Course Specification
(Bachelor)

Course Title:	Medicinal Chemistry
Course Code:	ICHM337
Program:	Industrial Chemistry
Department:	Chemistry
College:	Science
Institution:	Majmaah University
Version:	TP153
Last Revision Date:	9 December 2024

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A. General information about the course:

1. Course Identification

1. Credit hours:					
3					
2. Course type					
A.	☐University	☐College	☒ Department	☐Track	☐Others
B.	☒ Required		☐Elective		
3. Level/year at which this course is offered: (5th /third year.)					
4. Course general Description:					
The primary objective of medicinal chemistry is the knowledge of basic concepts, in which the fundamentals of medicinal chemistry are exposed, drug sources and genesis, classification, nomenclature and basic concept of drug design.					
5. Pre-requirements for this course (if any):					
ICHM121					
6. CO-requirements for this course (if any):					
NONE					
7. Course Main Objective(s):					
In this course, the students will study the fundamental areas of Medicinal Chemistry • **Basic concepts, in which the fundamentals of medicinal chemistry are exposed** • **Development or genesis of drugs, in which the methods for obtaining and designing new drugs are given** • **Theoretical aspects of drug action, where mainly the following items are studied: relationship between chemical structure and biological activity, theories of drug action, and mechanism of drug action** • **Physiochemical properties of drugs** • **Drugs acting on the anatomic nervous system**					

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	1.5	50
2	E-learning	-	-
3	Hybrid • Traditional classroom • E-learning	-	-
4	Distance learning	1.5	50

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	**Lectures**	45
2.	**Laboratory/Studio**	-
3.	**Field**	-
4.	**Tutorial**	-
5.	**Others (specify) Homework, study**	60
Total		105

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	**Knowledge and understanding**			
1.1	define the fundamental aspects of drug, recognize the physiochemical properties that affect drug action. Recognize adrenergic drugs which is stimulate or inhibit the adrenergic nervous system and cholinergic drugs which stimulate or inhibit the cholinergic	K1	**Lectures, discussion**	Written exams

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	(parasympathetic) nervous system.			
2.0	**Skills**			
2.2	Demonstrate the ability to use modern technology and statistical applications that are used in the various fields of chemistry	S3	**Lectures, discussion**	Written Exam
2.3	Solve chemical problems related to different applications of chemistry through critical thinking to develop appropriate rational, explanations, and answer	S4	Solve tutorial	Continuous assessments
3.0	**Values, autonomy, and responsibility**			
3.1	Apply standards of integrity, transparency and ethical behavior in various academic and professional fields .	V1	**Assignment**	Continuous assessment

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction , Historical evolution, fundamental aspects of drugs	3
2.	Classification of drugs	3
3	Nomenclature of drugs	3
4	Sources of drugs	3
5	Computer aided drug design, combinatorial chemistry	3
6	Basic principles of drug design	6
	Physiochemical properties of drugs	6
	Selected Examples of Drug Action at some Common Target Areas, Adrenergic drugs	9
	Cholinergic drugs	9
Total		**45**

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Mid-term exam**1**	7th	15%
2.	Mid-term exam2 (written)	12th	15%
3.	Electronic exam (distance)	9-10th	10%
4.	Problem solving (group work), oral presentation, home work	3- 12th	20%
5	Final exam (written)	17-19th	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	FUDEMENTAL OF MEDICINAL CHEMISTRY Gareth Thomas ,University of Portsmouth, UK. Willy 2017
Supportive References	An Introduction to Medicinal Chemistry, Fifth Edition- Graham L.Patrick byJessica Martins 2017
Electronic Materials	http://