaluation**10. Required program outcomes and teaching, learning, and assessment methods.****A. Cognitive goals**

1. Enabling students to gain and understand the degree of solubility and the phenomenon of distribution.
- 2: Enable students to obtain and understand the degree of reactions and the effect of temperature and other factors on the speed of the reaction.
- 3: Enable students to achieve the degree of viscosity of fluids and rheology.
- 4: Enable students to achieve and understand the properties of surfaces and colloidal solutions.

B. The skill goals of the program

- 1.Enabling students to acquire skills in solving mathematical problems related to the course.
- 2- Enabling students to possess the skills of storing medicines
- 3- Enabling students to acquire working skills in laboratories and conduct scientific experiments
- 4- Enabling students to acquire the skill of writing scientific reports .

Teaching and learning methods

Using the smart board to display the theoretical part and conduct practical experiments

C. Affective and value goals

- 1.on professional work and instilling professional and ethical values upon request to practice the profession of pharmacist
2. Educating students on a culture of integrity and combating corruption in all its forms
3. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender, and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
4. Developing a sense of responsibility upon request, with a sense of responsibility during the study period, with the exception of cooperation and teamwork upon students
5. Supports the pharmaceutical culture when students and members of society

Teaching and learning methods

1. Using the strategy of cooperation and assistance during the educational process
- 2- Field visits to the relevant ministries and educational institutions
- 3- Holding seminars, courses and workshops for students that encourage spiritual values
- 4- Forming a discussion group during the lecture
- 5- Assigning students to duties that require self-explanations by causal methods

Evaluation methods

- 1 short exam
- 2 verbal discussion
- 3 quarter and final exams
- 4 Evaluation of practical reports

D. General and professional skills transferred:

- D1 - Use of sources from the Internet
 D2- Conducting a research study

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	Stats of matter	Ionic forces	Use white board and do experiments	Discussion and present lab results
2	3	Stats of matter	Liquid and solid state	Use white board and do experiments	Discussion and present lab results
3	3	Stats of matter	Garsous state	Use white board and do experiments	Discussion and present lab results
4	3	Thermodynamic	First low of thermodynamic	Use white board and do experiments	Discussion and present lab results
5	3	Thermodynamic	Second low of thermodynamic	Use white board and do experiments	Discussion and present lab results
6	3	Thermodynamic	Third low of thermodynamic	Use white board and do experiments	Discussion and present lab results

7	3	Solution of non-electrolyte	Property	Use white board and do experiments	Discussion and present lab results
8	3	Solution of non electrolyte	Law and equations	Use white board and do experiments	Discussion and present lab results
9	3	Solution of electrolyte	Property	Use white board and do experiments	Discussion and present lab results
10	3	Solution of electrolyte	Law and equations	Use white board and do experiments	Discussion and present lab results
11	3	Mid exam		Use white board and do experiments	Discussion and present lab results
12	3	Ionic equilibrium	Acid-base theory	Use white board and do experiments	Discussion and present lab results
13	3	Ionic equilibrium	Equations for different cases	Use white board and do experiments	Discussion and present lab results
14	3	Buffer	Type and preparation	Use white board and do experiments	Discussion and present lab results
15	3	Buffer	Isotonic solution	Use white board and do experiments	Discussion and present lab results

11. Course development plan

Changing phenol experiment

Infrastructure:

Required textbook

1. Martin's physical pharmacy and pharmaceutical sciences, Patrick J. Sinko . Wolters Kluwer. Lippincott Williams &Wilkins. Philadelphia. 2011.
2. Lab manual for physical pharmacy adopted by the department.

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University/ / Pharmacist Department
Scientific department \ center	Pharmaceutics
Course name\ code	Physical pharmacy II/50303203
Available attendance forms	Semester
Semester \year	second semester –second year
Credits (total)	3 hours theoretical &2hrs practical
Date of description	2022-2023

8-Course outcomes, teaching methods, learning and evaluation

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- 1: Enabling students to achieve and understand the degree of solubility and the phenomenon of distribution.
- 2: Enabling students to obtain and understand the degree of reactions and the effect of temperature and other factors on the speed of the reaction.
- 3: Enable students to achieve the degree of viscosity of fluids and rheology.

4: Enable students to achieve and understand the properties of surfaces and colloidal solutions

B. The skill goals of the program

1. Enabling students to acquire skills in solving mathematical problems related to the course.
- 2- Enabling students to possess the skills of storing medicines
- 3- Enabling students to acquire working skills in laboratories and conduct scientific experiments
- 4- Enabling students to acquire the skill of writing scientific reports.

Teaching and learning methods

Using the smart board to display the theoretical part and conduct practical experiment

Evaluation methods

1. Daily tests
2. Oral discussion
3. Midterm exam
4. Final exam

C. Affective and value goals

- 1 Educating students on professional humanitarian work and promoting and consolidating professional and ethical values upon students to practice the profession of pharmacist
2. Educating students on a culture of integrity and combating corruption in all its forms
3. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender, and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
4. Developing the students' sense of a sense of responsibility during the study period and during work and enhancing the spirit of cooperation and teamwork upon the students
5. Supports the pharmaceutical culture when students and members of society

Teaching and learning methods

- 1- Using the strategy of cooperation and assistance during the educational process
- 2- Field visits to the relevant ministries and educational institutions

- 3- Holding seminars, courses and workshops for students that encourage spiritual values
- 4- Forming a discussion group during the lecture
- 5- Assigning students to duties that require self-explanations by causal methods

Evaluation methods for the levels of affective teaching and learning processes and values

- 1 short exam
- 2 verbal discussion
- 3 quarter and final exams
- 4 Evaluation of practical reports

D. General and professional skills transferred:

- D1- Using sources from the Internet
- D2 - Conducting a research study

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	Solubility	Definitions	Use white board and do experiments	Discussion and present lab results
2	3	Solubility	Theories	Use white board and do experiments	Discussion and present lab results
3	3	Solubility	Distribution	Use white board and do experiments	Discussion and present lab results
4	3	Kinetics	First, second and thirds	Use white board and do experiments	Discussion and present lab results
5	3	Kinetics	Expiry date	Use white board and do experiments	Discussion and present lab results
6	3	Kinetics	Shelf life	Use white board and do experiments	Discussion and present lab results
7	3	Rheology	Property	Use white board and do experiments	Discussion and present lab results

8	3	Rheology	Law and equations	Use white board and do experiments	Discussion and present lab results
9	3	Rheology	Thixotropic theory	Use white board and do experiments	Discussion and present lab results
10	3	Surface tension	Theory	Use white board and do experiments	Discussion and present lab results
11	3	Mid exam		Use white board and do experiments	Discussion and present lab results
12	3	Surface tension	law	Use white board and do experiments	Discussion and present lab results
13	3	Surface tension	Applications	Use white board and do experiments	Discussion and present lab results
14	3	Colloids	Application to pharmacy	Use white board and do experiments	Discussion and present lab results
15	3	Colloids	Theory	Use white board and do experiments	Discussion and present lab results
					Final exam

11. Course development plan

Currently no present

12. infrastructure

Required textbook

1. Martin's physical pharmacy and pharmaceutical sciences, Patrick J. Sinko . Wolters Kluwer. Lippincott Williams &Wilkins. Philadelphia. 2011.
2. Lab manual for physical pharmacy adopted by the department.

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ center	/ Pharmacist Department
Course name\ code	Pharmaceutical Technology I/ 50303302
Available attendance forms	Semester
Semester \year	1st/ 2022-2023
Credits (total)	3hr theory & 2hr practical
Date of description	2022-2023

8- Aims of the Course

The use of pharmacy technology in pharmacy includes: methods of preparing and detecting different drug forms, calculations of medicinal preparations in addition to identifying the physiochemical properties of pharmaceutical substances and methods of dealing with them

Course outcomes, teaching methods, learning and evaluation

A. Cognitive goals

- 1- Enabling students to get and understand the calculations of various pharmaceutical lectures.
- 2- Enabling students to distinguish between different dosage forms.
- 3- Enable students to obtain and understand the ideal method and additives for preparing dosage forms.
- 4- Enabling students to choose the appropriate dosage form for active pharmaceutical ingredients

B: Skill goals

- 1- Enable students to acquire the skills to prepare medicine according to the medical conditions diagnosed by the physician
2. Enabling students to possess the skills of preparing medicinal doses
3. Enable students to possess the skills of proper storage condition for drug.

Teaching and learning methods

1. Use a smart board
2. Conducting practical experiments
3. Writing scientific reports related to practical experiments

Evaluation methods

1. Mid and final exams
2. Short exams
3. Discussions in small groups
4. Evaluation of operational reports

C - Emotional and value goals

1. Educating students on professional humanitarian work and promoting and consolidating professional and ethical values upon students to practice the profession of pharmacist
2. Educating students on a culture of integrity and combating corruption in all its forms
3. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
4. Developing students' sense of a sense of responsibility during the study period and during work and enhancing the spirit of cooperation and teamwork upon the students
5. Supports the pharmaceutical culture when students and members of society

Teaching and learning methods

- 1- Using the strategy of cooperation and assistance during the educational process
- 2- Field visits to the relevant ministries and educational institutions
- 3- Holding seminars, courses and workshops for students that encourage spiritual values
- 4- Forming a discussion group during the lecture
- 5- Assigning students to duties that require self-explanations by causal methods

Evaluation methods

Discussions in small groups

D - General and qualifying transferred skills (other skills related to employability and personal development).

- D1- Using sources from the Internet
D2 - Conducting a research study

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	Definition of pharmaceutical solution, dosage form and differentiation between their types	Solution and type of solutions	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
2	3	Differentiation between the solubility of pharmaceutical ingredients and factors affecting their solubility	Solubility and factors affecting solubility	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
3	3	Identification of official solutions	Official solutions	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
4	3	Differentiation between aqueous solutions	Aqueous solution & Aromatic water	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
5	3	Definition of pharmaceutical syrup dosage form and differentiation between their types	Syrups & sugar based syrups	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
6	3	Identification the methods of clarification and the equipment used for clarification	Clarification	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
7	3	Identification the constituents of spirit dosage form and its methods of preparation	Spirits	Smart, white board, handout, Electronic learning through	Discussion and experimental work evaluation

				Google class room and FCC	
8	3	Identification the constituents of elixir dosage form and its methods of preparation	Elixirs	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
9	3	Knowing the methods of extraction	Extraction	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
10	3	Knowing the methods of maceration	Maceration	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
11	3	Identification the constituents of Tinctures dosage form and its methods of preparation.	Tinctures	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
12	3	Identification the constituents of fluid extract dosage form and its methods of preparation	Fluid extracts	Smart, white board, handout, Electronic learning through google class room and FCC	Discussion and experimental work evaluation
13	3	Knowing the types of colloidal dispersion	Colloidal dispersion	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
14	3	Knowing the types of Coarse dispersion	Coarse dispersion	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation

15	3	Identification the constituents of suspension dosage form and its methods of preparation	Suspension	Smart, white board, handout, Electronic learning through Google class room and FCC	Discussion and experimental work evaluation
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11. Infrastructure	
Required reading: · CORE TEXTS · COURSE MATERIALS · OTHER	1-Pharmaceutical dosage forms and drug delivery systems by Haward A. Ansel; 10 th edition, 2015.Lippincott Williams & Wilkins, a Wolters Kluwer business 2. Sprowels American pharmacy. 3-Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3 rd ed. Michael E. Aulton (Author) Churchill
12. Course development plan	
Adding new experiments concerning practical works in laboratory	

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ enter	Pharmaceutics
Course name\ code	Pharmaceutical Technology II / 50303308
Available attendance forms	Semester
Semester \year	2 st Semester/ 2022-2023
Credits (total)	3hrs. Theoretical + 2hrs. Practical
Date of description	2022-2023

8-Course outcomes, teaching methods, learning and evaluation

A. Cognitive goals

1. Enabling students to get a knowledge about different dosage forms.
2. Enabling students to understand the different preparation methods at small scale and pharmacy level.
3. Enabling students to know the basis of dosage form preparation, stability and storage.
4. Enabling students to identify changes in the physicochemical properties or when incompatibility present between the ingredients of various dosage forms

B. Skill goals

- 1- Enable students to acquire the skills to prepare medicine according to the medical conditions diagnosed by the physician.
2. Enabling students to possess the skills of preparing medicinal doses.
3. Enable students to possess the skills of proper storage condition for drug.

Teaching and learning methods:

1. Using smart board.
2. Conducting practical experiments.
3. Writing scientific reports related to practical experiments.

Evaluation methods

1. Mid and final exams.
2. Short exams (Quizzes).
3. Discussions in small groups.
4. Evaluation of practical reports.

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	An introduction about emulsions and their preparation methods	Emulsions	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation

2	3	Types of emulsifying agents	Emulsions	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
3	3	HLB system and stability of emulsions	Emulsions	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
4	3	Types of liniments and collodions	Liniments and Collodions	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
5	3	Suppositories bases types	Suppositories	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
6	3	Preparation of Suppositories	Suppositories	Smart board, handout, doing practical experiments Electronic learning through Google	Discussion and experimental work evaluation

				Classroom and FCC	
7	3	Ointments, creams and pastes	Semisolid dosage form	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
8	3	Types of ointment bases	Semisolid dosage form	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
9	3	Properties of Ophthalmic ointments	Ophthalmic ointments	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
10	3	Micronization and measurements of powder particle size	Powders dosage form	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
11	3	Bulk and divided powders	Powders and granules	Smart board, handout, doing practical experiments Electronic	Discussion and experimental work evaluation

				learning through Google Classroom and FCC	
12	3	Advantages and properties of Powders and granules	Powders and granules	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
13	3	Hard and soft gelatin capsules	Capsules	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
14	3	Problems associated with filling of solid powders	Capsules	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
15	3	Identification of physical, chemical and therapeutic incompatibilities	Incompatibilities	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation

11. Course development plan

Adding new experiments concerning practical works in laboratory

12. Infrastructure

Required book:

1. Ansel's pharmaceutical dosage forms and drug delivery 10th Edition by Loyd Allen (Author)

main reference (source):

2 .American pharmacy

3 .Aulton's Pharmaceuticals: The Design and Manufacture of Medicines, 3ed Michael E. Aulton (Author). Churchill, Livingstone- Elsevier

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Kut University College// Pharmacist Department
Scientific department \ center	Pharmaceutics
Course name\ code	Biopharmaceutics 50303403
Available attendance forms	Semester
Semester \year	1st semester / 2023-2022
Credits (total)	(2hrs theory & 2 hrs practical)
Date of description	2022-2023

8-Course outcomes, teaching methods, learning and evaluation

1. Explain the basis of drug movement in the body according to one or two compartments, and the pharmaceutical and biological factors that affect the absorption of the drug, its distribution inside the body and its excretion from the body when taken orally
2. Explanation of the drug dissolution process from drug doses and the physical and chemical factors affecting them
3. The movement of the drug in the body when taken intravenously in a single dose or as continuous intravenous feeding.
4. Explanation of pharmacokinetics after multiple doses.
5. Drug bioavailability and how to calculate it, depending on the drug concentration in the blood and the area it shows in the blood in the graphs.

A. Cognitive goal

- 1-Enabling students to learn about the physical properties of medicines and how to evaluate them in the laboratory
- 2 -Enabling students to become familiar with the mechanism of drug absorption inside the body and the factors affecting them
- 3 -Enabling students to achieve and understand the difference between a single-compartment and a multi-compartment model
- 4 -Enabling students to acquire and understand drug bioavailability calculations
- 5 -Enabling students to obtain and understand the link between drugs and protein
- 6- Enabling students to acquire and understand the mechanism of drug disposal from the body

B. Skill goals

- 1 -Enable students to acquire the skills of drawing the standard curve of drugs
- 2 -Enabling students to acquire the skills of laboratory drug evaluation
- 3 -Enabling students to acquire the skills of studying aspirin degradation in the laboratory
- 4- Enabling students to acquire the skills of calculating the storage age of aspirin

Teaching and learning methods

- 1 .Use a smart board
- 2 .Conducting practical experiments
- 3 .Writing scientific reports related to practical experiments

Evaluation methods

- 1 . Mid and final exams
- 2 .Short exams
- 3 .Discussions in small groups
4. Evaluation of practical reports

C. Affective and value goals

- 1 .Educating students on professional humanitarian work and promoting and consolidating professional and ethical values upon students to practice the profession of pharmacist
- 2 .Educating students on a culture of integrity and combating corruption in all its forms
- 3 .Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
- 4 .Developing students 'sense of a sense of responsibility during the study period and during work and enhancing the spirit of cooperation and teamwork upon the students.
- 5 .Supports the pharmaceutical culture when students and members of society

D - General and qualifying transferred skills (other skills related to employability and personal development).

- D1 - Use of online resources
D2 - Conducting a general review

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	Introduction of the biopharmacy	Introduce the students to many definitions related to the biopharmacy	Use white board and do experiments	Discussion and present lab results
2	2	Biopharmaceutics standards	Drug absorption and its mechanism	Use white board and do experiments	Discussion and present lab results
3	2	Absorption kinetics	Factors effect absorption	Use white board and do experiments	Discussion and present lab results

4	2	Physico chemical factors effect on absorption	Effect of drug and different additives	Use white board and do experiments	Discussion and present lab results
5			Mid term exam		
6	2	Physico chemical factors effect on absorption	Effect of different additives on different dosage forms	Use white board and do experiments	Discussion and present lab results
7	2	One compartment-system	The one comp model for oral and intravenous injections	Use white board and do experiments	Discussion and present lab results
8	2	Multi-compartment system	Two compartment model for oral and intravenous doses	Use white board, do experiment and solve some problems	Discussion and present lab results
9	2	Oral absorption kinetic	The zero and first oral absorption kinetic	Use white board and do experiments	Discussion and present lab results
10	2	Multiple oral dosage kinetic	How to reach plateau	Use white board and do experiments	Discussion and present lab results
11	2	Nonlinear kinetics	Reasons of nonlinear absorption metabolism	Use white board and do experiments	Discussion and present lab results
12	2	Different bio availabilities	Bio availability and equivalences	Use white board and do experiments	Discussion and present lab results
13	2	Elimination via liver and kidney	Theories of drug elimination through kidney and liver	Use white board and do experiments	Discussion and present lab results
14	2	Protein kinetics	How proteins bind to receptors	Use white board and	Discussion and present lab results

				solve problems	
15	2	Dose adjustment in renal failure patient	Rules to adjust doses in renal failure	Use white board and do experiments	Discussion and present lab results
	Final exam				

11. Course development plan

Development of buffer capacity in the lab experiment

12. Infrastructure

Required reading

Textbook

2. Shargel L., Yu AB., (Eds). Applied Biopharmaceutics and Pharmacokinetics

Main references (sources)

1. Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed [Michael E. Aulton](#) (Author). Churchill, Livingstone- Elsevier

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ enter	Pharmaceutics
Course name\ code	Industrial pharmacy I/ 50303409
Available attendance forms	Semester
Semester \year	2 nd semester /2022-2023
Credits (total)	3hr theory &2 hrs practical
Date of description	2022-2023

8-Course outcomes

1. Be able to know various principles of pharmaceutical processing, solid mixing, fluid mixing, mixing mechanisms and equipment
2. Be able to contrast between different types of mills and the milling application in pharmacy, in addition to size measurement of particles and the factors effecting milling. Besides selection of milling techniques.
3. Be able to describe drying and humidity measurement also classification of dryers and theories of drying.
4. Have obtained hands-on experience in pharmaceutical requirements to obtain sterile products. Besides acknowledgement in development, production, processing and quality control.
5. Provide different solutions for clarification and filtration of pharmaceutical products by knowing the required filter media filter aids and the sterile and sterile operations .
6. Get benefit from having acknowledgment in sterilization mechanisms and evaluations to validate microbial death kinetic
7. Help students to start designing different pharmaceutical dosage forms through knowing preformulation, preliminary evaluation, bulk characterization, solubility and stability analysis

Required program outcomes and teaching, learning and assessment method**A. Cognitive goals**

- 1- Enabling students to learn about the physical properties of medicines and how to evaluate them in the laboratory
- 2 -Enabling students to become familiar with the mechanism of drug absorption inside the body and the factors affecting them
- 3 -Enabling students to achieve and understand the difference between a single-compartment and a multi-compartment model
- 4 -Enabling students to acquire and understand drug bioavailability calculations
- 5 -Enabling students to obtain and understand the link between drugs and protein
- 6- Enabling students to acquire and understand the mechanism of drug disposal from the body

B. the skill goals of the program

- 1-Enable students to acquire the skills of drawing the standard curve of drugs
- 2 -Enabling students to acquire the skills of laboratory drug evaluation
- 3 -Enabling students to acquire the skills of studying aspirin degradation in the laboratory
- 4 -Enabling students to acquire the skills of calculating the storage age of aspirin

Teaching and learning methods

1. Use a smart board
- 2 .Conducting practical experiments
3. Writing scientific reports related to practical experiments

Evaluation method

- 1 .Midterm and final exams
- 2 .Short exams
- 3 .Discussions in small groups
4. Evaluation of operational reports

C. Affective and Value goals

- 1 .Educating students on professional humanitarian work and promoting and consolidating professional and ethical values upon students to practice the profession of pharmacist
- 2 .Educating students on a culture of integrity and combating corruption in all its forms
- 3 .Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender, and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
- 4 . To develop in students a sense of responsibility during the study period and during work and enhancing the spirit of cooperation and teamwork upon the students.
5. Educate communities on drug culture

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1 st	3	Describe different sterilization ways and equipments required	Sterilization	Smart & white board, handout, Electronic Schools, Free Conference call	Discussion
2 nd	3	Steps required changing an active ingredient into suitable dosage form	Preformulation part 1	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
3 rd	3	Solubility and stability of active ingredient in its chosen dosage form	Preformulation part 2	Smart & white board, handout Electronic Schools, Free Conference call	Quiz
4 th	3	Factors affecting filtration processes	Clarification and Filtration part 1	Smart & white board, handout	Discussion

				Electronic Schools, Free Conference call	
				Electronic Schools, Free Conference call	Midterm Exam
5 th	3	Selection suitable filter media for suitable filtration process	Clarification and Filtration part 1	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
6 th	3	Describe milling, size distribution and its measurement	Milling part 1	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
7 th	3	Theory of milling, milling equipment, types of milling and mechanisms of size reduction	Milling part 2	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
8 th	3	Factors influence milling and selection of mill	Milling part 3	Smart & white board, handout Electronic Schools, Free	Discussion

				Conference call	
9 th	3	Fluid mixing and their mechanisms and mixers selection	Mixing part 1	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
10 th	3	Solid mixing and their mixing	Mixing part 2	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
11 th	3	Equipment mixing and mixer selection	Mixing part 3	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
12 th	3	Definition of drying, Purposes of drying, Psychrometry and Theory of drying	Drying par 1	Smart & white board, handout Electronic Schools, Free Conference call	Discussion
13 th	3	Behavior of solids during drying and classification of dryers	Drying part 2	Smart & white board, handout Electronic Schools, Free	Discussion

				Conference call	
14 th	3	Product development, solvents, non-aqueous Solvents and solutes	Sterile product part 1	Smart & white board Electronic Schools, free conference call	Quiz
15 th	3	Containers, filling procedures and packaging	Sterile product part 2		Discussion
					Final exam

12.Course development plan

replacement of some tests due to lack of equipment
 1-Study the drug content in pills using ultraviolet light analysis -
 2- Capsule evaluation .
 3- Study drug hydrolysis using USP dissolution device and apply it to different types of pills and draw them using an excel program.

13.Infastructure

Required reading:

Leon Lachman, "The Theory and practice of industrial pharmacy

Main reference (source) :

Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E.

Aulton (Author). Churchill, Livingstone- Elsevier

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ center	Pharmaceutics
Course name\ code	Industrial Pharmacy II / 50303503
Available attendance forms	Semester
Semester \year	1 st Semester/ 2022-2023
Credits (total)	3hrs. Theoretical + 2hrs. Practical
Date of description	2022-2023

8-Course outcomes, teaching methods, learning and evaluation

Course outcomes:

Technical setup for coordination of standards for formulation of typical dosage forms. .5

The principles needed for mass production of different pharmaceutical dosage forms. .6

Teaching and learning methods:

Using smart board. .4

Conducting practical experiments. .5

Writing scientific reports related to practical experiments. .6

Evaluation methods

1. Mid and final exams.
2. Short exams (Quizzes).
3. Discussions in small groups.
4. Evaluation of practical reports.

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	An introduction about tablets and their types	Tablets: Introduction	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
2	3	Knowing the different methods used in the manufacturing of tablets.	Tablets Manufacturing	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
3	3	Knowing the different official and non-official tests for tablet evaluation.	Evaluation of Tablets	Smart board, handout, doing practical experiments Electronic learning through Google	Discussion and experimental work evaluation

				Classroom and FCC	
4	3	Identification of problems associated with tablets manufacturing	Problems of Tableting	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
5	3	Knowing the reasons behind coating and the different methods used for coating	Tablets Coating	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
6	3	Identification of tests used to evaluate the prepared tablets	Quality Control of Tablets	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
7	3	Definition of hard gelatin capsules and its manufacturing methods	Hard Gelatin Capsule	Smart board, handout, doing practical experiments Electronic learning through Google	Discussion and experimental work evaluation

				Classroom and FCC	
8	3	Identification of tests used to evaluate the hard gelatin capsules	Evaluation of Hard Gelatin Capsules	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
9	3	Definition of hard gelatin capsules and its manufacturing methods	Soft Gelatin Capsules	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
10	3	Identification of tests used to evaluate the soft gelatin capsules	Evaluation of Soft Gelatin Capsules	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
11	3	Definition of microencapsulation and its types with manufacturing methods	Microencapsulation	Smart board, handout, doing practical experiments Electronic learning through Google	Discussion and experimental work evaluation

				Classroom and FCC	
12	3	Knowing the manufacturing methods and factors affecting their activity	Semisolids	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
13	3	Identification of tests used to evaluate semisolids	Evaluation of Semisolids	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
14	3	Knowing the manufacturing methods of aerosols	Aerosols	Smart board, handout, doing practical experiments Electronic learning through Google Classroom and FCC	Discussion and experimental work evaluation
15	3	Identification of tests used to evaluate aerosols	Evaluation of Aerosols	Smart board, handout, doing practical experiments	Discussion and experimental work evaluation

				Electronic learning through Google Classroom and FCC	1 work evaluation
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11. Course development plan

Adding new experiments concerning practical works in laboratory

12. Infrastructure

Required reading

.”Leon Lachman, “The Theory and practice of industrial pharmacy¹

Main references (sources)

Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E.

Aulton (Author). Churchill, Livingstone- Elsevier

Course description

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Kut University College / Pharmacist Department
Scientific department \ Center	Pharmaceutics
Course name\ code	Dosage form design 50303508
Available attendance forms	Semester
Semester \year	Second semester/2022-2023
Credits (total)	2hrs/week
Date of description	2022-2023
8- Course outcomes 1-Clarify the principles of drug dosage design and the factors affecting them 2-The use of these foundations in pharmaceutical industry applications	

Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- 1- Enabling students to learn the history of the emergence of pharmacy and pharmaceutical constitutions
- 2- Enabling students to learn about drug development and the stages of market approval
- 3-Enabling students to obtain and understand good industrial standards and effective drug formulations
- 4- Enabling students to achieve and understand pharmaceutical standards in drug design
- 5- Enabling students to achieve and understand the standards of biological pharmacy and pharmacokinetics

B. The skill goals of the program

- 1- Enabling students to acquire skills in solving mathematical problems
- 2- Enabling students to acquire the skills of making a presentation on a scientific topic
- 3- Enabling students to acquire the skills of writing scientific reports
- 4- Enabling students to acquire the capabilities of debate in small groups

Teaching and learning methods

4. Use of smart board
5. Writing scientific reports

Evaluation methods

6. Mid-term exam
7. Final exams
8. Short quizzes
9. Group discussions
10. Reports

C. Affective and value goals

6. Encouraging students on humanitarian work and promoting and consolidating professional and ethical values
7. Educating students on a culture of integrity and combating corruption in all its forms
8. Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender, and ethnicity, and training students to respect the freedom of thought, expression and creativity in others
9. To develop in students a sense of responsibility during the study period and during work and to enhance the spirit of cooperation and teamwork upon the students
10. Educate communities on drug culture

Teaching and learning methods

- 1- Using the strategy of cooperation and assistance during the educational process
- 2- Field visits to the relevant ministries and educational institutions
- 3- Holding seminars, courses and workshops for students that encourage spiritual values
- 4- Forming a discussion group during the lecture
- 5- Assigning students to duties that require self-explanations

Evaluation methods

Small group discussion

D. General and professional skills transferred:

- 1- use of online sources
- 2- ability to conduct research

11. The program structure

Week	Hours	Learning outcomes	Subject name	Education method	Evaluation method
First	2	Introduction to pharmacy	History of pharmacy and pharmacopeia	Smart board and group discussion	Discussions
Second	2	Regulation laws on drugs	All laws related to drug development	Smart board and group discussion	Discussions
Third	2	Development of new drugs and approval process	new drug applications	Smart board and group discussion	Short exam
Fourth	2	Drug identification according to FDA	Examples on new drugs	Smart board and group discussion	Discussions
					Mid-Term exam
Fifth	2	Good manufacturing practice	Good manufacturing practice principles	Smart board and group discussion	Discussion
Sixth	2	Good compounding practice	Good compounding practice principles	Smart board and group discussion	Discussions
Seventh	2	Dosage form design pharmaceutical principles	The reason for dosage forms	Smart board and group discussion	Discussions
Eighth	2	Dosage form design pharmaceutical principles	Physical principles	Smart board and group discussion	Discussions
Ninth	2	Dosage form design pharmaceutical principles	Physical principles	Smart board and group discussion	Discussions
Tenth	2	Formulation principles	Excipients	Smart board and group discussion	Discussions
Eleven	2	Formulation principles	Coloring and flavoring agents	Smart board and problem solving in class	Discussions
Twelve	2	Biopharmaceutics principles	Drug absorption	Smart board and problem	Discussions

				solving in class	
Thirteen	2	Biopharmaceutics principles	Drug metabolism	Smart board and problem solving in class	Discussions
Fourteen	2	Pharmacokinetics	Bioequivalency and comparing different dosage forms	Smart board and problem solving in class	Discussions
Fifteen	2	Pharmacokinetics	Calculation of expiration date of medications	Smart board and problem solving in class	Discussions
					Final exam

13 .Infrastructure

3. Required textbooks	
Main textbook	Shargel L., Yu AB., (Eds). Applied Biopharmaceutics and Pharmacokinetics
a) Recommended books and references ,Scientific journals, reports(Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E. Aulton (Author). Churchill, Livingstone- Elsevier
b) Electronic references online	

Course development plan

Currently none

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ center	Pharmaceutics
Course name\ code	Pharmaceutical biotechnology -50303507
Available attendance forms	Second semester
Semester \year	Second -2022-2023
Credits (total)	One hour per week (theoretical)
Date of description	2022-2023

8-Course outcomes, teaching methods, learning and evaluation

In the theoretical part: there would be an introduction to the pharmaceutical biotechnological science, along with types and uses of biotechnological products in medicine.

It covers the formulation aspect of biotechnological product into pharmaceutical dosage form and the methods of administrations, what are the obstacles and how to overcome them. Moreover, it covers the studying the pharmacokinetics of biotechnological products inside the human body.

In the practical part: there is none

A. Cognition goals

- 1- Enable students to learn about pharmaceutical biotechnological products such as proteins

2- Enable students to collect and understand information on the basic principles of the formulation and preparation of pharmaceutical biotechnological products and biopharmaceuticals

3- Enable students to learn about freezing drying technology and excipients that are used in protein formulation through this technique

4- Enable students to collect and understand information about the traditional and alternative methods used to deliver protein to the body.

B. The skill goals of the program goals

1- Enabling students to have problem-solving capabilities during the preparation of pharmaceutical biotechnological products

2- Enabling students to have the ability to formulate therapeutic proteins

3- Enable students to acquire the skills to give presentations on specific topics

4- Enable students to acquire scientific reporting skills

Teaching and learning methods

1. Use smart blackboard

2. video demonstration of practical experiments

3. Writing scientific reports on certain problems

Evaluation methods

1. Quarterly and final exams

2. Short Exams

3. Discussions in small groups

4. Evaluating reports

C- Affective and value goals

1. Raising students for professional human work and promoting and consolidating professional and moral values when students practice the profession of pharmacist

2. Educating students on the culture of integrity and fighting corruption in all its forms

3. Training students to respect the rights of the beneficiaries of their profession, culture, religion, gender and race, and to train students to respect the freedom of thought, expression and creativity of others.

4. Develop a sense of responsibility when students feel responsible during the study period and during work and promote the spirit of cooperation and teamwork when students

Teaching and learning methods

1- Using the strategy of cooperation and assistance during the education process

2 field visits to relevant ministries and educational institutions

3. Holding seminars, courses and workshops to students that stimulate spiritual values

4. Forming a discussion group during the lecture

5. Assigning students to duties that require subjective interpretation

D- General skills and transferable qualifications

D1 Using online resources

D2 - Literary Summary					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	1	Biotechnology Molecular biotechnology Pharmaceutical biotechnology	Introduction to biotechnology	Using smart board	Discussion and reports
3.	3	Microbiological concerns Sterilization of final product Removal of pyrogen	Formulation of pharmaceutical biotechnology	Using smart board	Discussion and reports
7.	3	Excipients in parenteral dosage form of bioproduct Antioxidant Solubility enhancer Antiadsorpant	The components of parenteral dosage form	Using smart board	Discussion and reports
8.	1	Preservatives and osmotic agents Freeze drying	Continue to the previous lecture	Using smart board	Discussion and reports
Mid Examination					
9.	1	Parenteral administration	Protein delivery	Using smart board	Discussion and reports
10	1	Cos and pros for alternative route of administrations	Alternative routes of administration	Using smart board	Discussion and reports
11.	1	Pharmacokinetics of protein and therapeutic peptides	Pharmacokinetic	Using smart board	Discussion and reports
12.	1	Pharmacokinetic (volume of distribution)	Pharmacokinetic	Using smart board	Discussion and reports
13	1	Pharmacokinetic (metablosim of protein)	Pharmacokinetic	Using smart board	Discussion and reports
14	1	Pharmacokinetic (elimination of protein via kidney)	Pharmacokinetic	Using smart board	Discussion and reports

15.	1	Pharmacokinetic (elimination of protein via liver)	Pharmacokinetic	Using smart board	Discussion and reports
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Infrastructure:

1. Pharmaceutical biotechnology by J.A. Crommelin, Robert D. Snyder.
2. Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed [Michael E. Aulton](#) (Author). Churchill, Livingstone- Elsevier

11. Course development plan

Special needs (including, for example, workshops, courses, IT programs and websites)

Template for program specification

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

Program specification

This Program Specification provides a concise summary of the main features of program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program

1. Teaching Institution	Ministry of Higher Education & Scientific Research
2. University	University of Mustansiriyah
Department/Centre	
3. Program Title	pharmacy science
4. Title of Final Award	Bachelor in pharmacy science
5. Modes of Attendance offered	Semester
6. Accreditation	ACPE
7. Other external influences	Theoretical study+ lab training
8. Date of production/revision of this specification	1/11/2022

9. Aims of the Program

A-Assist to understand the subjects and how to develop b-

Providing a solid foundation for a successful career for graduates

C-Students enable to develop the knowledge and skills of the laboratory during the laboratory work using many techniques and devices chemical

D-Supply Student with some basic skills, such as the analysis results and the use of the Internet

E-Improved student's ability for self-study

10. Learning Outcomes, Teaching, Learning and Assessment

Methods A-Knowledge and Understanding

- 1-knowledge of the basic principles relating to study relevant subjects branch statement**
- 2 - Understanding of the curriculum**
- 3- Use painting and pen illustrations and other means**

B. Subject-specific skills

- 1 - Theoretical application on practical experiences**
- 2 - Use of the devices by the student**
- 3 - Action Posters multiple topics**

Teaching and Learning Methods

Action Research

- Encouraging readers to read books**
- Make raised and seminars**
- Participate in workshops**

Assessment methods

- 1-Quizes**
- 2-Oral exam**
- 3- Midterm exam**
- 4- Final exam**

C. Thinking Skills

- 1. Connecting chemical Albaaloger ideas and terms that are comprehensible to the student**
- 2-- Use information from a variety of sources including scientific journals**

Teaching and Learning Methods

- 1. Emphasize the need for learning and teaching experience**
- 2. discuss teamwork**
- 3. writing self-reports**

Assessment methods

Sudden deductive questions during the debate on the various aspects of education

D. General and Transferable Skills (other skills relevant to employability and planning and implementation of laboratory experiments using chemical equipment and apparatuses

- 2. analyze, interpret and evaluate experimental data and make a quantitative assessment of the mistakes in the experimental measurements**
- 3. The application of computer programs for the analysis of experimental data and writing scientific reports**
- 4. Using literature and material to write a report on the experience of certain data**

Teaching and Learning Methods

- 1-reading the Report on the experience with the explanation of the result**
- 2 - Use a computer**

Assessment Methods

Skills are evaluated through a written report and hold examinations editorial

11. Programmed Structure

Level / Year	Course or Module Code	Course or Module Title	Credit Rating (Theory)	Awards and Credits (practical)
	50304104	Biology	2	2

1 ST CLASS	50304110	Histology	2	2
	50304111	Anatomy	1	2
	50304106	Mathematics and biostatistics	3	-
	50304109	Medical physics	2	2
	50304115	Arabic language	2	
	50304112	Human right	1	0
	50304105	Computer sciences	2	2
	50404113	ENGLISH language	1	0
2^{ed} class	50304204	Medical Microbiology-1-	2	2
	50304209	Medical Microbiology-2-	3	2
	50304214	Computer	2	-
	-	English	1	-
	50304205	Democracy	1	0
	50304215	Biosafety and biosecurity	1	0
3^{ed} class	50304304	Biochemistry(1)	3	2
	50404113	English language	2	-
	50304303	Pathophysiology	2	2
	50304309	Biochemistry(2)	3	2
		English language	1	0
4	50304404	Public health and	2	-

th class		pharmacy practice		
	50304412	English language	1	0
5th class	50304505	Clinical chemistry	3	2
	50304504	Laboratory training	2	-

12. Personal Development Planning

Continue the program carefully

World Skills

Develop the student's ability to influence and persuade others to discuss and reach an agreement Student's ability to speak several languages

13- Acceptance criterion (regulations relating to enroll in college or institute mode)

14- Admission Criteria.

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2. Scientific department	Department of Laboratory Sciences
3. Course name\ code	Laboratory Training / 50304504
4. Available attendance forms	Formal time
5. Semester \year	Year
6. Credits (total)	2
7. Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

Helping to understand the principles of chemical and biological analysis through the theoretical application on practical experiments and knowledge of the basic principles of laboratory training and evaluate the students through discussion of collective action in the laboratory -use Scientific references and sudden deductive questions during the discussion between the two sides, in addition to that the preparing of research projects and reports.

9- Course structure

Laboratory Training

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
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1.	4	Students who gained information in the field of lab training live up to the required level	Diagnostic test basics, collecting & transporting specimens, venipuncture, urine specimen, stool specimen.	The use of scientific references and use the board	Monthly written examinations and oral examinations
2.	4	Students gained information in the field of lab training live up to the required level	Biochemical tests: Fasting blood glucose, Post-prandial glucose, Oral glucose tolerance test.	The use of scientific references and use the board	Monthly written examinations and oral examinations
3.	4	Students who gained information in the field of lab training live up to the required level	Blood urea, Blood creatinine, Creatinine clearance, Uric acid.	The use of scientific references and use the board	Monthly written examinations and oral examinations
4.	4	Students who gained information in the field of lab training live up to the required level	Cholesterol, Lipoproteins, triglycerides.	The use of scientific references and use the board	Monthly written examinations and oral examinations
5.	4	Students gained information in the field of lab training live up to the required level	Blood proteins, Bilirubin.	The use of scientific references and use the board	Monthly written examinations and oral examinations
6.	4	Students gained information in the field of lab training live up to the required level	Calcium, Inorganic phosphate, Serum chloride	The use of scientific references and use the board	Monthly written examinations and oral examinations
7.	4	Students gained information in the field of lab training live up to the required	Alkaline phosphatase, Acid phosphatase, Alanine amiotransferase,	The use of scientific references and use the board	Monthly written examinations and oral examinations

		level	Aspartate aminotransferase, Lactate dehydrogenase, Creatine phosphokinase.		
8.	4	Students gained information in the field of lab training live up to the required level	Serological tests: VDRL, ASO- Titer, Hepatitis tests.	The use of scientific references and use the board	Monthly written examinations and oral examinations
9.	4	Students gained information in the field of lab training live up to the required level	C-reactive protein test, Rheumatic factor test, Rose Bengal test, Typhoid fever test(Widal test), Pregnancy Test.	The use of scientific references and use the board	Monthly written examinations and oral examinations
10.	4	Students gained information in the field of lab training live up to the required level	General urine examination, urine specimen collection.	The use of scientific references and use the board	Monthly written examinations and oral examinations
11.	4	Students gained information in the field of lab training live up to the required level	Hematological tests: RBC count, Hb, PCV, RBC indices, WBC count, Platelets count.	The use of scientific references and use the board	Monthly written examinations and oral examinations
12.	4	Students gained information in the field of lab training live up to the required level	Blood typing, Coombs test, Bleeding time, ESR.	The use of scientific references and use the board	Monthly written examinations and oral examinations
13.	4	Students gained information in the field of lab training live up to the required level	Microbiological tests: culture and sensitivity tests, Staining methods	The use of scientific references and use the board	Monthly written examinations and oral examinations
14.	4	Students gained	Culture media,	The use of	Monthly written

		information in the field of lab training live up to the required level	Enriched culture media for general use	scientific references and use the board	examinations and oral examinations
15.	4	Students gained information in the field of lab training live up to the required level	Tests for identification of bacteria, Disk diffusion tests of sensitivity to antibiotics, Choice of drugs for disk test, bacterial disease and their laboratory diagnosis	The use of scientific references and use the board	Monthly written examinations and oral examinations
11. Course development plan					
<p>Provide student to general information on chemical and biological analysis and laboratory diagnosis on the principles of pointing out the extent of their application and clinical diagnostics results of laboratory tests</p> <p>Continuous update of curriculum due to his request to serve the educational process Maintain the scientific equanimity through the use of valuable resources and books International</p>					

Course Description Form

*Learn pharmacy students about the diseases (causes, diagnosis, control), and prepare the student to understand the body defense against infection through studying the vaccines

*To obtain an insight in the various aspects of the pharmacy practice. The practice of pharmacy face wide range of challenges that the student need to be acquainted with and introduced to and be familiar with rational approach to solve them this course is an introductory course to the fourth who already have a glimpse of some aspects of pharmacy practice

8. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
9. Scientific department \ enter	Clinical Laboratory Sciences
10. Course name\ code	public health and pharmacy practice / 503044404
11. Available attendance forms	Official attendance hours
12. Semester \year	Semester system (First)
13. Credits (total)	2hr Theoretical weekly (15 weeks during the season)
14. Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

At the end of the course, students are expected to be able:

- 1- To understand the diseases according to body system.
- 2- To understand the causes of infectious disease.
- 3- To diagnose and control the disease.
- 4- To understand the body defense against infection.
- 5- To obtain an insight in the various aspects of the pharmacy practice.

9-Course structure						
Week	Hrs	Required learning outputs	Subject name public health	Subject name pharmacy practice	Teaching methods	Assessment methods
1	1	Students gained information in the field of public health live up to the required level	-Introduction: the Scope and Concerns of Public Health.	- Introduction: historic background of pharmacy practice	The use of scientific references and use smart board	Monthly written examinations and oral examinations
2	1	Students gained information in the field of public health live up to the required level	Epidemiology & Population Screening.	- Pharmacy practice and the health care system I	The use of scientific references and use smart board	Monthly Written examinations and oral examinations
3	1	Students gained information in the field of public health live up to the required level	- Prevention & Control of Disease (preventive medicine).	- Pharmacy practice and the health care system II	The use of scientific references and use smart board	Monthly written examinations and oral examinations
4	1	Students gained information in the field of public health live up to the required level	-Health Insurance (Organization of Health Services).	- Health promotion in community pharmacy	The use of scientific references and use smart board	Monthly Written Examinations and oral examinations
5	1	Students gained information in the field of public health live up to the required level	- Communicable Diseases (Transmission of Infection Acquired Through the Gastro-intestinal Tract).	- Introduction to pharmaceutical care	The use of scientific references and use smart board	Monthly written examinations and oral examinations
6	1	Students gained information in the field of public health live up to the required level	- Control of Infection Acquired Through the GIT.	- Pharmaceutical care planning I	The use of scientific references and use smart board	Monthly written examinations and oral examinations
			Mid Exam.			
7	1	Students gained information in the field of public health	- Transmission & Control of Infection Acquired Through the Mucous	- Pharmaceutical care planning	The use of scientific references and use smart board	Monthly Written examinations

		live up to the required level	Membrane.	II		and oral examinations
8	1	Students gained information in the field of public health live up to the required level	- Transmission of Air-borne Infections.	- Community pharmacy management	The use of scientific references and use smart board	2Monthly written examinations and oral examinations
9	1	Students gained information in the field of public health live up to the required level	- Control of Air-borne Infections.	- Hospital pharmacy service	The use of scientific references and use smart board	Monthly written examinations and oral examinations
10	1	Students gained information in the field of public health live up to the required level	- Non- Communicable Diseases (Chronic Disease, Public Mental Health).	-Biosafety in pharmacy practice I Bio-safety in pharmacy practice II	The use of scientific references and use smart board	Monthly written examinations and oral examinations
12	1	Students gained information in the field of public health live up to the required level	- Occupation: Health Disease, genetics & health.	- Formulary management and regulatory affairs I	The use of scientific references and use smart board	Monthly written examinations and oral examinations
13	1	Students gained information in the field of public health live up to the required level	- Nutritional disorders, heart disorders.	- Formulary management and regulatory affairs II	The use of scientific references and use smart board	Monthly Written examinations and oral examinations
14	1	Students gained information in the field of public health live up to the required level	- Vaccination & Immunization.	- Rational use of drugs I and II	Lecturing	Monthly written examinations and oral examinations
15			Final Exam.			

11. Course development plan

Our course development plan is:- reading and changing the syllabus according to the updated information

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Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ enter	Clinical Laboratory Sciences
Course name\ code	Clinical biochemistry
Available attendance forms	Official attendance hours
Semester \ year	First Semester
Credits (total)	3 Hours weekly
Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation Helping to understand the biochemical markers Connect between diseases and biochemical markers Understanding metabolic disorders associated with diseases state					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods

1	3	Students gained information in the field of clinical chemistry live up to the required level	Carbohydrate metabolism disorders	Slides and smart board	Monthly written examinations and oral examinations
2	3	Students gained information in the field of clinical chemistry live up to the required level	Liver function	Slides and smart board	Monthly written examinations and oral examinations
3	3	Students gained information in the field of clinical chemistry live up to the required level	Plasma lipid and lipoprotein metabolism disorders	Slides and smart board	Monthly written examinations and oral examinations
4	3	Students gained information in the field of clinical chemistry live up to the required level	Diagnostic enzymology	Slides and smart board	Monthly written examinations and oral examinations
5	3	Students gained information in the field of clinical chemistry live up to the required level	Endocrinology disorders	Slides and smart board	Monthly written examinations and oral examinations
6		Students gained information in the field of clinical chemistry live up to the required level	Reproductive system	Slides and smart board	Monthly written examinations and oral examinations
7	3	Students gained information in the field of clinical chemistry live up to the required level	Tumor markers	Slides and smart board	Monthly written examinations and oral examinations
8	3	Students gained information in the field of clinical	Drug interaction with laboratory tests	Slides and smart board	Monthly written examinations and oral

		chemistry live up to the required level			examinations
9	3	Students gained information in the field of clinical chemistry live up to the required level	Disorders of calcium metabolism	Slides and smart board	Monthly written examinations and oral examinations
10	3	Students gained information in the field of clinical chemistry live up to the required level	Acid base disorders	Slides and smart board	Monthly written examinations and oral examinations
11		Students gained information in the field of clinical chemistry live up to the required level	Pituitary glands	Slides and smart board	Monthly written examinations and oral examinations
12	3	Students gained information in the field of clinical chemistry live up to the required level	Adrenal gland	Slides and smart board	Monthly written examinations and oral examinations
13	3	Students gained information in the field of clinical chemistry live up to the required level	Male disorders	Slides and smart board	Monthly written examinations and oral examinations
14	3	Students gained information in the field of clinical chemistry live up to the required level	Female disorders	Slides and smart board	Monthly written examinations and oral examinations
15	3	Students gained information in the field of clinical chemistry live up to the required level	Thyroid function	Slides and smart board	Monthly written examinations and oral examinations

11. Course development plan

Purchase of modern analyzers to develop students' skills practical skills

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	Pathophysiology/5030303
4.Available attendance forms	Attendance
5.Semester \year	Semester
6.Credits (total)	100
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

Understanding the basic pathology

Categorize diseases according to body systems

Correlate between clinical presentation with the pathophysiologic changes and the expected outcome

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3h.s theory , 2 h.s practical	Introduction to general Pathophysiology	Introduction to general Pathophysiology	PPT slides, smart board,	Reports Quizzes Home works
2	3h.s theory , 2 h.s practical	Cell response to injury	Cell injury and tissue response; Degeneration; Necrosis.	PPT slides, smart board	Reports Quizzes Home works
3	3h.s theory, 2 h.s practical	Types of inflammation and characteristics of each	Inflammation (acute and chronic inflammation)	PPT slides, smart board	Reports Quizzes Home works
4	3h.s theory , 2 h.s practical	Circulatory disorders	Pathophysiology of Circulatory Disorders	PPT slides, smart board	Reports Quizzes Home works
5	3h.s theory, 2 h.s practical	Types of anemias	Pathophysiology of anemias, (iron deficiency anemia, hemolytic anemias, thalassemia, anemia of chronic diseases, aplastic anemias		
6	3h.s theory, 2 h.s practical	Pathophysiology of main diseases of the respiratory system	Pathophysiology of main diseases of the respiratory system	PPT slides, smart board	Reports Quizzes Home works
7	3h.s theory 2 h.s practical	Main diseases of the renal system	Pathophysiology of main diseases of the renal system	PPT slides, smart board	Reports Quizzes Home works
8	3h.s theory , 2 h.s practical	Main diseases of the renal system	Pathophysiology of Nephritis, Nephrosis, Hypertensive glomerular disease; Pyelonephritis; Drug related nephropathies; Acute renal failure; Chronic renal failure.	PPT slides, smart board	Reports Quizzes Home works
9	3h.s theory 2 h.s practical	Main diseases of GIT	Pathophysiology of main diseases of the Gastrointestinal Tract	PPT slides, smart board	Reports Quizzes Home works

10	3h.s theory , 2 h.s practical	Main diseases of biliary system	Pathophysiology of main diseases of the biliary system	PPT slides, smart board	Reports Quizzes Home works
11	3h.s theory , 2 h.s practical	Main diseases of biliary system	acute and chronic cholecystitis, acute and chronic pancreatitis	PPT slides, smart board	Reports Quizzes Home works
12	3h.s theory , 2 h.s practical	Main metabolic diseases	Diabetes mellitus and metabolic syndrome	PPT slides, smart board	Reports Quizzes Home works
13	3h.s theory , 2 h.s practical	Main diseases of endocrine system	Pathophysiology of main diseases of the endocrine system	PPT slides, smart board	Reports Quizzes Home works
14	3h.s theory , 2 h.s practical	Main diseases of Thyroid gland	Thyrotoxicosis	PPT slides, smart board	Reports Quizzes Home works
15	3h.s theory , 2 h.s practical	Primary blood cancers	Primary Blood Cancer	PPT slides, smart board	Reports Quizzes Home works

11. Course development plan
Essential in Pathophysiology by: Carol Mattson Porth 2 nd Ed. Volume 1and Volume 2

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	Histology

4.Available attendance forms	Formal Time
4.Semester \year	Semester
5.Credits (total)	4 hours in weak/ 15 weeks
6.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation					
A- 1-Be able to diagnosing the normal tissues					
2- knowledge of the basic principles of Human histology					
B 1 - prepare students research projects					
2 - Operation reports 3 – making of conferences , workshops and engaging in scientific debate					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	4	Integumentary System	Integumentary System	The use of scientific references and use the board	Monthly written examinations and oral examinations
2,3	4	Circulatory System	Circulatory System	The use of scientific references and use the board	Monthly written examinations and oral examinations
4,5	4	Lymphatic System	Lymphatic System	The use of scientific references and use the board	Monthly written examinations and oral examinations
6	4	Respiratory System	Respiratory System	The use of scientific references and use the board	Monthly written examinations and oral examinations
7	4	Digestive System (Oral cavity)	Digestive System (Oral cavity)	The use of scientific references and use the board	Monthly written examinations and oral examinations
8	4	Digestive System	Digestive System (digestive tract)	The use of scientific	Monthly written examinations and

		(digestive tract)		references and use the board	oral examinations
9	4	Digestive System (digestive glands ,Liver ,Pancreas ,Gall bladder)	Digestive System (digestive glands ,Liver ,Pancreas ,Gall bladder)	The use of scientific references and use the board	Monthly written examinations and oral examinations
10,11	4	Urinary System	Urinary System	The use of scientific references and use the board	Monthly written examinations and oral examinations
12,13	4	Reproductive System(female reproductive system) Reproductive System(male reproductive system)	Reproductive System(female reproductive system) Reproductive System(male reproductive system)	The use of scientific references and use the board	Monthly written examinations and oral examinations
14	4	Accessory glands	Accessory glands	The use of scientific references and use the board	Monthly written examinations and oral examinations
15	4	Final exam	Final exam	The use of scientific references and use the board	Monthly written examinations and oral examinations
11. Course development plan					
Continuous update of the curriculum due to its request to serve the educational process Maintain the scientific equanimity through the use of valuable resources and books					

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	/ Pharmacist Department
3.Course name\ code	Human Biology
4.Available attendance forms	Formal attendance
5.Semester \year	Semester

6.Credits (total)	4 hrs a week
7.Date of description	2023

1. Study and understand the biology of the human body and its essential structure.
2. Educate the student all the scientific information regarding the types of cells and tissues presents in the human body and body systems.

Learning and Teaching methods

1. Using the smart board.
2. Displaying slides for all the parts of the human body as it appears under the microscope on the smartboard and explains them.
3. Using scientific references.

Evaluation

1. Surprising deductive questions during the discussion between the two sides.
2. Quizzes.
3. Midterm exam.
4. Final exam.

9-Course structure (Human Biology)

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2		Introduction to Human Biology: General information, definitions, branches of Biology, levels of organization in the human body.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
2	2		Nutrition-Part I Definitions, important food molecules	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
3	2		Nutrition-Part II Digestion.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes

4	2		Cell and cell biology: Cell structure, cell types, cell jobs.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
5	2		Cell and cell biology: cell division and production of reproductive cells, fertilization.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
6	2		Tissues-Part I Epithelial tissues, Connective tissues.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
7	2		Tissues-Part II Muscular tissues, Nervous tissues.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
8	2		Systems/ Glandular System: Types of glands and their structure.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
9	2		Systems/ Hormones and hormonal system, adulthood and reproduction	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
10	2		Systems/ Immune system: The parts and Job of the immune system.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
11	2		Systems/ Digestive system: The general structure of the system including its organs starting from the mouth to the anus, with their function.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes

12	2		Systems/ Circulatory system: The heart, circulatory system components, circulation.	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes
13	2		Review for the Final exam	Slide show, smart board and scientific references	Monthly written exams, daily written exams, oral exams, quizzes

12. Course development plan
Buying modern microscopes and digital cameras to develop the student's skills.

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	/ Pharmacist Department

3.Course name\ code	Medical Microbiology II
4.Available attendance forms	Formal attendance
5.Semester \year	Semester
6.Credits (total)	5 hrs a week
7.Date of description	2023

8-Course outcomes

Studying the pathogens, especially those who are causes epidemics, and limiting their spread, in addition to studying the internal structure of the pathogens and their characteristics, classification according to their genomic component and studying the factors affecting them, whether they are physical or chemical, as well as an extended study to the microbial diseases and use the more effective drugs according to the site of influence in the life cycle of the pathogens and how to control diseases and preventing their spread and following the best methods to control the sources of contamination resulting from the presence of these pathogens in human's sources of eating and drinking, which is done after a complete knowledge of these pathogens from all their physiological and biological aspects and their characteristics and their various components that are considered as auxiliary factors or being considered as causes to the severity. Moreover, this course provides a comprehensive study to the viruses that cause the malignant tumors and how to limit and control their spread and studying the use of the best drugs according to the location of the tumor and the type of virus that caused it. As vaccines considered the best method of prevention in this era from dangerous epidemic diseases, it is extensively studied in this course, including their types and the best methods of production and evaluation. The curriculum is also concerned with studying the body's different mechanisms of defense against the different pathogens and studying the immune diseases and immune mechanisms of resistance.

Learning and Teaching methods

1. Using seminars and focusing on the latest developments in the field of specialization.
2. Parasitology and Virology require knowledge and practical training about the classification of diseases according to the clinical situation and the approved method of treatment, which is done by training the student in the hospitals on the laboratory diagnostic methods and the clinical observation.
3. Using the laboratory training and how to deal with the samples taken from the patients and using the best technology that giving sensitive and accurate results.
4. The theoretical lectures which depend on the lecturer and his scientific background and professionalism in this field.
5. The scientific discussion in the classroom by asking questions related to the topic.

Evaluation					
1. Quizzes.					
2. Midterm exam.					
3. Final exam					
9-Course structure (Parasitology)					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	Students acquire information in the field of parasites to the required level	Introduction to medical parasitology	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
2	3	Students acquire information in the field of parasites to the required level	Introduction to protozoa, <i>Entamoeba histolytica</i> , <i>E. coli</i> , <i>Entamoeba gingivalis</i> , <i>Endolimax nana</i> , <i>Iodomoeba butchlii</i>	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
3	3	Students acquire information in the field of parasites to the required level	A. The flagellates of digestive tract and genital organs: <i>Giardia lamblia</i> , <i>Trichomonas vaginalis</i> , <i>Trichomonas tenax</i> , <i>Trichomonas hominis</i> . Ciliates: <i>Balantidium coli</i>	Slideshow and smart board	Monthly written exams, daily written exams, oral exams, quizzes
4	3	Students acquire information in the field of parasites to the required level	B. Blood & tissue flagellates: <i>Leishmania</i> spp. and <i>Trypanosome</i> spp.	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
5	3	Students acquire information in the field of parasites to the	Sporozoa: A. Malaria parasite <i>Plasmodium</i> spp.	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes

		required level			
6	3	Students acquire information in the field of parasites to the required level	B. Toxoplasmosis <i>Toxoplasma gondii</i>	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
7	3	Students acquire information in the field of parasites to the required level	Helminths: Introduction and Classification, Trematoda: Blood flukes or Schistosomes	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
8	3	Students acquire information in the field of parasites to the required level	Cestoda: A. Adult tapeworm Infections: <i>Taenia saginata</i> , <i>Taenia solium</i> , <i>Hymenolepis nana</i>	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
9	3	Students acquire information in the field of parasites to the required level	B. larval tapeworm infection: <i>Echinococcus granulosus</i> , <i>multilocularis</i>	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
10	3	Students acquire information in the field of parasites to the required level	Nematodes: Introduction to Nematodes: <i>Ascaris lumbricoides</i> ,	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
11	3	Students acquire information in the field of parasites to the required level	<i>Ancylostoma duodenale</i> , <i>Enterobius vermicularis</i>	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
12	3	Students acquire information in	General Laboratory Diagnostic Techniques and Samples, Review	Slide show and smart board	Monthly written exams, daily written exams, oral exams,

		the field of parasites to the	before the final exam		quizzes
		required level			
10. Course structure (Virology)					
1	1		Introduction to Virology	Slide show and smart board	
2	1		Replication of viruses	Slide show and smart board	Monthly written
3	1		Chemotherapy	Slide show and smart board	oral exams, quizzes
4	1		Herpesviruses	Slide show and smart board	
5	1		Hepatitis viruses	Slide show and smart board	
6	1			Slide show and smart board	

7	1	Students acquire information in the field of virology to the required level	Retro viruses & AIDS, SARS, Ebola Lassa viruses	Slide show and smart board	
8	1	Students acquire information in the field of virology to the required level	Alteration genetic transformation of virus	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
9	1	Students acquire information in the field of virology to the required level	Oncogenic viruses	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
11. Course structure (Immunology)					
1	2	General information in immunology	General information in immunology	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
2	2	Innate and adaptive immunity	Innate and adaptive immunity	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
3	2	Study of antigen characteristic	Antigen characteristic	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
4	2	Study of B and T cells	B and T	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
5	2	Study of the complement and its role in the immunity	Complement	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
6	2	Study of autoimmune	Autoimmune disease-1	Slide show and smart board	Monthly written exams, daily

		diseases			written exams, oral exams, quizzes
7	2	Study of autoimmune diseases	Autoimmune disease-2	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
8	2	Study of antibody characteristic	Antibody characteristic	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
9	2	understand the mechanisms of immunity against cancer diseases	Oncogenic immunity	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
10	2	Study of Hypersensitivity reactions	Hypersensitivity type-1	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
11	2	Study of Hypersensitivity reactions	Hypersensitivity type-2	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
12	2	Study the Immune deficiency diseases	Immune deficiency diseases	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
13	2	Complete the study of Immune deficiency diseases	Complete Immune deficiency diseases	Slide show and smart board	Monthly written exams, daily written exams, oral exams, quizzes
12. Course development plan					
The continuous update of all the information given to the students and connect these updates with the public health developments and issues.					

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	English Language-3 ^{ed} stage
4.Available attendance forms	Formal Time
5.Semester \year	course
6.Credits (total)	4 hour per week
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods

1	2	Students gain basic knowledge of English Language	Chapter 1, Grammar and writing: Classes of verbs in English	Direct Instruction	In-class quizzes and reading assignments, and homework
2	2	Students gain basic knowledge of English Language	Chapter 1, Reading and listening: Practice English language with vocabulary and reading activities assigned by the textbook	Direct Instruction	In-class quizzes and reading assignments, and homework
3	2	Students gain basic knowledge of English Language	Chapter 2, Grammar and writing: Present simple, present continuous, and state verbs	Direct Instruction	In-class quizzes and reading assignments, and homework
4	2	Students gain basic knowledge of English Language	Chapter 2, Reading and listening: Practice English language with vocabulary and reading activities assigned by the textbook	Direct Instruction	In-class quizzes and reading assignments, and homework
5	2	Students gain basic knowledge of English Language	Chapter 3, Grammar and writing: Introduction to past tenses	Direct Instruction	In-class quizzes and reading assignments, and homework
6	2	Students gain basic knowledge of English Language	Chapter 3, Reading and listening: Practice English language with vocabulary and reading activities assigned by the textbook	Direct Instruction	In-class quizzes and reading assignments, and homework
7	2	Students gain basic knowledge of English Language	Chapter 4, Grammar and writing: Introduction to modal verbs	Direct Instruction	In-class quizzes and reading assignments, and homework

8	2	Students gain basic knowledge of English Language	Chapter 4, Reading and listening: Practice English language with vocabulary and reading activities assigned by the textbook	Direct Instruction	In-class quizzes and reading assignments, and homework
9	2	Students gain basic knowledge of English Language	Chapter 5, Grammar and writing: Introduction to Future Forms	Direct Instruction	In-class quizzes and reading assignments, and homework
10	2	Students gain basic knowledge of English Language	Chapter 5, Reading and listening: Practice English language with vocabulary and reading activities assigned by the textbook	Direct Instruction	In-class quizzes and reading assignments, and homework
11	2	Students gain basic knowledge of English Language	Chapter 6, Grammar and writing: Verb patterns	Direct Instruction	In-class quizzes and reading assignments, and homework
11. Course development plan					

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1 Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University/ / Pharmacist Department
2 Scientific department \ enter	Department of Clinical Laboratory Sciences
3 Course name\ code	English/
4 Available attendance forms	Daily attendance /Full term
5 Semester \year	1 st semester /2 nd stage
6 Credits (total)	1
7 Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation
A. Cognitive goals - Enabling students to get acquainted with the most important references and sources in English language
B. The skill goals of the program

- Enabling students to acquire the skills of using scientific research tools in the academic and scientific fields during academic writing.
- Enabling students to possess the skills of dialogue, discussion, listening to others and accepting their opinions.
- Enabling students to possess self-learning skills to acquire new information, skills and knowledge.

C. Affective and value goals

- 1- Developing students' sense of belonging and loyalty to the homeland.
- 2 -Educating students to respect human dignity.
- 3 -Educating students on professional humanitarian work.
- 4 -Promote and consolidate professional and ethical values for students to practice the profession of pharmacist.
- 5 -Educating students on a culture of integrity and combating corruption in all its forms.
- 6 -Supporting drug culture among students and members of society.
- 7- Promoting the spirit of cooperation and teamwork among students

Teaching and learning methods for cognitive and skills goals:

- Research work.
- Encouraging reading books.
- Holding conferences and seminars.
- Participate in workshops.

Teaching and learning methods for Affective goals:

- 1 .Emphasis on the necessity of learning and experience in the field of teaching.
- 2 .Discuss teamwork.
- 3 .Writing self-reports.
- 4 .Use the strategy of cooperation and assistance during the education process.
- 5 .Holding seminars, courses and workshops for students that encourage spiritual values.
6. Forming a discussion group during the lecture.

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 1 - Quizzes

2 - Oral examination					
3 -Mid-term exam					
4- The final exam					
Evaluation methods for the levels of affective teaching and learning processes and values					
-Surprising deductive questions during the discussion in various aspects of education					
D. General and professional skills transferred:					
(Other skills related to employability and personal development).					
<ul style="list-style-type: none"> - Discussing various academic writing style and attempting to apply it in specific reports. - Asking brainstorming questions through which the student can relate the study materials together and link them to the health reality. 					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	1	Discuss the rules with examples of Past simple tense	Grammar	smart board Slideshow	Reports An oral or written exam
2.	1	To learn Present simple tense forms and uses	Grammar	=	=
3.	1	To learn Present continuous tense forms and uses	Grammar	=	=
4.	1	Using Mixed verb Written with or without the main verb	Writing	=	=
5.	1	To learn Present perfect tense forms and uses	Grammar	=	=
6.	1	Using different Auxiliary verbs as examples to improve the written	Grammar and Writing	=	=
7.	1	Samples to improve written	Writing	=	=

8.		Midterm exam			
9.	1	How to use and pronounce many academic words	Pronunciation and vocabulary Speaking	=	=
10.	1	To improve the written by showing different samples	Writing	=	=
11.	1	To learn Past simple and continuous tense forms and uses with examples	Grammar	=	=
12.	1	How to use academic words	Vocabulary Speaking	=	=
13.	1	To learn Past perfect simple forms and uses	Grammar	=	=
14.	1	Showing several examples of Comparative and superlative with discussion	Grammar Speaking		
15.	1	Discuss the rules of Active and passive with examples of this tense	Grammar		
16.		Final exam			

10. Teaching infrastructure	
1- Prescribed books required	Textbooks: New headway plus pre-intermediate, Oxford, latest addition
2- Main references (sources)	<ol style="list-style-type: none"> 1. Textbooks: New headway plus pre-intermediate, Oxford, latest addition 2. PC Networking for System Programmers
3- Recommended books and references (scientific journals, reports,)	Resources related to academic writing and English grammar from the Internet or other recent books
11- Course development plan	
<ul style="list-style-type: none"> - Suggesting new topics and discussing them - Some curriculum vocabulary has changed in a simple way to keep pace with recent English learning developments 	

- Conducting seminars and seminars inside the branch to discuss modern scientific topics

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

15. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
16. Scientific department \ center	Mustansiriyah University/ / Pharmacist Department/ clinical laboratory sciences
17. Course name\ code	English language/ 50404113
18. Available attendance forms	Official working hours
19. Semester \year	Semester2023-20221 st stage
20. Credits (total)	2 hrs
21. Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	Grammar: I, am, you, this is... Stop and check (quiz)	How to introduce yourself in English? Unite 1: Greetings	using reference materials and interactive whiteboard	Monthly written exams
2	2	Grammar: what, where, how, Stop and check (quiz)	Unite 2: your world	using reference materials and interactive whiteboard	Oral exams
3	2	Grammar: Present simple, A and An Stop and check (quiz)	Unite 3: It is my life	using reference materials and interactive whiteboard	Daily written exams
4	2	Grammar: Negatives, Questions, short answers Stop and check (quiz)	Unite 4: Personal information:	using reference materials and interactive whiteboard	Oral exams
5	2	Grammar: Positives, short answers, adjectives, have and has Stop and check (quiz)	Unite 5: Family and Friends	using reference materials and interactive whiteboard	Monthly written exams
6	2	Grammar: Present simple, A and An Stop and check (quiz)	Unite 6: It is my life	using reference materials and interactive whiteboard	Quizzes
7	2	Grammar: time, date, Present simple and simple past	Unite 7: Everyday life	using reference materials and interactive whiteboard	Daily written exams
8	2	Grammar: Objective pronouns, this/that, questions and answers Stop and check (quiz)	Unite 8: Places I/we like	using reference materials and interactive whiteboard	Oral exams
9	2	Grammar: time, date, Present simple and simple past Stop and check (quiz)	Unite 9: Everyday life	using reference materials and interactive whiteboard	Monthly written exams
10	2	Stop and check (quiz) and home work Subject: numbers, singular and plural	Unite 10: Skills work (new vocabulary), Reading and listening:	using reference materials and interactive whiteboard	Quizzes
11	2	Stop and check (quiz) and	Unite 11: Skills	using reference	Monthly

		home work Subject: countries: where are they from	work (new vocabulary), Reading and listening:	materials and interactive whiteboard	written exams
12	2	Reading and speaking: Stop and check (quiz), and home work Subject: Social expressions, jobs	Unite 12: Skills work (new vocabulary)	using reference materials and interactive whiteboard	Oral exams
13	2	Reading and writing: Stop and check (quiz), and home work Subject: Talking about family, talking about friends	Unite 13: Skills work (new vocabulary)	using reference materials and interactive whiteboard	Daily written exams
14	2	listing and speaking:	Unite 14: Skills work (new vocabulary)	using reference materials and interactive whiteboard	Oral exams
15	2	Stop and check (quiz), and home work Subject: Talking about sport, talking about music	Unite 15: Stop and check	using reference materials and interactive whiteboard	Monthly written exams
11. Course development plan					
Preserving scientific sobriety through the use of modern sources and international books					

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

22. Educational institution	Ministry of Higher Education and Scientific Research /Mustansiriyah University
23. Scientific department \ enter	Clinical laboratory sciences
24. Course name\ code	Microbiology-1-
25. Available attendance forms	Formal Time
26. Semester \year	semester system
27. Credits (total)	4 hours per week (15 weeks during the season)
28. Date of description	2023

Monthly written examinations and oral examinations
Monthly written examinations and oral examinations

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Monthly written examinations and oral examinations
1	3	Students acquire information in the field of microbiology to reach the required level	Importance of microbiology, History of microbiology and Anatomy of bacteria: Surface appendage, Capsule, Cell wall of G.+ve & G -ve bacteria, Cytoplasmic membrane and Morphology of Bacteria, Staining and Classification	The use of scientific references and use the board	Monthly written examinations and oral examinations
2	3	Students acquire information in the field of microbiology to reach the required level	Bacterial physiology: Physical and chemical growth determinate, growth and growth curves, bacterial reproduction	The use of scientific references and use the board	Monthly written examinations and oral examinations
3	3	Students acquire information in the field of microbiology to reach the required level	Genetics:Definition, genetic element, mutation (spontaneous, gene transfer, transformation, conjugation, and gene transduction).	The use of scientific references and use the board	Monthly written examinations and oral examinations
4	3	Students acquire information in the field of microbiology to reach the required level	Recombinant DNA biotechnology and Sporulation and germination	The use of scientific references and use the board	Monthly written examinations and oral examinations
5	3	Students acquire information in the field of microbiology to reach the required level	. Sterilization (chemical + physical Methods).	The use of scientific references and use the board	Monthly written examinations and oral examinations
6	3	Students acquire information in the field of microbiology to reach the required level	Chemotherapy. and Antibiotic	The use of scientific references and use the board	Monthly written examinations and oral examinations

7	3	Students acquire information in the field of microbiology to reach the required level	Staphylococci species: Streptococcus pyogenes; Streptococcus pneumonia	The use of scientific references and use the board	Monthly written examinations and oral examinations
8	3	Students acquire information in the field of microbiology to reach the required level	Aerobic Spore-forming bacteria Bacillus species (B. anthracis, B. subtilis, B. ceseus).	The use of scientific references and use the board	Monthly written examinations and oral examinations
9		Students acquire information in the field of microbiology to reach the required level	Clostridium perfringens; Clostridium tetani; Clostridium botulium		
10	3	Students acquire information in the field of microbiology to reach the required level	Corynebacterium diphtheria and Propionibacterium acnes, Listeria	The use of scientific references and use the board	Monthly written examinations and oral examinations
11	3	Students acquire information in the field of microbiology to reach the required level	Mycobacterium tuberculosis; M. leprae	The use of scientific references and use the board	Monthly written examinations and oral examinations
12	3	Students acquire information in the field of microbiology to reach the required level	Chlamydiae; Actinomycetes	The use of scientific references and use the board	Monthly written examinations and oral examinations
13	3	Students acquire information in the field of microbiology to reach the required level	Enterobacteriaceae: E. coli; Klebsiella spp.; Cilrobacte , Sertalia, Hafmia, Enterobacter	The use of scientific references and use the board	Monthly written examinations and oral examinations
14	3	Students acquire information in the	Shigella spp; Salmonella spp;		

		field of microbiology to reach the required level			
15	3	Students acquire information in the field of microbiology to reach the required level	Proteus spp , Pseudomonas spp and Vibrio Cholerae; Brucella spp; Haemophilus spp; Campylobacter spp		

11. Course development plan

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	Mathematics & Biostatistics/50304106
4.Available attendance forms	Formal Time
5.Semester \year	First Course/2023-2022
6.Credits (total)	3 hour in weak/ 15 weeks
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Mathematics: General concepts, Coordinate and graph in plane	Power Points.. Whit board	Quizzes ,homework and oral examination
2	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Inequality, absolute value or magnitude	Power Points.. Whit board	Quizzes ,homework and oral examination
3	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Function and their graphs ,Displacement function	Power Points.. Whit board	Quizzes ,homework and oral examination
4	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Slope and equation for lines	Power Points.. Whit board	Quizzes ,homework and oral examination
5	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Practice exercises	Power Points.. Whit board	Quizzes ,homework and oral examination
6	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Biostatics: General concepts of statistics	Power Points.. Whit board	Quizzes ,homework and oral examination
7	3	Students gained information in the field of Mathematics Biostatistics and the	Limits, theorem of limits	Power Points.. Whit board	Quizzes ,homework and oral examination

		application in medical field			
8	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Statistical methods and theory	Power Points.. Whit board	Quizzes ,homework and oral examination
9	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Continuity , continuity conditions	Power Points.. Whit board	Quizzes ,homework and oral examinatio
10	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Practice exercises	Power Points.. Whit board	Quizzes ,homework and oral examination
11	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Probability concepts	Power Points.. Whit board	Quizzes ,homework and oral examination
12	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	The concepts of central tendency	Power Points.. Whit board	Quizzes ,homework and oral examination
13	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Practice exercises	Power Points.. Whit board	Quizzes ,homework and oral examination
14	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Deviations and variation, application of static in medical field	Power Points.. Whit board	Quizzes ,homework and oral examination

15	3	Students gained information in the field of Mathematics Biostatistics and the application in medical field	Review question and exercises	Power Points.. Whit board	Quizzes ,homework and oral examination
11. Course development plan					
Continuous curriculum due to his request to serve the educational process Maintain the scientific equanimity through the use of valuable resources and books International					

Course Description Form

This class aims to provide students with the essentials PowerPoint skills needed to create, edit, and present professional-looking presentations using text, tables, diagrams, charts, and pictures as well as providing presentations tips.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical Laboratory Sciences
3.Course name\ code	Computer Science / 50304105
4.Available attendance forms	Official attendance hours
5.Semester \year	First Semester/ 2 ^{ed} stage
6.Credits (total)	2 Hours weekly
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation
 Students will learn how to create a Microsoft PowerPoint presentation. Functions covered in this session are how to create a slide, add content (text, graphics, objects and pictures) to present a show.

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	POWERPOINT ESSENTIALS	Essentials	Lecturing	Monthly written examinations and oral examinations
2	2	Presentation Basics	basic	Slides and smart board	Monthly written examinations and oral examinations
3	2	WORKING WITH	Insert text	Lab computers and	Monthly written

		TEXT		smart board	examinations and oral examinations
4	2	DESIGNING A PRESENTATION	Design slide	Lab computers and smart board	Monthly written examinations and oral examinations
5	2	ADDING TABLES TO SLIDES	Add table	Lab computers and smart board	Monthly written examinations and oral examinations
6	2	USING CHARTS IN A PRESENTATION	Add chart that fit with data type	Smart board and lecturing	Monthly written examinations and oral examinations
7	2	CREATING SMARTART GRAPHICS	Add smart graph	Lab computers and smartboard	Monthly written examinations and oral examinations
8	2	ADDING GRAPHICS TO A PRESENTATION	Add picture	Smartboard and lab computers	2Monthly written examinations and oral examinations
9	2	USING ANIMATION AND MULTIMEDIA	Add animation	Smartboard and lab computers	Monthly written examinations and oral examinations
10	2	SECURING AND SHARING A PRESENTATION	Secure presentation data	Smartboard and lab computers	Monthly written examinations and oral examinations
11	2	DELIVERING A PRESENTATION	Presentation strategies	Smartboard and lab computers	Monthly written examinations and oral examinations
12	2	Print presentation	Presentation handout	Smartboard and lab computers	Monthly written examinations and oral examinations

13	2	Share presentation	Team working	Lab Computers and lecturing	Monthly written examinations and oral examinations
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11. Course development plan

Using up to date book from Microsoft and purchase of modern computers (laptops) to develop students' practical skills.

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical Laboratory Sciences
3.Course name\ code	Computer Science / 50304214
4.Available attendance forms	Official attendance hours
5.Semester \year	second Semester/ 2 ^{ed} stage
6.Credits (total)	3 Hours weekly

7.Date of description	2023
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8-Course outcomes, teaching methods, learning and evaluation
To Learn use Microsoft Excel program for use in data collection and analysis especially the pharmaceutical field

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	<ul style="list-style-type: none"> • Starting Excel 2016 • Selecting the Blank worksheet template • Learning Excel cell referencing system • Entering numbers and text • Opening a workbook • Saving workbook • Getting help within Excel 	Getting started with Excel 2016	Lecturing	Monthly written examinations and oral examinations
2	2	<ul style="list-style-type: none"> • Selecting a cell • Selecting a range of connecting cells 	Selection Techniques	Slides and smart board	Monthly written examinations and oral examinations

		<ul style="list-style-type: none"> • Selecting a range of non-connecting cells • Selecting rows • Selecting columns 			
3	2	<ul style="list-style-type: none"> • Inserting rows • Inserting columns • Deleting rows • Deleting columns • Columns and rows width resizing 	Manipulating rows and columns within Excel 2016	Lab computers and smart board	Monthly written examinations and oral examinations
4	2	<ul style="list-style-type: none"> • Copying cells and contents • Deleting cell or range contents • Moving contents • Modifying cells content • Copying, moving data between workbooks and 	Manipulating cells and cell contents	Lab computers and smart board	Monthly written examinations and oral examinations

		<p>worksheets</p> <ul style="list-style-type: none"> • Using Autofill • Sorting data • Search and replace 			
5	2	<ul style="list-style-type: none"> • Switching between worksheets • Renaming worksheets • Inserting worksheets • Removing worksheets 	Excel Worksheets	Lab computers and smart board	Monthly written examinations and oral examinations
6	2	<ul style="list-style-type: none"> • Font formatting options • Font types • Font size • Formatting background and font color 	Font formatting	Smart board and lecturing	Monthly written examinations and oral examinations
7	2	<ul style="list-style-type: none"> • Alignment options • Horizontal alignment • Centering a title over a cell range • Text 	Alignment Formatting	Lab computers and smartboard	Monthly written examinations and oral examinations

		wrapping <ul style="list-style-type: none"> • Aligning cell contents vertically • Format painter 			
8	2	<ul style="list-style-type: none"> • Number formatting • Currency symbols • Date Styles • Percentages 	Number Formatting	Smartboard and lab computers	2Monthly written examinations and oral examinations
9	2	<ul style="list-style-type: none"> • Freezing Columns • Freezing Rows 	Freezing row and column titles	Smartboard and lab computers	Monthly written examinations and oral examinations
10	2	<ul style="list-style-type: none"> • Printing worksheets • Choosing print area • Printing selection • Adjusting printing content • Adding headers and page printing splitting 	Printing	Smartboard and lab computers	Monthly written examinations and oral examinations
11	2	<ul style="list-style-type: none"> • Creating formulas • Copying 	Excel Formulas	Smartboard and lab computers	Monthly written examinations and oral

		<p>formulas</p> <ul style="list-style-type: none"> • Operators • Using operators in Formulas 			examinations
12	2	<ul style="list-style-type: none"> • What are functions? • Common functions • Sum, Average functions • Min, Max functions • Count functions • Conditional functions 	Excel Functions	Smartboard and lab computers	Monthly written examinations and oral examinations
13	2	<ul style="list-style-type: none"> • Inserting a column chart • Inserting a bar chart • Inserting pie chart • Changing chart format • Copying and Moving charts 	Excel Charts	Lab Computers and lecturing	Monthly written examinations and oral examinations

11. Course development plan

Purchase of modern computers (laptops) to develop students' practical skills

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical Laboratory Sciences
3.Course name\ code	Computer Science first stage1 / 50304105

4.Available attendance forms	Official attendance hours
5.Semester \year	First Semester/1 st stage
6.Credits (total)	2 Hours weekly
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation					
Understand the principles and terminology of computer science used in everyday life					
Identify and learn the basics of computer systems components and parts and their relationship to medicine and medical applications					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	ICT, internet services, Mobile Technology, Office productivity tools	Information and Communication Technology	Lecturing	Monthly written examinations and oral examinations
2	2	Main Computer Types and electronic devices affecting ICT	Computer types	Slides and smart board	Monthly written examinations and oral examinations
3	2	Computer Hardware, IO devices, Storage and Processing	Computer Hardware	Smart board and real hardware parts	Monthly written examinations and oral examinations
4	2	Input Output Devices types, display adapters and printers	Display and printers	Lab computers and smart board	Monthly written examinations and oral examinations

5	2	Computer ports, Anti-theft Devices, Surge Protection and Battery Backup.	Ports	Lab computers and smart board	Monthly written examinations and oral examinations
6	2	Computer Software, Software Categories, Application Software, Utility Software, Device Drivers, Popular Applications.	Computer Software	Smart board and lecturing	Monthly written examinations and oral examinations
7	2	Installing Software and Upgrades, Security Software.	Computer Software	Lab computers and smartboard	Monthly written examinations and oral examinations
8	2	Operating Systems and File Management, OS activities, User Interface, Boot process, Today's Operating Systems.	Operating Systems	Smartboard and lab computers	2Monthly written examinations and oral examinations
9	2	File Basics, File Names and Extensions, Directories and Folders, File Formats, File Management	File Systems	Smartboard and lab computers	Monthly written examinations and oral examinations

10	2	Operating system configuration, customization and tweaking	Operating system configuration	Smartboard and lab computers	Monthly written examinations and oral examinations
11	2	Working with images, importing, editing, scanning, creating slide shows, enhancing	Imaging	Smartboard and lab computers	Monthly written examinations and oral examinations
12	2	Documents management, Finding, replacing and editing texts. Printing	Documents	Smartboard and lab computers	Monthly written examinations and oral examinations
13	2	Searching files, Backup Security.	File management	Lab Computers and lecturing	Monthly written examinations and oral examinations

11. Course development plan

Purchase of modern computers (laptops) to develop students' practical skills

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical Laboratory Sciences
3.Course name\ code	Computer Science first stage 2 / 503 04 113
4.Available attendance forms	Official attendance hours

5.Semester \year	Second Semester/1 st stage
6.Credits (total)	2 Hours weekly
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

Students will learn to use Microsoft Word® to produce professional-looking documents. Features included are typing, formatting, editing, document spacing, margins, page numbering and saving a document.

9-Course structure

Week	Hrs.	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	<ul style="list-style-type: none"> • Open Word and Use the Start Screen • Understanding Office and the Cloud • Explore the Word Window • Sign In to Your Account • Work with Backstage View • Change the Color Scheme and Background • Locate Commands on the Ribbon • Give Commands Using the Keyboard and Mouse • Using Word on Tablets and Phones • Using Word in OneDrive and Microsoft Teams • Work with the Mini Toolbar and Context Menus • Enter Text in a Document • Move the Insertion Point Around a Document • Switch Document Views • Understanding Document Views • Work with the Navigation Pane • Using Focus Mod • Using Immersive Reader 	Getting Started with Microsoft Word	Lecturing	Monthly written examinations and oral examinations
2	2	<ul style="list-style-type: none"> Start a New Document Save a Document to Your Computer Save a Document to the Cloud Recover an Unsaved Document Save a Document in a Different Format Save a Document in PDF or XPS Format Set Options for Saving Documents 	Creating and Saving Documents	Slides and smart board	Monthly written examinations and oral examinations

		<p>Open a Word Document</p> <p>Open a Document That Uses a Different Format</p> <p>Open a Document from the Cloud</p> <p>Switch Between Open Documents</p> <p>Compare Two Documents Side by Side</p>			
3	2	<p>Insert and Add Text</p> <p>Insert Symbols and Special Characters</p> <p>Create a Hyperlink</p> <p>Delete Text</p> <p>Insert Blank Lines</p> <p>Undo, Redo, and Repeat Changes</p> <p>Select TextMark and Find Your Place with Bookmarks</p> <p>Move or Copy Text</p> <p>Share Text Between Documents</p> <p>Move or Copy Several Selections</p>	Entering Text into Documents	Smart board and real hardware parts	Monthly written examinations and oral examinations
4	2	<p>Work in Read Mode View</p> <p>Zoom In or Out</p> <p>Translate Text</p> <p>Set Options for Additional Actions</p> <p>Using Additional Actions</p> <p>Search for Text</p> <p>Replace Text or Other Items</p> <p>Count Words in a Document</p> <p>Automatically Correct Mistakes</p> <p>Automatically Insert Frequently Used Text</p> <p>Check Spelling and Grammar</p> <p>Find Synonyms, Antonyms, and Definitions</p>	Editing and Proofing Text	Lab computers and smart board	Monthly written examinations and oral examinations
5	2	<p>Understanding How Word's Formatting Works</p> <p>Change the Font</p> <p>Change the Font Size</p> <p>Emphasize Information with Bold, Italic, or Underline</p> <p>Create Superscripts and Subscripts</p> <p>Change Text Case</p> <p>Change Text Color</p> <p>Apply Text Effects</p> <p>Apply a Font Style Set</p> <p>Apply Highlighting to Text</p> <p>Apply Strikethrough to Text</p> <p>Copy and Paste Text Formatting</p> <p>Remove Text Formatting</p> <p>Set the Default Font for All New Documents</p>	Formatting Text	Lab computers and smart board	Monthly written examinations and oral examinations
6	2	<p>Change Text Alignment</p> <p>Set Line Spacing Within a Paragraph</p> <p>Set Line Spacing Between Paragraphs</p>	Formatting Paragraphs	Smart board and	Monthly written

		<p>Create a Bulleted or Numbered List Display Formatting Marks Hide or Display the Ruler Indent Paragraphs Set and Use Tabs Add a Paragraph Border Review and Change Formatting Compare Formatting Apply Formatting Using Styles Switch Styles Save Formatting in a Style Expand or Collapse Document Content Modify a Style Add Paragraph Shading</p>		lecturing	examinations and oral examinations
7	2	<p>Adjust Margins Insert and Manage Page Breaks Control Text Flow and Pagination Align Text Vertically on the Page Change Page Orientation Insert a Section Break Add Page Numbers to a Document Add Line Numbers to a Document Using the Building Blocks Organizer Add a Header or Footer Vary Headers or Footers Within a Document Add a Footnote Add an Endnote Find, Edit, or Delete Footnotes or Endnotes Convert Footnotes to Endnotes or Vice Versa Generate a Table of Contents Add a Watermark Add a Page Border Apply Document Themes and Style Sets Create Newspaper-Style Columns</p>	Formatting Pages	Lab computers and smartboard	Monthly written examinations and oral examinations
8	2	<p>Track the Changes to a Document Lock and Unlock Tracking Review Tracked Changes Collaborate in Real Time on a Document Compare Two Versions of a Document Combine Changes into a Single Document Work with Comments Work with Protected Documents Inspect a Document Before Sharing It Mark a Document as Final Create a Master Document Work in a Master Document</p>	Reviewing and Finalizing Documents	Smartboard and lab computers	2Monthly written examinations and oral examinations

9	2	<p>Create a Table Change the Row Height or Column Width Resize a Table Add or Delete a Row Add or Delete a Column Set Cell Margins Add Space Between Cells Merge Two or More Cells into a Single Cell Split One Cell into Two or More Cells Split a Table into Two Add a Formula to a Table Align Text in Cells Add Shading to Cells Change Cell Borders Format a Table Using a Table Style Add a Chart Understanding Word's Chart Types</p>	Working with Tables and Charts	Smartboard and lab computers	Monthly written examinations and oral examinations
10	2	<p>Add Decorative Text Using WordArt Insert an Online Picture Insert a Video Add a Screenshot Add a Shape Add a Text Box Move or Resize a Graphic Understanding Graphics Modification Techniques Understanding Text Wrapping and Graphics Wrap Text Around a Graphic Work with Diagrams</p>	Working with Graphics	Smartboard and lab computers	Monthly written examinations and oral examinations
11	2	<p>Control the Display of Formatting Marks Customize the Status Bar Hide or Display Ribbon Buttons Create Your Own Ribbon Group Create Your Own Ribbon Tab Customize the Quick Access Toolbar Create Custom Keyboard Shortcuts</p>	Customizing Word	Smartboard and lab computers	Monthly written examinations and oral examinations
12	2	<p>Preview and Print a Document Print on Different Paper Sizes Print an Envelope Share a Word Document on OneDrive Email a Document as an Attachment Create Letters to Mass Mail Create Labels for a Mass Mailing</p>	Printing, Sharing and Mail Merge	Smartboard and lab computers	Monthly written examinations and oral examinations

11. Course development plan

Purchase of modern computers (laptops) to develop students' practical skills

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	Biochemistry 1
4.Available attendance forms	Formal Time
5.Semester \year	semester system
6.Credits (total)	6 hours per week (15 weeks during the season)
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation					
9-Course structure / Theoretical Biochemistry 1					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	1	Students gained information in the field of biochemistry live up to the required level	introduction to the macromolecules biochemistry	The use of scientific references and use the board	Monthly written examinations and oral examinations
2	1	Students gained information in the field of biochemistry live up to the required level	Carbohydrates	The use of scientific references and use the board	Monthly written examinations and oral examinations
3	1	Students gained information in the field of biochemistry live up to the required level	Lipids	The use of scientific references and use the board	Monthly written examinations and oral examinations
4	1	Students gained information in the field of biochemistry live up to the required level	Lipids importance	The use of scientific references and use the board	Monthly written examinations and oral examinations
5	1	Students gained information in the field of biochemistry live up to the required level	Amino acid	The use of scientific references and use the board	Monthly written examinations and oral examinations
6	1	Students gained information in the field of biochemistry live up to the required level	Peptide bond	The use of scientific references and use the board	Monthly written examinations and oral examinations
7	1	Students gained information in the field of biochemistry live up to the required level	Proteins	The use of scientific references and use the board	Monthly written examinations and oral examinations
8	1	Students gained information in the field of biochemistry live up to the required level	Enzyme	The use of scientific references and use the board	Monthly written examinations and oral examinations
9	1	Students gained information in the field of biochemistry live up to the required level	Kinetics, Enzyme inhibition	The use of scientific references and use the board	Monthly written examinations and oral examinations
10	1	Students gained information in the field of biochemistry live up to the required level	Kinetics, Enzyme inhibition	The use of scientific references and	Monthly written examinations and oral

		to the required level		use the board	examinations
11	1	Students gained information in the field of biochemistry live up to the required level	Nucleic Acid	The use of scientific references and use the board	Monthly written examinations and oral examinations
12	1	Students gained information in the field of biochemistry live up to the required level	Cell membrane	The use of scientific references and use the board	Monthly written examinations and oral examinations
13	1	Students gained information in the field of biochemistry live up to the required level	Artificial membranes model	The use of scientific references and use the board	Monthly written examinations and oral examinations
14	1	Students gained information in the field of biochemistry live up to the required level	Nutrition	The use of scientific references and use the board	Monthly written examinations and oral examinations
15	1	Students gained information in the field of biochemistry live up to the required level	Biochemistry of the endocrine system	The use of scientific references and use the board	Monthly written examinations and oral examinations

10-Course Structure / Practical Biochemistry 1

Week	Hours	Learning outcomes	Outcomes required unity / or topic.	teaching method	Teaching method evaluation method.
1	2	Effects of acids on carbohydrate :- (Molish's test , Bial's test ,Seliwanoff's test)	The effect of acid on carbohydrates	The use of scientific references and use the board	Monthly written examinations and oral examinations
2	2	Classification of carbohydrate according to reducing properties:- (Benedict's test , Barfoed's test ,Iodine's test)	Classification of carbohydrates according to their reducing property	The use of scientific references and use the board	Monthly written examinations and oral examinations
3	2	Determination of unknown carbohydrate sample	Determine the carbohydrates in sample	The use of scientific references and use the board	Monthly written examinations and oral examinations
4	2	Color reaction of proteins :- (Biuret's test)	Color reaction of protein	The use of scientific references and use the board	Monthly written examinations and oral examinations

5	4	Color reaction of amino acids :- (Ninhydrine's test , Millon's test , Hopkins-cole's test , unoxidized sulfur's test)	Color reaction of amino acids	The use of scientific references and use the board	Monthly written examinations and oral examinations
6	2	Proteins properties:- (precipitation of protein , effect of strong acid and alkali , effect of concentration of neutral salts , effect of heat)	Properties of proteins in terms of precipitation, effect of base and acid solutions, and temperature effect	The use of scientific references and use the board	Monthly written examinations and oral examinations
7	2	Determination of unknown amino acid sample	Determine of amino acid in sample	The use of scientific references and use the board	Monthly written examinations and oral examinations
8	2	Experiments of lipids :- (Iodine's test , Reaction's test , Copper acetate's test)	Determine types of lipids	The use of scientific references and use the board	Monthly written examinations and oral examinations
9	2	Experiments for Cholesterol :- (Salkowski's test , Liebermann-Burchard's test)	Cholesterol experiments	The use of scientific references and use the board	Monthly written examinations and oral examinations
10	2	Determination of unknown lipids sample	Determine lipids in sample	The use of scientific references and use the board	Monthly written examinations and oral examinations

11. Course development plan

- Linking laboratory analyzes with theoretical materials
- Continuous updating of the curriculum for students to serve the educational process

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	Biochemistry 2
4.Available attendance forms	Formal Time
5.Semester \year	semester system
6.Credits (total)	6 hours per week (15 weeks during the season)
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation**9-Course structure/ Theoretical Biochemistry 2**

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	1	Students gained information in the field of biochemistry live up to the required level	bioenergetics	The use of scientific references and use the board	Monthly written examinations and oral examinations
2	1	Students gained information in the field of biochemistry live up to the required level	Biological oxidation	The use of scientific references and use the board	Monthly written examinations and oral examinations
3	1	Students gained information in the field of biochemistry live up to the required level	Respiratory chain	The use of scientific references and use the board	Monthly written examinations and oral examinations
4	1	Students gained information in the field of biochemistry live up to the required level	Over view of metabolism	The use of scientific references and use the board	Monthly written examinations and oral examinations
5	1	Students gained information in the field of biochemistry live up to the required level	Citric acid cycle	The use of scientific references and use the board	Monthly written examinations and oral examinations
6	1	Students gained information in the field of biochemistry live up to the required level	glycolysis	The use of scientific references and use the board	Monthly written examinations and oral examinations
7	1	Students gained information in the field of biochemistry live up to the required level	Metabolism of glycogen	The use of scientific references and use the board	Monthly written examinations and oral examinations
8	1	Students gained information in the field of biochemistry live up to the required level	Gluconeogenesis	The use of scientific references and use the board	Monthly written examinations and oral examinations
9	1	Students gained information in the field of biochemistry live up to the required level	Pentose phosphate path way	The use of scientific references and use the board	Monthly written examinations and oral examinations

10	1	Students gained information in the field of biochemistry live up to the required level	Biosynthesis of fatty acids	The use of scientific references and use the board	Monthly written examinations and oral examinations
11	1	Students gained information in the field of biochemistry live up to the required level	Oxidation of fatty acids	The use of scientific references and use the board	Monthly written examinations and oral examinations
12	1	Students gained information in the field of biochemistry live up to the required level	Metabolism of acyl glycerol	The use of scientific references and use the board	Monthly written examinations and oral examinations
13	1	Students gained information in the field of biochemistry live up to the required level	Lipid transport and storage	The use of scientific references and use the board	Monthly written examinations and oral examinations
14	1	Students gained information in the field of biochemistry live up to the required level	Cholesterol synthesis	The use of scientific references and use the board	Monthly written examinations and oral examinations
15	1	Students gained information in the field of biochemistry live up to the required level	Biosynthesis of amino acids	The use of scientific references and use the board	Monthly written examinations and oral examinations
16	1	Students gained information in the field of biochemistry live up to the required level	Catabolism of proteins	The use of scientific references and use the board	Monthly written examinations and oral examinations
17	1	Students gained information in the field of biochemistry live up to the required level	Conversion of amino acids to specialized products	The use of scientific references and use the board	Monthly written examinations and oral examinations

10. Course Structure / Practical Biochemistry 2					
Week	Hours	Learning outcomes	Outcomes required unity / or topic.	teaching method	Teaching method evaluation method.
1	2	Vitamin C	determination of Vitamin C	The use of scientific references and use the board	Monthly written examinations and oral examinations

2	1	Estimation of urea level in the blood	determination of urea level in the blood	The use of scientific references and use the board	Monthly written examinations and oral examinations
3	1	Serum calcium measurement	determination of Serum calcium measurement	The use of scientific references and use the board	Monthly written examinations and oral examinations
4	1	Serum total protein	determination of serum total protein	The use of scientific references and use the board	Monthly written examinations and oral examinations
5	1	Estimation of uric level in the blood	determination of uric level in the blood	The use of scientific references and use the board	Monthly written examinations and oral examinations
6	1	General urine examination	determination of General urine examination	The use of scientific references and use the board	Monthly written examinations and oral examinations
7	1	Estimation of blood phosphorus	determination of blood phosphorus	The use of scientific references and use the board	Monthly written examinations and oral examinations
8	1	Cerebrospinal fluid(CSF)	determination of Cerebrospinal fluid(CSF)	The use of scientific references and use the board	Monthly written examinations and oral examinations

11. Course development plan

- Linking laboratory analyzes with theoretical materials
- Continuous updating of the curriculum for students to serve the educational process

Course description

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the

program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory department
3.Course name\ code	Arabic language / 50304115
4.Available attendance forms	Official working hours
5.Semester \year	Second semester/2023-2022
6.Credits (total)	2 hours /week
7.Date of description	2023
8.Course outcomes	
Helping to understand the language and know its grammar.	

Required program outcomes and teaching, learning, and assessment methods.

9.Cognitive goals

10.1- That students be able to obtain knowledge and understanding of the intellectual framework of the Arabic language subject.

11.Developing students' talents and abilities in literary arts through acquired knowledge.

B. The skill goals of the program

- 1. The student should be able to master the rules of language.**
- 2. The student develop his linguistic and literary skills.**

Teaching and learning methods

- 1. Encouragement to read the published blogs.**
- 2. Make reports on language topics.**

Evaluation methods

- 1. Made periodic reports on issues related to the material.**
- 2. Mid-semester exam, and taking into consideration the attendance and daily participation in the lecture.**
- 3. Semester-end exam.**

C. Affective and value goals

- 1. To enhance the spirit of cooperation and teamwork among students.**
- 2. To contribute to preserving the linguistic heritage of the nation.**
- 3. To be able to speak eloquent Arabic and avoid drifting behind the vernacular.**
- 4. Training students to respect freedom of thought, expression and creativity in others.**

Teaching and learning methods

- 1. Writing reports on lectures and showing its importance.**
- 2. Forming discussion sessions in which the student are rewarded for their answer, and their information is corrected when mistaken**
- 3. Article presentation and discussion method.**

Evaluation methods

- 1. Written tests.**
- 2. Activities, performance and proper linguistic mastery free from errors.**
- 3. The answers of students considered as a standard answer approved in the exam.**

D. General and professional skills transferred:

- 1. Follow up on recent scientific topics**
- 2. Attempt to solve external questions and homework by referring to the sources.**

11. The program structure

Evaluation method	Education method	Subject name	Learning outcomes	Hours	Week
Tests, student attendance and participation, reports	Smart board	concept (speech, say, word)	Understand the concept of the following terms: (speech, say, word)	2	1
Tests, student attendance and participation, reports	Smart board	Types of the name and their sign	Knowing the types of the name and their sign	2	2
Tests, student attendance and participation, reports	Smart board	verb, its divisions and its sign	Knowing what the verb is, its divisions and its sign	2	3
Tests, student attendance and participation, reports	Smart board	signs of feminization in names and verbs	Knowing the signs of feminization	2	4
Tests, student attendance and participation, reports	Smart board	incomplete verbs, their function, and their connotations	Knowledge of incomplete verbs, their function, and their connotations	2	5
Tests, student attendance and participation, reports	Smart board	of letters that act as verbs	Knowledge of letters that act as verbs and their use	2	6
Tests, student attendance and participation, reports	Smart board	the name and action of the subject	Knowing the name and action of the subject	2	7
Tests, student attendance and participation, reports	Smart board	the participle and its use	Knowing the participle and its use	2	8
Tests, student attendance and participation, reports	Smart board	the verbs of five	Knowing the verbs of five and their difference from other verbs	2	9
Tests, student attendance and participation, reports	Smart board	Double nouns	knowing how to double nouns	2	10

participation, reports					
Tests, student attendance and participation, reports	Smart board	Pleural nouns	Knowing how to pleural nouns	2	11
Tests, student attendance and participation, reports	Smart board	counting	Counting rules in writing	2	12
Tests, student attendance and participation, reports	Smart board	How to write Hamza	Grammar of Hamza	2	13

10. Course development plan	
Enrich lectures with subjects from new books	
13 .Infrastructure	
	1- The required textbooks
- Collector of Arabic lessons. - - The basic grammar of the Arabic language	2- Major reference books
	a) Recommended books and references (Scientific journals, reports)..... ,
	b) Electronic references online

Course Description Form

Helping students to understand the medical physics concepts and how to use the laboratory apparatus, and so is emphasized on the need for learning and teaching experience and discuss teamwork and evaluate writing self-reports using scientific references

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	Medical physics 50304109
4.Available attendance forms	Formal Time
5.Semester \year	semester
6..Credits (total)	4 hour per week
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation					
To understand physics concepts and terminology, and its applications in field of medicine.					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	2	Students gain basic knowledge of physics and the application in medical field	Method of physics, properties of systems and thermodynamics, conservation of energy principle, zeroth law	The use of scientific references and use the board	Quizzes, homework and oral examination
2	2	Students gain basic knowledge of physics and the application in medical field	Temperature scales, equation of state, ideal gas, general law of gases, coefficient	The use of scientific references and use the board	Quizzes, homework and oral examination

			of volume expansion		
3	2	Students gain basic knowledge of physics and the application in medical field	Heat and energy, first law of thermodynamic, Boyles and Charles law	The use of scientific references and use the board	Quizzes, homework and oral examination
4	2	Students gain basic knowledge of physics and the application in medical field	The second law of thermodynamic, entropy and enthalpy, heat capacity and adiabatic process.	The use of scientific references and use the board	Quizzes, homework and oral examination
5	2	Students gain basic knowledge of physics and the application in medical field	Kinetic theory of gas, electromagnetic waves, Maxwell equations, physical optics	The use of scientific references and use the board	Quizzes, homework and oral examination
6	2	Students gain basic knowledge of physics and the application in medical field	Radiation laws, black body radiation, heat transfer	The use of scientific references and use the board	Quizzes, homework and oral examination
7	2	Students gain basic knowledge of physics and the application in medical field	Production of x-ray, U.V and IR effects, medical effects of radiation	The use of scientific references and use the board	Quizzes, homework and oral examination
8	2	Students gain basic knowledge of physics and the application in medical field	Ostwald's viscometer, find the molecular weight, find the concentration of unknown substance	The use of scientific references and use the board	Quizzes, homework and oral examination
9	2	Students gain basic knowledge	Measuring surface tension by	The use of scientific references	Quizzes, homework and oral

		of physics and the application in medical field	capillary	and use the board	examination
10	2	Students gain basic knowledge of physics and the application in medical field	Speed of sound	The use of scientific references and use the board	Quizzes, homework and oral examination
11	2	Students gain basic knowledge of physics and the application in medical field	Laser application in medicine	The use of scientific references and use the board	Quizzes, homework and oral examination
11. Course development plan Use of updated lab equipment that help students to develop their learning skills.					

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1-Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2-Scientific department \ enter	Clinical laboratory sciences
3-Course name\ code	Human Rights 50304112
4-Available attendance forms	Formal Time
5-Semester \year	course
6-Credits (total)	2 hour per week
7-Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	The outcomes of human rights	The concept of human rights	theoretical	Discussion
2.	2	The history of human rights in civilizations	The ancient civilizations like Babylonian and Greek human rights concepts	Theoretical	Discussion
3.	2	The history of	The outcomes of	Theoretical	discussion

		Plato and Socrates	their theories		
4.	2	The philosophy of divine religions	The outcomes of human rights calls in religions	Theoretical	discussion
5.	2	The different types of human rights	The outcomes of different types of human rights	Theoretical	discussion
6.	2	Different types of freedom in human rights	The outcomes of freedom in human rights	Theoretical	discussion
7.	2	The rights and obligations of freedom	The outcomes of the rights of obligations of freedom	Theoretical	discussion
8.	2	Mid terms		Theoretical	Test
9.	2	Mid terms		Theoretical	Test
10.	2	The economic and sociological rights	The economic and sociological rights outcomes of	Theoretical	discussion
11.	2	The Arabic chart of human rights	The treaty of Arabic chart of human rights	Theoretical	Discussion
12.	2	The international declaration of human rights	The treaty of international declaration of human rights	Theoretical	Discussion
13.	2	The regional chart of human rights	The treaty of the regional chart of human rights	Theoretical	Discussion
14.	2	The national chart of human rights	The treaty of the national chart of human rights	Theoretical	Discussion
15.	3	Final		Theoretical	Test

11. Course development plan

Adopting a basic curriculum that is taught in the college and approved by the College of Political Sciences

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	Human anatomy/50801406
4.Available attendance forms	Attendance
5.Semester \year	Semester
6.Credits (total)	100
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation					
9-Course structure					
Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	3h.s theory , 2 h.s practical	Introduction	1. General introduction to human anatomy	PPT slides, smart board,	Reports Quizzes Home works
2	3h.s theory , 2 h.s practical	Anatomy of CVS	2. Cardiovascular system: Anatomical position of the heart, arterial circulation, venous circulation	PPT slides, smart board	Reports Quizzes Home works
3	3h.s theory , 2	Anatomy of	3. musculusk	PPT slides,	Reports Quizzes

	h.s practical	muscles, its types and position and function	skeletal system	smart board	Home works
4	3h.s theory , 2 h.s practical	Anatomy of main bones in the body	musculoskeletal system part 2	PPT slides, smart board	Reports Quizzes Home works
5	3h.s theory , 2 h.s practical	Anatomy of primary lymphoid organs	4. Lymphoid tissue: Location of the (thymus gland, spleen and lymph nodes)	PPT slides, smart board	Reports Quizzes Home works
6	3h.s theory , 2 h.s practical	Anatomy of secondary lymphoid organs	Lymphoid nodules (MALT) and Tonsils	PPT slides, smart board	Reports Quizzes Home works
7	3h.s theory , 2 h.s practical	Anatomy of central nervous system	5. Nervous system: Central & Peripheral nervous system location	PPT slides, smart board	Reports Quizzes Home works
8	3h.s theory , 2 h.s practical	Anatomy of respiratory system	6. Respiratory system: Conducting portion (Nose, Nasopharynx, Trachea Bronchus and Bronchioles) Respiratory portion (Lung)	PPT slides, smart board	Reports Quizzes Home works
9	3h.s theory , 2 h.s practical	Anatomy of GIT and biliary system	7. Digestive system: Location of different parts of digestive	PPT slides, smart board	Reports Quizzes Home works

			tract (GIT) (Oral cavity, Mouth, Esophagus and Stomach) Small intestine, Large intestine, Rectum and Anus.		
10	3h.s theory , 2 h.s practical		mid exam	PPT slides, smart board	Reports Quizzes Home works
11	3h.s theory , 2 h.s practical	Anatomy of salivary glands	8. Digestive system: Glands associated with the digestive tract by location (Salivary glands, Pancreas, Liver and Gall bladder)	PPT slides, smart board	Reports Quizzes Home works
12	3h.s theory , 2 h.s practical	Anatomy of endocrine system	9. Endocrine system: Location of the pituitary gland Location of the Adrenal, Thyroid, Parathyroid, islet of Langerhans and Pineal glands.	PPT slides, smart board	Reports Quizzes Home works
13	3h.s theory , 2 h.s practical	Anatomy of male and female reproductive system	10. Male reproductiv e system: Location of the testes Excretory genital ducts Excretory genital glands (Seminal vesicles, Prostate and Cowper's glands)	PPT slides, smart board	Reports Quizzes Home works
14	3h.s theory , 2 h.s practical	Anatomy of male and female	11. Female reproductiv e system:	PPT slides, smart board	Reports Quizzes Home works

		reproductive system	Location of ovary, Oviduct, Uterus and Vagina		
16.	3h.s theory , 2 h.s practical	Anatomy of renal system	12. Urinary system: Location of the (kidney and nephrons) Location of the (Ureter, Bladder and Urethra)	PPT slides, smart board,	Reports Quizzes Home works
11. Course development plan					
Principle of human anatomy -1 Seely's Anatomy and Physiology Atlas of Human Anatomy Online reviews					

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning

opportunities. It must be linked to the program description.

1.Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2.Scientific department \ enter	Clinical laboratory sciences
3.Course name\ code	English Language-4 ^{ed} stage
4.Available attendance forms	Formal Time
5.Semester \year	course
6.Credits (total)	hour per week
7.Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1	1	Students gain basic knowledge of English Language	Grammar and writing: The tense system and English tenses usage	Direct Instruction	In-class quizzes and reading assignments, and homework
2	1	Students gain basic knowledge of English Language	Reading and listening: Practice English language with vocabulary and reading activities assigned by the	Direct Instruction	In-class quizzes and reading assignments, and homework

			textbook		
3	1	Students gain basic knowledge of English Language	Grammar and writing: Introduction to the Present Perfect , simple and continuous	Direct Instruction	In-class quizzes and reading assignments, and homework
4	1	Students gain basic knowledge of English Language	Grammar, Reading and listening: Narrative tenses Past Simple and Present Perfect. Practice English language with vocabulary	Direct Instruction	In-class quizzes and reading assignments, and homework
5	1	Students gain basic knowledge of English Language	Grammar and writing: Question forms & Negatives	Direct Instruction	In-class quizzes and reading assignments, and homework
6	1	Students gain basic knowledge of English Language	Grammar and writing : Introduction to future forms,	Direct Instruction	In-class quizzes and reading assignments, and homework
7	1	Students gain basic knowledge of English Language	Grammar and writing: Decisions and intentions, words commonly confused	Direct Instruction	In-class quizzes and reading assignments, and homework
8	1	Students gain basic knowledge of English Language	Grammar, Reading and listening: Expressing quantity Practice English language with vocabulary and reading activities assigned by the textbook	Direct Instruction	In-class quizzes and reading assignments, and homework
9	1	Students gain basic knowledge of English Language	Grammar and writing: Modal auxiliary verbs of probability present and future	Direct Instruction	In-class quizzes and reading assignments, and homework
10	1	Students gain	Grammar,	Direct	In-class quizzes

		basic knowledge of English Language	Introduction to relative clauses. Practice English language with vocabulary	Instruction	and reading assignments, and homework
11	1	Students gain basic knowledge of English Language	Grammar and writing: - Expressing habits - argument and brainstorm ideas - Hypothesizing	Direct Instruction	In-class quizzes and reading assignments, and homework

Template for program specification

HIGHER EDUCATION PERFORMANCE REVIEW: PROGRAMME REVIEW

Program specification

This Program Specification provides a concise summary of the main features of the program and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if takes full advantage of the learning opportunities that are provided. It is supported by a specification for each course that contributes to the program.

.1 Teaching Institution	Ministry of Higher Education & Scientific Research
2. University Department/Centre	University of Mustansiriyah
3. Program Title	pharmacy science
4. Title of Final Award	Democracy
5. Modes of Attendance offered	Semester
6. Accreditation	ACPE
7. Other external influences	Theoretical study

8. goals of the decided

- study of the concept of democracy , types , components , characteristics , component ,applications and function

-shedding light on the concept of democracy in Islam and western thinkers

-study the advantages and disadvantages of democracy

9. course outcomes and methods of teaching , learning and assessment

A-cognitive goals

A1 -knowing the most important democratic practices that have occurred in our Iraq society

A2-How to deal with these practices as a legitimate right of every member of society

A3-Focus on the duties that fall on the shoulders of the individual in order to complete the democratic process.

A4-Familiarity with some moral, social and religious values.

B- Special skills objectives of the decided.

-Tinking and using a problem-solving method

-Too many question

Teaching and learning methods

- The Declamation method

- The discovery method

- cooperatin education

Evaluation methods

-Short tests.

-Dialogue question and discussions within the lectures.

-Assigning the student to do research related to the course.

-Attempt to identify the student's mistakes and correct them.

C-Emotional and value goals.

1-Education on professional humanitarian work.

2-Enhancing and consolidation professional and ethical values for students to practice the profession of pharmacist

3-Enhancing the spirit of cooperation and teamwork among students.

- 4-Training students to respect the freedom of thought expression and creativity of other
- 5-Develop students` sense of responsibility during the study period and during work

Teaching and learning methods

- 1-Discuss teamwork
- 2- Writing self-reports
- 3- Use the strategy of cooperation and assistance during the learning process
- 4- Field visits to relevant ministries and educational institutions
- 5- Organizing seminars courses and workshops for students that encourage spiritual values**

Evaluation methods

- Surprising interential question during the discussion in different aspects of learning.

D-Transferred general and qualification skills (other skills related to employability and personal development) .

- Develop the student`s ability to deal with multiple media.
- Develop the student`s ability to dialogue and discussion.

10-decided structure

Evaluation method	Education method	Unit name / topic	Required learning outcomes	The hour	The week
Dialogue question and discussions	theoretical	Democracy and income to it (definition of democracy, concept of democracy).	Teaching student the concept of democracy	Two hours	The first
Dialogue question and discussions	theoretical	The concept of democracy among contemporary western thinkers , the components of a democratic system	Teaching the student the concept of democracy among western thinkers	Two hours	The second
Dialogue questions and discussions	theoretical	Characteristics of a democratic system, the basic components of	Teaching students the characteristics of a democracy	Two hours	The third

		democracy.	system		
Dialogue questions and discussions	theoretical	Pillars of democracy .	Teaching the students the pillars of democracy	Two hour	The fourth
Dialogue questions and discussions	theoretical	Terms of the democratic system.	Student education and the conditions of the democratic system	Two hour	The fifth
Assigning the student to do research related to the topic	theoretical	Democracy apps	Teaching the student democracy application	Two hour	The sixth
Dialogue questions and discussions	theoretical	Types of democracy (direct , indirect , semi-direct)	Teaching the student	Two hour	The seventh
tests		Midterm exam		Two hour	The eighth
tests		Midterm exam		Two hour	The ninth
Assigning the student to do research related to the topic	theoretical	Democracy in Islam	Teaching the student the principles of democracy in Islam	Two hour	The tenth
Dialogue questions and discussions	theoretical	Concepts and principles of majority rule.	Teaching students the concepts and principles of majoritarian systems	Two hour	The eleventh
Dialogue questions and discussions	theoretical	Common democratic principles for all regimes.	Teaching students the principles of democracy common to all regimes	Two hour	The twelfth
Dialogue questions and discussions	theoretical	Disadvantage of democracy.	Teaching the student about the issues of democracy	Two hour	The thirteenth
Dialogue questions and discussions	theoretical	Advantages of democracy.	Teaching students the advantages of democracy	Two hour	The fourteenth
tests		Final semester exam.		Three hour	The fifteenth

11-infrastructure	
The democracy lecture for second year students	1-required course books
Democracy lectures taught at the college of political science / mustansiriyah university	2-main references (sources)
Modern scientific research in the field of democracy	A-recommended books and references (scientific journals , reports , ...)
Human rights organization , unicef	B-electronic references websites

12- decided development plan
Adopting a basic curriculum taught in the college and approved by the college of political science

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
Scientific department \ enter	Clinical Laboratory Sciences
Course name\ code	Biosafety and biosecurity/50304215
Available attendance forms	Official attendance hours
Semester \year	First Semester
Credits (total)	1 Hours weekly
Date of description	2023

8-Course outcomes, teaching methods, learning and evaluation

Helping to understand the biosafety levels in laboratories

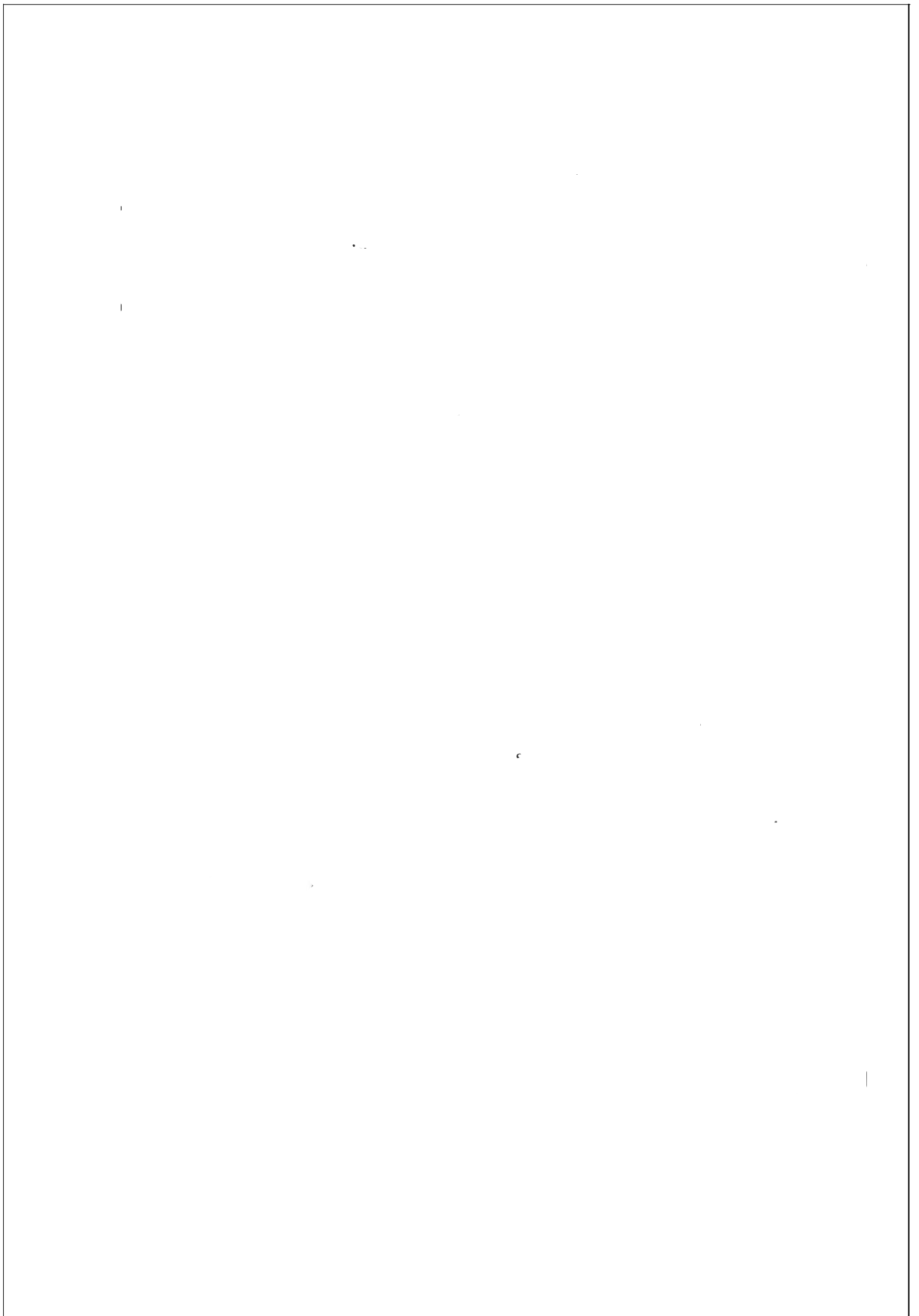
Knowing the application of best practices in the handling of biological materials and biological processes would like to reduce risks to persons and facilities

9-Course structure

Week	Hrs.	Required learning outputs	Subject name	Assessment methods
			Biosafety and Biosecurity	
1	1	Key components to biosafety management Components of safety in all Labs	Introduction to biosafety and	Monthly written examinations and oral examinations
2	1	PPE, Facility design	Biosecurity	Monthly written examinations and

				oral examinations
3	1	Risk assessment strategy, risk groups, biosafety levels, practices and equipment's	Biosafety levels	Monthly written examinations and oral examinations
4	1	Routes of infection, bases for control measures, Hazard group classification system, A biosafety cabinet BSC	Biological agents	Monthly written examinations and oral examinations
5	1	COSHH: Control of substances hazardous to health. Assessing risk with blood & human tissues Hazards Control measures for work with blood and human tissues Containment Level	Bio risk and biohazard	Monthly written examinations and oral examinations
6	1	Assess the of the Laboratory Staff to Control Hazards Relation of Risk Groups to Biosafety Levels. Practices and Equipment Mitigation Control Measures Sustainability of Bio risk Management system Strengthening Bio risk management	Bio risk Management System	Monthly written examinations and oral examinations
7	1	Categories of Biological Wastes Decontamination	Types of Biological Wastes	Monthly written examinations and

		of Biological Wastes		oral examinations
8	1	International transport regulations The basic triple packaging system	Transportation of biological material	Monthly written examinations and oral examinations
9	1	Spill clean-up procedure Investigating an Incident	Accident Response	Monthly written examinations and oral examinations
10	1	Overview of Biological Safety & Security Equipment	Overview of Biological Safety & Security Equipment	Monthly written examinations and oral examinations
11	1	Risk characterization in biosecurity Vulnerability Assessment	Introduction to Biosecurity Component of Laboratory	Monthly written examinations and oral examinations
12	1	Practical application of biosafety rules	Biosafety practical part	Monthly written examinations and oral examinations
13	1	http://www.labster.com/3d-biosafety-simulation	Biosafety rules simulation 3D	Monthly written examinations and oral examinations
10. Course development plan: visit lab level 3 in research centers to develop students' skills practical skills				



Academic Program Description

This academic program description provides a brief summary of the most important characteristics of the program and the learning outcomes expected of the student to achieve, demonstrating whether he/she has achieved the maximum benefit from the available opportunities. It is accompanied by a description of each course within the program

1. Educational institution	Ministry of Higher Education and Scientific Research - Mustansiriyah University
2. Scientific department / Center	/ Pharmacist Department
3. Academic program	Clinical pharmacy
4. The final granted degree	Bachelor of Pharmacy
5. The educational system	Courses system
6. Accreditation program	NCAPC
7. Other external influences	Educational laboratories + hospital training + theoretical lectures
8. Date of description form preparation	2023-2022

9. Academic Program Objective.

- 1- Make the graduate student able to read and use prescription
- 2- Making the graduate student able to communicate with patients
- 3- Making the graduate student able to educate patients about the drugs used by them
- 4- Making the graduate student able to follow up on medical cases and treatment errors that may occur as a result of the wrong use of drugs inside and outside the hospital and treat them .within the approved drug contexts in such cases

5- Determining drug doses and following them up within the laws approved in the field of drug control in hospitals and health centers in Iraq

10. Required program outcomes and teaching, learning, and assessment methods.

A. Cognitive goals

- 1- To be able to read and dispense prescriptions
- 2 -To be able to communicate with the patient
- 3 -To be able to educate the patient about medication
- 4 -To be able to dispense medicines correctly
- 5 -He shall be able to determine the doses by means of drug control
- 6 -Enabling students to acquire and understand communication skills and medical ethics
- 7- Enabling students to acquire and understand the economics of medicine and drug control

B. The skill goals of the program

- 1 - Enabling students to possess the skills of verbal and non-verbal communication with patients
- 2 - Patient pharmacological education skills
- 3 - Drug economics skills in determining the material costs of treatment programs for the patient.
- 4 -Patient management skills and pharmacological follow-up.
- 5 -Enabling students to acquire dispensing medication to patients
- 6- Enabling students to acquire the skills of drug preparation according to the disease cases diagnosed by the doctor
- 7- Enabling students to possess the skills of preparing drug doses
- 8- Enabling students to possess the skills of diagnosing cases of medical errors in the use and dispensing of medicines
- 9- Enabling students to possess the capabilities of pharmaceutical accounts
- 10- Enabling students to read and interpret all medical and pharmaceutical terms and symbols
- 11-Enabling students to possess the skills of using scientific research tools in the academic and scientific fields
- 12-Enabling students to acquire the skills of dialogue, discussion, listening to others and accepting their opinions
- 13- Enabling students to acquire skills

C. Affective and value goals

- 1- Seminars
- 2 -Educational laboratories
- 3 -Hospital training
- 4 -Lectures

5- Discussing cases

Teaching and learning methods for cognitive and skills goals:

- 1 -Daily exams
- 2 -Oral exams
- 3 -Small and Large Groups of Discussions
- 4 -The OSCE exam (a global system for testing the speed of students 'performance in reading and dispensing prescriptions and how to deal with patients)
- 5 -Midterm exam
- 6- end exam

Teaching and learning methods for Affective goals:

- 1.Educating students on professional humanitarian work and promoting and consolidating professional and ethical values upon students to practice the profession of pharmacist
- 2 .Educating students on a culture of integrity and combating corruption in all its forms
- 3 .Training students to respect the rights of the beneficiaries of their profession, their culture, religion, gender and ethnicity, and training students to respect the freedom of thought, expression and creativity among others.
- 4 .Developing students 'sense of a sense of responsibility during the study period and during work and enhancing the spirit of cooperation and teamwork upon the students.
5. Supports the pharmaceutical culture when students and members of society

Evaluation methods for the levels of cognitive and skill teaching and learning processes

- 1 -Using the strategy of cooperation and assistance during the educational process
- 2 -Field visits to the relevant ministries and educational institutions
- 3 -Holding seminars, courses and workshops for students that encourage spiritual values
- 4- Forming a discussion group during the lecture

Evaluation methods for the levels of affective teaching and learning processes and values

Discussions in small groups
Doing volunteer campaigns
Questionnaires

D. General and professional skills transferred:

(Other skills related to employability and personal development).

- 1 -He shall be able to work in private pharmacies.
- 2 -He shall be able to work in the lobbies and pharmacies of hospitals or health centers of the Ministry of Health.
- 3 -To be able to work in the field of pharmaceutical advertising in scientific offices.
- 4- He shall be able to work in the departments of need assessment and drug monitoring, as well as drug registration in the directorates of the Ministry of Health

Teaching and learning methods for general and qualification skills transferred

The evaluation methods for the general skills and qualifications transferred

12. Planning for personal development

1-Participation in training courses held inside the college under the supervision of the Rehabilitation and Employment Unit

2 - Participation in the professional courses that are held in the college within the prescribed curriculum, as well as the vocational education courses held in the Pharmacists Syndicate after graduation, which helps in developing the personal skills of the graduate within the professional and occupational side.

11. The program structure

Educational stage	course code	course name	Credits	
			Theoretical	Practical
Fourth	50305210	Communication skills	2	
Fourth	50305405	Clinical pharmacy 1	2	2
Fourth	50305410	Clinical pharmacy 2	2	2
Third	50305310	Medical ethics	1	
Fifth	50305506	Applied therapeutics 1	3	
Fifth	50305511	Applied therapeutics 2	2	
Fifth	50305514	Hospital training	2	
Fifth	50305513	Pharmacoeconomics	2	

1-Preparing a curriculum plan for each subject by the teaching staff.

2- Follow the program carefully.

- 3- Prepare questions, discussions, and theoretical and practical examinations and evaluate the student for her role.
- 4- Determine the most important obstacles that we faced in implementing the program and the performance self-evaluation

13. Admission Criteria

(establishing regulations related to college or institute admission)

The central admission standards have been applied to the college since the 2015 academic year

14. The most important sources of information about the program

- 1-Robert S. Beardsley, (ed.); Communication Skills in Pharmacy Practice, 5th edition.
- 1-Robert J. Cipolle, Linda M. Strand, Peter C. Morley. Pharmaceutical Care Practice: The Clinician's Guide, 2nd Edition.
- 2 -Robert m. Veatch and Amy Haddad. Case Studies in Pharmacy Ethics. second edition. Copyright © 2008 by Oxford University Press, Inc.
- 3-ALISON BLENKINSOPP, PAUL PAXTON(eds), Symptoms in the Pharmacy. A Guide to the Management of Common Illness, 6th edition.
- 4 -Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics
- 5-Reference Text: Roger Walker, Clive Edwards (eds), Clinical Pharmacy & Therapeutics.2012
- Barbara G. Wells & Joseph T. Diriro, Pharmacotherapy hand book 7th Edition.
- 6 -Drummond MF, O'Brien B, Stoddart GL, Torrance GW. Methods for the economic evaluation of health care programmes. 3rd ed. Oxford: Oxford University Press, 2005 .
- 7- Applied Clinical Pharmacokinetics, Second Edition, 2008 by Larry A. Bauer.

Scheme of curriculum skills

Please tick in the corresponding boxes for individual learning outcomes of the program under assessment

required learning outcomes of the program

Year / Level	Course code	Course name	Basic Or optional	Cognitive goals					Skill goals of the program					Affective and value goals					General and rehabilitative skills					
				A 1	A 2	A 3	A 4	A 5	B 1	B 2	B 3	B 4	B 5	C 1	C 2	C 3	C 4	C 5	D 1	D 2	D 3	D 4	D 5	D 6
Third	503 05 3 10	Medical ethics	Basic			√					√									√				
Fourth	503 05 2 10	Communi- cation skills	Basic		√					√									√					
Fourth	503 05 4 05	Clinical pharmacy1	Basic				√				√										√			
Fourth	503 05 4 10	Clinical pharmacy2	Basic				√				√										√			
Fifth	503 05 5 06	Applied therapeutic s1	Basic					√					√										√	

Fifth	503 05 5 11	Applied therapeutic s 2	Basic					√					√									√		
Fifth	504 05 5 14	Hospital training	Basic					√					√										√	
Fifth	503 05 5 12	Pharmacoe conomics	Basic					√					√										√	
Fifth	503 05 5 13	TDM	Basic					√					√										√	

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

1. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
2. Scientific department \ enter	Clinical pharmacy
3. Course name\ code	Communication skills/50305210
4. Available attendance forms	Official working hours
5. Semester \year	Second semester/2023-2022
6. Credits (total)	2 hr * 15 weeks = 30 hrs
7. Date of description	2022-2023

8-Course outcomes, teaching methods, learning and evaluation

1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment.

2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Patient-centered communication in pharmacy practice	Patient-centered communication in pharmacy practice	Whiteboard, data show	Theoretical exam, class discussions
2.	2	Principles and basics of interpersonal communication	Principles and basics of interpersonal communication	Whiteboard, data show	Theoretical exam, class discussions
3.	2	Nonverbal communication	Nonverbal communication	Whiteboard, data show	Theoretical exam, class discussions
4.	2	Barriers to communication	Barriers to communication	Whiteboard, data show	Theoretical exam, class discussions
5.	2	Listen and respond sympathetically during communication	Listen and respond sympathetically during communication	Whiteboard, data show	Theoretical exam, class discussions
6.	2	Determination	Determination	Whiteboard, data show	Theoretical exam, class discussions
7.	2	Interview and evaluation	Interview and evaluation	Whiteboard, data show	Theoretical exam, class discussions
8.	2	Helping patients to manage treatment regimens	Helping patients to manage treatment regimens	Whiteboard, data show	Theoretical exam, class discussions
9.	2	Patient consultation, counseling list, discussion point by point, counseling scenario	Patient consultation, counseling list, discussion point by point, counseling scenario	Whiteboard, data show	Theoretical exam, class discussions
10.	2	Medication safety and	Medication safety and	Whiteboard, data show	Theoretical exam, class

		communication skills	communication skills		discussions
11.	2	Strategies to meet special needs	Strategies to meet special needs	Whiteboard, data show	Theoretical exam, class discussions
12.	2	Communicate with children and the elderly about treatments	Communicate with children and the elderly about treatments	Whiteboard, data show	Theoretical exam, class discussions
13.	2	Communication and cooperation skills among medical professionals	Communication and cooperation skills among medical professionals	Whiteboard, data show	Theoretical exam, class discussions
14.	2	Electronic communication in health care	Electronic communication in health care	Whiteboard, data show	Theoretical exam, class discussions
15.	2	Ethical behavior when communicating with patients	Ethical behavior when communicating with patients	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

There are proposals on integrating this course into community pharmacy topics within the curricula that will be taught to students of the third stage / second cycle to benefit from it in the practical application of training pharmacies during the summer period

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

8. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
9. Scientific department \ enter	Clinical pharmacy
10. Course name\ code	Medical ethics/ 50305310
11. Available attendance forms	Official working hours
12. Semester \year	Second semester/2023-2022
13. Credits (total)	1 hr * 15 weeks = 15 hrs
14. Date of description	2023-2022

8-Course outcomes, teaching methods, learning and evaluation

1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment.

2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
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1.	2	Introduction to pharmacy ethics (theoretical considerations)	Introduction to pharmacy ethics (theoretical considerations)	Whiteboard, data show	Theoretical exam, class discussions
2.	1	Code of Ethics for Pharmacy	Code of Ethics for Pharmacy	Whiteboard, data show	Theoretical exam, class discussions
3	3	Common ethical considerations in the application of pharmaceutical care	Common ethical considerations in the application of pharmaceutical care	Whiteboard, data show	Theoretical exam, class discussions
4	2	Relationships between medical professionals	Relationships between medical professionals	Whiteboard, data show	Theoretical exam, class discussions
5	1	Ethical decision-making	Ethical decision-making	Whiteboard, data show	Theoretical exam, class discussions
6	1	Ethical issues related to clinical pharmacy research	Ethical issues related to clinical pharmacy research	Whiteboard, data show	Theoretical exam, class discussions
7	1	Ethical problems in the clinical application of the pharmacist	Ethical problems in the clinical application of the pharmacist	Whiteboard, data show	Theoretical exam, class discussions
8	1	Prevent misuse of medication	Prevent misuse of medication	Whiteboard, data show	Theoretical exam, class discussions
9	3	Case studies in pharmacy ethics	Case studies in pharmacy ethics	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

The intention is to introduce medical ethics topics with new topics related to developing the skills of graduate students through teaching them the laws of practicing the profession and the Pharmacists Syndicate and making it within a new teaching subject called pharmacy ethics, which will be taught to students of the fifth stage, the second cycle

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

15. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
16. Scientific department \ enter	Clinical pharmacy
17. Course name\ code	Clinical pharmacy1/ 50305405
18. Available attendance forms	Courses
19. Semester \year	First semester/2023-2022
20. Credits (total)	2 hr * 15 weeks = 30 hrs
21. Date of description	2023-2022

8-Course outcomes, teaching methods, learning and evaluation

1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment.

2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	An Introduction to Community Pharmacy	An Introduction to Community Pharmacy	Whiteboard, data show	Theoretical exam, class discussions
2.	2	Respiratory problems	Respiratory problems	Whiteboard, data show	Theoretical exam, class discussions
3	2	GIT problems	GIT problems	Whiteboard, data show	Theoretical exam, class discussions
4	2	Childcare practice	Childcare practice	Whiteboard, data show	Theoretical exam, class discussions
5	2	Skin diseases	Skin diseases	Whiteboard, data show	Theoretical exam, class discussions
6	2	Women's health	Women's health	Whiteboard, data show	Theoretical exam, class discussions
7	2	CNS problems	CNS problems	Whiteboard, data show	Theoretical exam, class discussions
8	2	Eye problems	Eye problems	Whiteboard, data show	Theoretical exam, class discussions
9	2	ENT problem	ENT problem	Whiteboard, data show	Theoretical exam, class discussions
10	2	Oral health	Oral health	Whiteboard, data show	Theoretical exam, class discussions
11	2	Obesity	Obesity	Whiteboard, data show	Theoretical exam, class

					discussions
12	2	Pain and disorders of the musculoskeletal system	Pain and disorders of the musculoskeletal system	Whiteboard, data show	Theoretical exam, class discussions
13	2	Nicotine replacement therapy	Nicotine replacement therapy	Whiteboard, data show	Theoretical exam, class discussions
14	2	Nutritional supplements	Nutritional supplements	Whiteboard, data show	Theoretical exam, class discussions
15	2	Updating in drug reclassification	Updating in drug reclassification	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

The intention is to introduce new topics into the clinical pharmacy curricula, especially those related to community pharmacy, in terms of the pharmacist's treatment of common diseases in the community, how to treat them, give medication instructions on them, and study within the curricula of the second course for third-stage students to benefit from them in the subject of .summer training for pharmacy training course

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

22. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
23. Scientific department \ enter	Clinical pharmacy
24. Course name\ code	Clinical pharmacy 2/ 50305410
25. Available attendance forms	Courses
26. Semester \year	Second semester/2023-2022
27. Credits (total)	2 hr * 15 weeks = 30 hrs
28. Date of description	2023-2022

8-Course outcomes, teaching methods, learning and evaluation

1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment.

2 -To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
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1.	1	Introduction	Introduction	Whiteboard, data show	Theoretical exam, class discussions
2.	1	Patient's care	Patient's care	Whiteboard, data show	Theoretical exam, class discussions
3	2	Hematological problems	Hematological problems	Whiteboard, data show	Theoretical exam, class discussions
4	2	Hypertension	Hypertension	Whiteboard, data show	Theoretical exam, class discussions
5	2	Angina	Angina	Whiteboard, data show	Theoretical exam, class discussions
6	2	Heart failure	Heart failure	Whiteboard, data show	Theoretical exam, class discussions
7	1	Peripheral vascular disease	Peripheral vascular disease	Whiteboard, data show	Theoretical exam, class discussions
8	2	Asthma	Asthma	Whiteboard, data show	Theoretical exam, class discussions
9	1	Respiratory disease	Respiratory disease	Whiteboard, data show	Theoretical exam, class discussions
10	2	DM	DM	Whiteboard, data show	Theoretical exam, class discussions
11	2	Peptic ulcer	Peptic ulcer	Whiteboard, data show	Theoretical exam, class discussions
12	1	Tuberculosis	Tuberculosis	Whiteboard, data show	Theoretical exam, class discussions
13	1	Meningitis	Meningitis	Whiteboard, data show	Theoretical exam, class discussions
14	2	Respiratory infection	Respiratory infection	Whiteboard, data show	Theoretical exam, class discussions
15	1	GIT infection	GIT infection	Whiteboard, data show	Theoretical exam, class discussions

16	2	Rheumatoid arthritis	Rheumatoid arthritis	Whiteboard, data show	Theoretical exam, class discussions
17	1	Osteoporosis	Osteoporosis	Whiteboard, data show	Theoretical exam, class discussions
18	1	Endocarditis	Endocarditis	Whiteboard, data show	Theoretical exam, class discussions
19	1	Preoperative antibiotics	Preoperative antibiotics	Whiteboard, data show	Theoretical exam, class discussions
20	1	UTI	UTI	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

The intention is to introduce new topics into the clinical pharmacy curricula, especially those related to community pharmacy, in terms of the pharmacist's treatment of common diseases in the community, how to treat them, give medication instructions on them, and study within the curricula of the second course for third-stage students to benefit from them in the subject of .summer training for pharmacy training course

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

29. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
30. Scientific department \ enter	Clinical pharmacy
31. Course name\ code	Applied therapeutic1/ 50305506
32. Available attendance forms	Courses
33. Semester \year	First semester/2023-2022
34. Credits (total)	2 hr * 15 weeks = 30 hrs
35. Date of description	2023-2022

8- course outcomes, teaching methods, learning and evaluation

- 1- The course aims to identify the different pathological conditions, their definition, causes, methods of diagnosis, treatment methods and groups of drugs used in treatment**
- 2 -To make the graduate student able to recognize the pathological conditions fixed in the patient's drum**
- 3 -Making the graduate student able to communicate with patients in general disease outpatient clinics**
- 4- Making the graduate student able to educate patients about the drugs used by them**
- 5- Make the graduate student able to match wrong remedial methods with what is found in proven sources**

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	3	Acute coronary atherosclerosis syndrome	Acute coronary atherosclerosis syndrome	Whiteboard, data show	Theoretical exam, class discussions
2.	3	arrhythmia	Arrhythmia	Whiteboard, data show	Theoretical exam, class discussions
3	3	Blood clotting and stroke	Blood clotting and stroke	Whiteboard, data show	Theoretical exam, class discussions
4	3	Hypercholesterolemia	Hypercholesterolemia	Whiteboard, data show	Theoretical exam, class discussions
5	3	Shock	Shock	Whiteboard, data show	Theoretical exam, class discussions
6	3	CNS diseases	CNS diseases	Whiteboard, data show	Theoretical exam, class discussions
7	3	Cirrhosis and viral hepatitis	Cirrhosis and viral hepatitis	Whiteboard, data show	Theoretical exam, class discussions
8	3	Increased intraocular pressure - nerve fibrosis	Increased intraocular pressure - nerve fibrosis	Whiteboard, data show	Theoretical exam, class discussions
9	3	Acute kidney failure	Acute kidney failure	Whiteboard, data show	Theoretical exam, class discussions
10	3	Chronic kidney deficiency and dialysis	Chronic kidney deficiency and dialysis	Whiteboard, data show	Theoretical exam, class discussions
11	3	TPN	TPN	Whiteboard, data show	Theoretical exam, class discussions
12	3	Urinary incontinence and Nocturnal urination	Urinary incontinence and Nocturnal urination	Whiteboard, data show	Theoretical exam, class discussions
13	3	Interpretation	Interpretation of	Whiteboard,	Theoretical

		of laboratory results	laboratory results	data show	exam, class discussions
14	3	Fluids,minerals,and acid-base disturbances	Fluids,minerals,and acid-base disturbances	Whiteboard, data show	Theoretical exam, class discussions
15	3	Colitis-systemic lupus erythematosuslupus	Colitis-systemic lupus erythematosuslupus	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

No plan

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

36. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
37. Scientific department \ enter	Clinical pharmacy
38. Course name\ code	Applied therapeutic2/ 50305511
39. Available attendance forms	Courses
40. Semester \year	Second semester/2023-2022
41. Credits (total)	2 hr * 15 weeks = 30 hrs
42. Date of description	2023-2022

8- course outcomes, teaching methods, learning and evaluation

- 1- The course aims to identify the different pathological conditions, their definition, causes, methods of diagnosis, treatment methods and groups of drugs used in treatment**
- 2 -To make the graduate student able to recognize the pathological conditions fixed in the patient's drum**
- 3 -Making the graduate student able to communicate with patients in general disease outpatient clinics**
- 4- Making the graduate student able to educate patients about the drugs used by them**
- 5- Make the graduate student able to match wrong remedial methods with what is found in proven sources**

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Thyroid disease	Thyroid disease	Whiteboard, data show	Theoretical exam, class discussions
2.	2	Gynecology and contraception	Gynecology and contraception	Whiteboard, data show	Theoretical exam, class discussions
3	2	Menstrual disorders and hormone replacement therapy	Menstrual disorders and hormone replacement therapy	Whiteboard, data show	Theoretical exam, class discussions
4	2	Introduction to cancer diseases	Introduction to cancer diseases	Whiteboard, data show	Theoretical exam, class discussions
5	2	Leukemia	Leukemia	Whiteboard, data show	Theoretical exam, class discussions
6	2	Lymphoma	Lymphoma	Whiteboard, data show	Theoretical exam, class discussions
7	2	Breast cancer	Breast cancer	Whiteboard, data show	Theoretical exam, class discussions
8	2	Prostate Cancer	Prostate cancer	Whiteboard, data show	Theoretical exam, class discussions
9	2	Colon cancer	Colon cancer	Whiteboard, data show	Theoretical exam, class discussions
10	2	Adrenergic and pituitary diseases	Adrenergic and pituitary diseases	Whiteboard, data show	Theoretical exam, class discussions
11	2	Depression disease and schizophrenia	Depression disease and schizophrenia	Whiteboard, data show	Theoretical exam, class discussions
12	2	Fatigue and insomnia	Fatigue and insomnia	Whiteboard, data show	Theoretical exam, class discussions
13	2	Bipolar schizophrenia	Bipolar schizophrenia	Whiteboard, data show	Theoretical exam, class discussions
14	2	Alzheimer's	Alzheimer's	Whiteboard,	Theoretical

		disease	disease	data show	exam, class discussions
15	2	Immunodeficiency diseases	Immunodeficiency diseases	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

No plan

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

43. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
44. Course name\ code	TDM/ 50305512
45. Available attendance forms	Courses
46. Semester \year	Second semester/2023-2022
47. Credits (total)	2 hr * 15 weeks = 30 hrs
48. Date of description	2023-2022

8- course outcomes, teaching methods, learning and evaluation

1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment.

2- To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them.

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	2	Introduction	Introduction	Whiteboard, data show	Theoretical exam, class

					discussions
2.	2	A review of pharmacokinetic basics	A review of pharmacokinetic basics	Whiteboard, data show	Theoretical exam, class discussions
3	2	A review of pharmacodynamics basics	A review of pharmacodynamics basics	Whiteboard, data show	Theoretical exam, class discussions
4	2	Review of clinical pharmacokinetic equations and calculations and clinical pharmacodynamics	Review of clinical pharmacokinetic equations and calculations and clinical pharmacodynamics	Whiteboard, data show	Theoretical exam, class discussions
5	2	Clinical pharmacokinetics and clinical pharmacodynamics in special patient types	Clinical pharmacokinetics and clinical pharmacodynamics in special patient types	Whiteboard, data show	Theoretical exam, class discussions
6	2	Clinical pharmacokinetics and clinical pharmacokinetics of antibiotics	Clinical pharmacokinetics and clinical pharmacokinetics of antibiotics	Whiteboard, data show	Theoretical exam, class discussions
7	2	Mid term exam	Mid term exam	Whiteboard, data show	Theoretical exam, class discussions
8	2	Clinical pharmacokinetics and clinical pharmacokinetics of cardiovascular drugs	Clinical pharmacokinetics and clinical pharmacokinetics of cardiovascular drugs	Whiteboard, data show	Theoretical exam, class discussions
9	2	Clinical pharmacokinetics and clinical pharmacodynamics of antiepileptic	Clinical pharmacokinetics and clinical pharmacodynamics of antiepileptic drugs	Whiteboard, data show	Theoretical exam, class discussions

		.drugs			
10	2	Clinical pharmacokinetics and clinical pharmacokinetics of immunomodulators	Clinical pharmacokinetics and clinical pharmacokinetics of immunomodulators	Whiteboard, data show	Theoretical exam, class discussions
11	2	Clinical pharmacokinetics and clinical pharmacodynamics for different types .of drugs	Clinical pharmacokinetics and clinical pharmacodynamics for different .types of drugs	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

The intention is to develop the capabilities of the graduating students to be fully aware of the issues of drug control through their work on the devices used in hospitals for the purpose of following up the treatment after it is taken by the patients lying in the hospital corridors. Where there is a center for drug control at Baghdad Medical City Hospital, which is currently the only one in Iraq.

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

49. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
50. Course name\ code	Pharmacoeconomics/ 50305513
51. Available attendance forms	Courses
52. Semester \year	Second semester/2023-2022
53. Credits (total)	2 hr * 15 weeks = 30 hrs
54. Date of description	2023-2022

8- course outcomes, teaching methods, learning and evaluation

1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment.

2- To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them.

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assessment methods
1.	1	Classroom overview and basic principles of	Classroom overview and basic principles of pharmacoeconomi	Whiteboard, data show	Theoretical exam, class discussions

		pharmacoeconomics	cs		
2.	6	Cost analysis	Cost analysis	Whiteboard, data show	Theoretical exam, class discussions
3	2	Cost effectiveness analysis	Cost effectiveness analysis	Whiteboard, data show	Theoretical exam, class discussions
4	2	Mid term exam	Mid term exam	Whiteboard, data show	Theoretical exam, class discussions
5	2	Cost benefit analysis	Cost benefit analysis	Whiteboard, data show	Theoretical exam, class discussions
6	2	Cost minimization analysis	Cost minimization analysis	Whiteboard, data show	Theoretical exam, class discussions
7	4	A critical appraisal of an economic estimate	A critical appraisal of an economic estimate	Whiteboard, data show	Theoretical exam, class discussions
8	2	Mid term exam 2	Mid term exam2	Whiteboard, data show	Theoretical exam, class discussions
9	2	Drug-based structure versus disease-dependent structure to arrive at a pharmacological economic analysis	Drug-based structure versus disease-dependent structure to arrive at a pharmacological economic analysis	Whiteboard, data show	Theoretical exam, class discussions
10	2	Introduction to Epidemiology	Introduction to Epidemiology	Whiteboard, data show	Theoretical exam, class discussions
11	2	Submit project	Submit project	Whiteboard, data show	Theoretical exam, class discussions
12		Submit project	Submit project	Whiteboard, data show	Theoretical exam, class discussions

11. Course development plan

No plane

Course Description Form

This course description provides a necessary summary of the most important characteristics of the course and the learning results expected from the student to achieve, demonstrating whether he has achieved the maximum benefit from the available learning opportunities. It must be linked to the program description.

55. Educational institution	Ministry of Higher Education and Scientific Research / Mustansiriyah University
56. Course name\ code	Hospital training /50305514
57. Available attendance forms	Courses
58. Semester \year	Second semester/2023-2022
59. Credits (total)	1 hr * 15 weeks = 15 hrs
60. Date of description	2023-2022

8- course outcomes, teaching methods, learning and evaluation

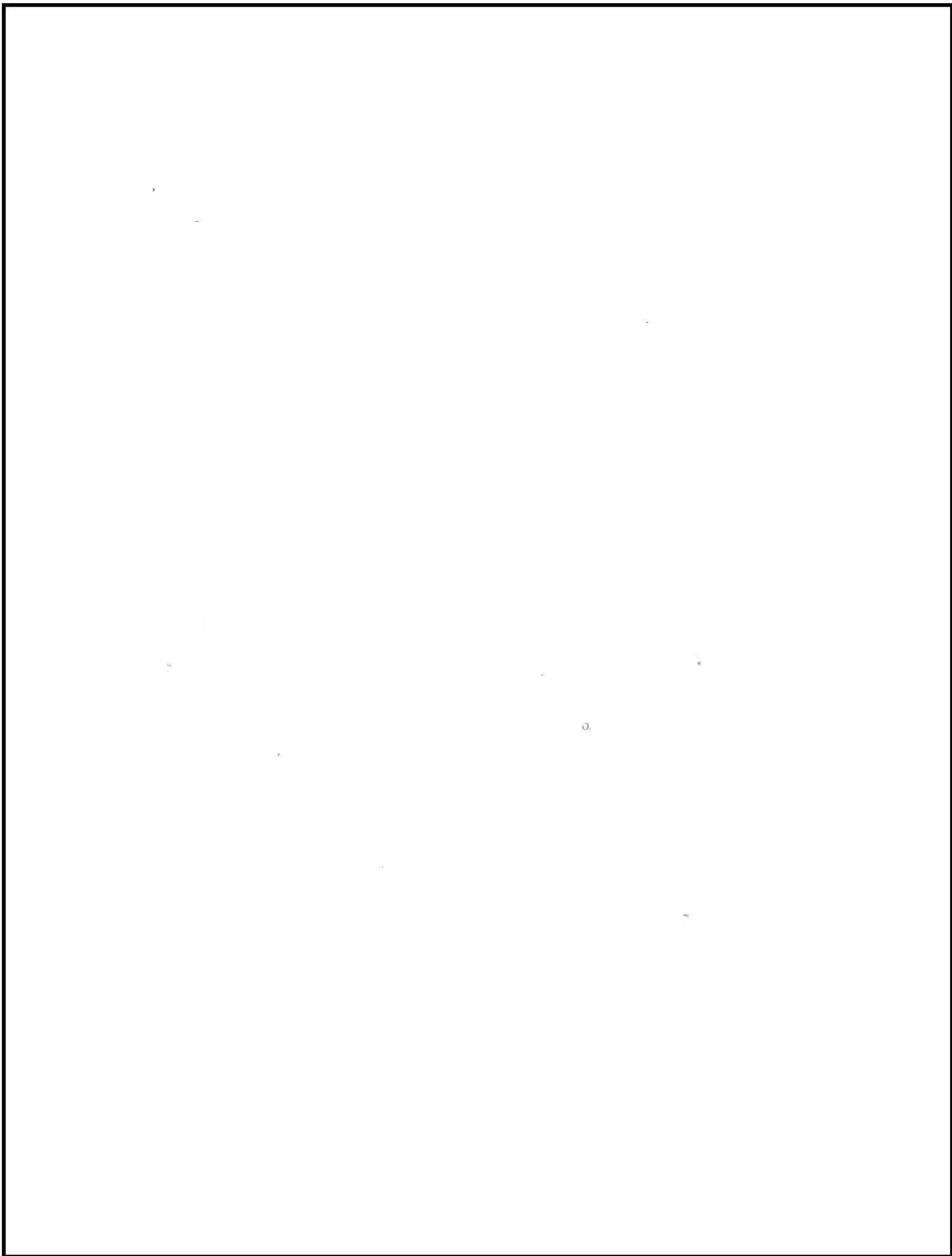
1-Making the graduate student able to communicate with patients and use all available capabilities to communicate with the patient as well as with doctors within the stages of medical treatment.

2- To make the graduate student able to educate patients about the drugs used by them, including the medication instructions given to them and to overcome all difficulties and obstacles that hinder the arrival of these instructions to them.

9-Course structure

Week	Hrs	Required learning outputs	Subject name	Teaching methods	Assesment methods
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1.	10	Internal ward	Cardiovascular disease, respiratory system disease, kidney disease (acute and chronic kidney failure), ulcerative stomach disease, diabetes and its complications	Whiteboard, data show	Theoretical exam, class discussions
2.	5	Surgical ward	Pre-operative care, post-operative care, nutrients, anesthesia, hernia, appendix, diabetic foot, gallstones, deep vein thrombosis, breast cancer, kidney stones	Whiteboard, data show	Theoretical exam, class discussions
3	5	Gynecological ward	Miscarriage, diabetes and hypertension during pregnancy, thyroid disease, epilepsy, anemia and urinary tract infection during pregnancy, ectopic pregnancy and molar pregnancy, ovarian cysts and uterine wall thickening	Whiteboard, data show	Theoretical exam, class discussions
4	10	Pediatric ward	Acute shortness of breath, heat cramps, jaundice and its complications, digestive system diseases, nervous system diseases	Whiteboard, data show	Theoretical exam, class discussions



Academic Program Description

The academic program description provides a brief description of the most important properties of this program and learning outcomes that suspected to achieve by student demonstrating whether he/she achieve the maximum benefit from the available opportunities. This program description accompanied by a description of each course within the program.

1. The educational institution	Minstry of Higher Education and Scientific research
2. Scientific Department / Center	Mustansiriyah University// Pharmacist Department/Department of Pharmacognosy and Medicinal Plants
3. Academic or professional program	Bachelor in Pharmacy
4. Final certificate	Bachelor
5. Study System : Annual/ Courses /other	Courses
6. Accredited reliance program	
7. Other external influences	Lab work, tours in botanical garden that belongs to pharmacognocny department
8. Date	2022-2023
9. Objectives of the academic program of the Pharmacognosy and Medicinal Plants Dep. for two stages: Second stage / second semester. Third stage/ first and the second semesters.	
- Second stage/ second semester: Teaching the fundamentals and principles of pharmacognosy and phytochemistry.	
-Third stage/ first and the second semesters: learning different groups of active constituents, their chemistry, biosynthesis, and pharmacological uses.	

10. Required program outcomes, teaching, learning and evaluation methods

A. Cognitive objectives

- A1. To understand methods of extracting and isolating active substances from plants.
- A 2. To acquire and understand medical ethics skills.
- A 3. To recognize the most important references and literatures in pharmacy science.

A. Program-specific skills objectives

- B1. To acquire the skills of recognition of medicinal plants.

Teaching and learning ways

- Theoretical lecture.
- Laboratory practices.
- Seminars.

Estimation ways

- Theoretical and practical quizzes, reports, oral examinations.

B. Compassionate and fundamental objectives

- C1. Developing students 'feeling towards the homeland and its loyalty.
- C2. Educating students to respect human dignity.
- C3. Educating students on humanitarian work.
- C4. Promote and consolidate professional and ethical values among students for the profession of pharmacist.
- C5. Educating students on a culture of integrity and combating corruption in all its forms.
- C6. Training students to respect the rights of the beneficiaries of their professions, their cultures, religions, gender and races.
- C7. Training students to respect the freedom of thinking, expressions and creativity of others.
- C8. Developing students' sense of responsibility during the study period and during work.
- C9. Supporting the pharmaceutical culture among students and other members of society.
- C10. Promote cooperation and teamwork when needed.

Learning and teaching methods

- Seminars.
- Homework.
- Quizzes.

Estimation ways

- Oral, written exams, practical techniques.

D. General qualifying and transferred skills (other skills related to employability and personal development).

- D1. Laboratory experiments.

D2. Computer skills, teaching the students how to prepare power point presentations.
 D3. Provide confidence to students by presenting the seminars in front of students and teaching staff.

Teaching and learning ways

- Visual, oral and written methods.

Estimation ways

- Quizzes: oral exams and written exams.
- Reports about each experiment.
- Practical techniques.

11. Program structure

level	course code	Course	Hrs.	
			Practical	Theoretical
2 nd stage 2 nd course	50306211	Pharmacognosy I	2hrs. Practical	3hrs. Theoretical
3 rd stage 1 st course	50306305	Pharmacognosy II	2hrs. Practical	2hrs. Theoretical
3 rd stage 2 nd course	50306311	Pharmacognosy III	2hrs. Practical	2hrs. Theoretical

12. Personal development planning

- Educational guidance.
- Monitoring academy.

13. Acceptance standard (Enactment regulations related to college or institute enrollment)
 of regulations and laws

- Central Acceptance.

14. The most important references of information about the program

- Text books, additional books.

Curriculum Skills Scheme

Please check the boxes corresponding to the individual learning outcomes of the program being evaluated

Learning outcomes required of the program

General and rehabilitative transferred skills (other skills related to employability and personal development).				Compassionate and fundamental objectives										Program-specific skills objectives	Cognitive objectives			Compulsory or elective	Course name	code	/level year	
				C10	C9	C8	C7	C6	C5	C4	C3	C2	C1		B1	A3	A2					A1
	√	√	√	√		√				√	√	√	√	√	√	√	√	√		Pharmacognosy I	50306211	2 nd stage 2 nd course
√	√	√	√					√	√	√	√	√	√	√	√	√	√		Pharmacognosy II	50306305	3 rd stage	
	√	√	√	√		√				√	√	√	√	√	√	√	√		Pharmacognosy III	50306311		

Description form

Course description

This course description provides a brief summary of the most important course characteristics and the learning outcomes expected of the student to achieve them, indicating whether he has made the most of the available learning opportunities. It must be linked to the program description.

1. Educational institution	Ministry of Higher Education and Scientific research
2. Scientific Department / Center	Kut University College- / Pharmacist Department - Pharmacognosy and Medicinal Plants Dep.
3. Name / course code	2 nd stage Pharmacognosy I, 2 nd course / 50306211
4. Forms of attendance available	Extract and isolate the active constituents using standard methods
5. Semester/year	2 nd stage students
6. The number of study hours (total)	3hrs. Theoretical, 2hrs. practical.
7. Date of preparing this description	2022-2023
8. Course objectives	<ul style="list-style-type: none">• Chemical study of medical materials in the plant, such as pseudo alkaloids and flavonoids.• Students recognize the importance of the plant material in the medical as well as materials and food.

10. Course outcomes, teaching, learning and evaluation methods

A. Cognitive objectives

- A1-How to extract and isolate the active constituents using standard methods.
- A2-How to identify and evaluate isolated products by physical and chemical methods, and also by chromatographic techniques and authentic materials .
- A3-How to discuss the therapeutic actions of main classes of phytochemical and their interactions with other herbs or drugs.
- A4-How evaluate the use of plant and plant products as medicinal agents.
- A5. To obtain and understand methods of extracting and isolating active substances from plants.

B. Program-specific skills objectives

- B1-Practicing different methods of extraction methods of extraction on active constituents.
- B2-Practicing different methods of extraction methods of identification on active constituent..
- B 3. To acquire the skills of knowledge of medicinal plants.
- B 4. To acquire the skills of using scientific research tools in the academic and scientific fields.
- B.5 To acquire the skills of dialogue, debate, listening to others and accepting their opinions.
- B 6. To acquire self-learning skills to acquire new information, skills and knowledge.

Teaching and learning ways

- Theoretical lecture.
- Laboratory practices.
- Seminars.

Estimation ways

- Theoretical and practical quizzes, reports, oral examinations.

C. Compassionate and fundamental objectives

- C1-Workshop reports shared by a number of students to study a specific subject related to the medicinal plants and their uses.
- C2-Tours in the Botanical Garden of pharmacognosy and medicinal plants department.
- C3-Giving the home works for students.
- C 4. Developing students' sense of belonging and loyalty to the homeland.
- C 5. Raising students to respect human dignity.
- C 6. Educating students on professional humanitarian work.
- C 7. Promote and consolidate professional and ethical values among students to practice the profession of pharmacist.

<p>C 8. Educating students on a culture of integrity and combating corruption in all its forms.</p> <p>C 9. Training students to respect the rights of the beneficiaries of their profession, culture, religion, gender and race.</p> <p>C 10. Training students to respect freedom of thought, expression and creativity in others.</p> <p>C 11. Developing students' sense of responsibility during the study period and during work.</p> <p>C 12. Supporting the pharmaceutical culture among students and members of society.</p> <p>C 13. Promote the spirit of cooperation and teamwork upon request.</p>
Teaching and learning ways
<ul style="list-style-type: none"> • Seminars. • Homework. • Quizzes.
Estimation Ways
<ul style="list-style-type: none"> • Oral exams and written exams.
<p>D. General qualifying and transferred skills (other skills related to employability and personal development).</p> <p>D1-Laboratory experiments.</p> <p>D2-Computer skills, teaching the students how to prepare power point presentations.</p> <p>D3-Give confidence to students by presenting the seminars in front of students and .teaching staff</p>

10. Course structure of Pharmacognocy I/ Theoretical/ 2nd stage /2nd course					
Week	Hrs.	Required learning outputs	Name of the unit / or topic	Teaching style	Estimation way
1	Three hrs.	Definition	General introduction of Pharmacognosy	Theoretical lectures	Oral exams and discussion
2	Three hrs.	Definition and using	Sources of natural drugs, natural drugs, official and non official drugs	Theoretical lectures	Oral exams and discussion
3	Three hrs.	Definition and using	Classification if natural products	Theoretical lectures	Oral exams and discussion
4	Three hrs.	Definition and using	Plant nomenclature and classification	Theoretical lectures	Oral exams and discussion
5	Three hrs.	Definition	Cultivation, collection, drying, and storing of natural drugs	Theoretical lectures	Oral exams and discussion

6	Three hrs.	Definition and using	Degradation of natural products	Theoretical lectures	Oral exams and discussion
7	Three hrs.	Definition and using	The pharmacological effectiveness of natural products	Theoretical lectures	Oral exams and discussion
8	Three hrs.	Definition and using	Phytochemistry of natural products	Theoretical lectures	Oral exams and discussion
9	Three hrs.	Definition	Quality control: evaluation of natural products microscopically, physically, chemically, biologically, and spectroscopically	Theoretical lectures	Oral exams and discussion
10	Three hrs.	Definition	Separation techniques: introduction, separation mechanism, classifications depending on type of techniques	Theoretical lectures	Oral exams and discussion
11	Three hrs.	Definition	TLC	Theoretical lectures	Oral exams and discussion
12	Three hrs.	Definition	Gel chromatography	Theoretical lectures	Oral exams and discussion
13	Three hrs.	Definition	Column chromatography	Theoretical lectures	Oral exams and discussion
14	Three hrs.	Definition	Gas chromatography	Theoretical lectures	Oral exams and discussion
15	Three hrs.	Definition	Plant Tissue culture	Theoretical lectures	Oral exams and discussion

11.Course structure of Pharmacognocytology I/ Practical / 2nd stage / 2nd course					
week	Hrs.	Required learning outputs	Subject or Unit title	Teaching style	Estimation way
1	2hrs.	Technique and use	Medicinal plants	Practical	Oral and written exams, seminars and discussion.
2	2hrs.	Technique and use	Microscopical examination of natural products and cell contents	Practical	Oral and written exams, seminars and discussion
3	2hrs.	Technique	Extraction and	Practical	Oral and written

		and use	separation techniques		exams, seminars and discussion
4	2hrs.	Technique and use	chromatography	Practical	Oral and written exams, seminars and discussion.
5	2hrs.	Technique and use	Paper chromatography	Practical	Oral and written exams, seminars and discussion
6	2hrs.	Technique and use	TLC	Practical	Oral and written exams, seminars and discussion
7	2hrs.	Technique and use	TLC on microscope slides	Practical	Oral and written exams, seminars and discussion
8	2hrs.	Technique and use	Color separation for volatile oil	Practical	Oral and written exams, seminars and discussion
9	2hrs.	Technique and use	Effect of adsorbent on Rf values	Practical	Oral and written exams, seminars and discussion

11. Literatures	
Textbooks	1. Pharmacognosy and Pharmacobiotechnology by Tyler, 1996. (For theoretical) 2. Practical manual, / Pharmacist Department / Baghdad University. (For practical)
References	
Recommended literatures	Fundamentals of pharmacognosy and phytotherapy.
Internet websites and electronic references	Google for searching about medicinal plants

12. Course development plan
The course planning is carried out in two steps, the first one is to write the course specifications and the second is to prepare the course plan as the basis for leading the educational process in implementation and evaluation. Enable students to self-control their learning path in the course and monitor their progress in it, and also provide them with the basis for evaluating the course and their level of benefit from it.

Description form

Course description

This course description provides a brief summary of the most important course characteristics and the learning outcomes expected of the student to achieve them, indicating whether he has made the most of the available learning opportunities. It must be linked to the program description.

9. Educational institution	Mistry of Higher Education and Scientific research
10. Scientific Department / Center	Kut University College- / Pharmacist Department - Pharmacognosy and Medicinal Plants Dep.
11. Name / course code	3 rd stage Pharmacognosy II, 1 st course / 50306305 3 rd stage Pharmacognosy III, 2 nd course / 50306311
12. Forms of attendance available	Extract and isolate the active constituents using standard methods
13. Semester/year	3 rd stage students
14. The number of study hours (total)	2hrs. Theoretical, 2hrs. practical.
15. Date of preparing this description	2022-2023
16. Course objectives	<ul style="list-style-type: none">• Chemical study of medical materials in the plant, such as pseudo alkaloids and flavonoids.• Students recognize the importance of the plant material in the medical as well as materials and food.

13. Course outcomes, teaching, learning and evaluation methods

E. Cognitive objectives

A1-How to extract and isolate the active constituents using standard methods.

A2-How to identify and evaluate isolated products by physical and chemical methods, and also by chromatographic techniques and authentic materials .

A3-How to discuss the therapeutic actions of main classes of phytochemical and their interactions with other herbs or drugs.

A4-How evaluate the use of plant and plant products as medicinal agents.

A5. To obtain and understand methods of extracting and isolating active substances from plants.

F. Program-specific skills objectives

B1-Practicing different methods of extraction methods of extraction on active constituents.

B2-Practicing different methods of extraction methods of identification on active constituent..

B 3. To acquire the skills of knowledge of medicinal plants.

B 4. To acquire the skills of using scientific research tools in the academic and scientific fields.

B.5 To acquire the skills of dialogue, debate, listening to others and accepting their opinions.

B 6. To acquire self-learning skills to acquire new information, skills and knowledge.

Teaching and learning ways

- Theoretical lecture.
- Laboratory practices.
- Seminars.

Estimation ways

- Theoretical and practical quizzes, reports, oral examinations.

G. Compassionate and fundamental objectives

C1-Workshop reports shared by a number of students to study a specific subject related to the medicinal plants and their uses.

C2-Tours in the Botanical Garden of pharmacognosy and medicinal plants department.

C3-Giving the home works for students.

C 4. Developing students' sense of belonging and loyalty to the homeland.

C 5. Raising students to respect human dignity.

C 6. Educating students on professional humanitarian work.

C 7. Promote and consolidate professional and ethical values among students to practice the profession of pharmacist.

C 8. Educating students on a culture of integrity and combating corruption in all its forms.

C 9. Training students to respect the rights of the beneficiaries of their profession, culture, religion, gender and race.

C 10. Training students to respect freedom of thought, expression and creativity in others.

C 11. Developing students' sense of responsibility during the study period and

<p>during work.</p> <p>C 12. Supporting the pharmaceutical culture among students and members of society.</p> <p>C 13. Promote the spirit of cooperation and teamwork upon request.</p>
Teaching and learning ways
<ul style="list-style-type: none"> • Seminars. • Homework. • Quizzes.
Estimation Methods
<ul style="list-style-type: none"> • Oral exams and written exams.
<p>H. General qualifying and transferred skills (other skills related to employability and personal development).</p> <p>D1-Laboratory experiments.</p> <p>D2-Computer skills, teaching the students how to prepare power point presentations.</p> <p>D3-Give confidence to students by presenting the seminars in front of students and teaching staff.</p>

14. Course structure of Pharmacognocny II/ Theoretical/ 3rd stage /1st course					
Week	hrs	Required learning outputs	Name of the unit / or topic	Teaching style	Estimation way
1	2hrs. Theoretical	Definition and using	Carbohydrates and natural products	Theoretical lectures	Oral exams and discussion
2+3	4hrs. Theoretical	Definition and using	Lignans and coumarins	Theoretical lectures	Oral exams and discussion
4	2hrs. Theoretical	Definition and using	Flavonoids	Theoretical lectures	Oral exams and discussion
5+6+7	6hrs. Theoretical	Definition and using	Glycosides	Theoretical lectures	Oral exams and discussion
8	2hrs. Theoretical	Definition and using	Tannins	Theoretical lectures	Oral exams and discussion
9	2hrs. Theoretical	Definition and using	Lipids	Theoretical lectures	Oral exams and discussion
10	2hrs. Theoretical	Definition and using	Terpenoids	Theoretical lectures	Oral exams and discussion
11+12	4hrs.	Definition and	Volatile oils	Theoretical	Oral exams

	Theoretical	using		lectures	and discussion
13	2hrs. Theoretical	Definition and using	Plants containing volatile oils	Theoretical lectures	Oral exams and discussion
14	2hrs. Theoretical	Definition and using	Resins and resin combination	Theoretical lectures	Oral exams and discussion
15	2hrs. Theoretical	Definition	Non medicinal toxic plants	Theoretical lectures	Oral exams and discussion

11.Course structure of Pharmacognocyy II/ Practical / 3rd stage / 1st course

week	Hrs.	Required learning outputs	Subject or Unit title	Teaching style	Estimation way
1	2hrs.	Technique and use	Isolation of podophyllotoxin from Podophyllum plant by preparative TLC	Practical	Oral and written exams, seminars and discussion.
2	Practical	Technique and use	Review and general talk about glycosides	Practical	Oral and written exams, seminars and discussion
3	2hrs.	Technique and use	Extraction of cardiac glycosides	Practical	Oral and written exams, seminars and discussion
4	Practical	Technique and use	Identification of cardiac glycosides	Practical	Oral and written exams, seminars and discussion.
5	2hrs.	Technique and use	Extraction of Anthra-quinone glycosides	Practical	Oral and written exams, seminars and discussion
6	Practical	Technique and use	Identification of anthra-quinone glycosides	Practical	Oral and written exams, seminars and discussion
7	2hrs.	Technique and use	Extraction of saponine glycosides	Practical	Oral and written exams, seminars and discussion
8	Practical	Technique and use	Identification of saponine glycosides	Practical	Oral and written exams, seminars and discussion
9	2hrs.	Technique and use	Tannins extraction and identification	Practical	Oral and written exams, seminars and discussion
10	Practical	Technique and use	Separation of volatile oils	Practical	Oral and written exams, seminars and discussion

11.Course structure of Pharmacognosy III / Theoretical/ 3rd stage/ 2nd course					
week	Hrs.	Required learning outputs	Subject or Unit title	Teaching style	Estimation way
1-9	18hrs.	Definition and using	Alkaloids	Theoretical lectures	Oral exams and discussion
10+12+13	Theoretical	Definition and using	Antibiotics	Theoretical lectures	Oral exams and discussion
14	6hrs.	Definition and using	Proteins and amino acids	Theoretical lectures	Oral exams and discussion
15+16	Theoretical	Definition	Phytotherapy	Theoretical lectures	Oral exams and discussion

11. Course structure of Pharmacognosy III / Practical/ 3rd stage/ 2nd course					
week	2hrs.	Technique and use	Introduction of alkaloids	Practical	
1	Practical	Technique and use	Extraction of Piperine from Black Pepper	Practical	Oral and written exams, seminars and discussion
2	2hrs.	Technique and use	Identification of Piperine	Practical	Oral and written exams, seminars and discussion
3	Practical	Technique and use	Extraction of Belladonna alkaloids	Practical	Oral and written exams, seminars and discussion
4	2hrs.	Technique and use	Identification of Belladonna alkaloids	Practical	Oral and written exams, seminars and discussion
5	Practical	Technique and use	Extraction of Caffeine From Tea	Practical	Oral and written exams, seminars and discussion
6	2hrs.	Technique and use	Identification of Caffeine Crystals	Practical	Oral and written exams, seminars and discussion
7	Practical		Introduction of alkaloids	Practical	Oral and written exams, seminars and discussion
8	2hrs.		Extraction of Piperine from Black Pepper	Practical	Oral and written exams, seminars and discussion
9	Practical		Identification of Piperine	Practical	Oral and written exams, seminars and discussion

15. Literatures	
Textbooks	<ol style="list-style-type: none"> 1. Pharmacognosy and Pharmacobiotechnology by Tyler, 1996. (For theoretical) 2. Practical manual, / Pharmacist Department / Baghdad University. (For practical)
References	
Recommended literatures	Fundamentals of pharmacognosy and phytotherapy.
Internet websites and electronic references	Google for searching about medicinal plants

16. Course development plan
<p>The course planning is carried out in two steps, the first one is to write the course specifications and the second is to prepare the course plan as the basis for leading the educational process in implementation and evaluation. Enable students to self-control their learning path in the course and monitor their progress in it, and also provide them with the basis for evaluating the course and their level of benefit from it.</p>

references

- 1- Pharmacy college/ Mustansiriyah university
- 2- Pharmacy college/ Baghdad university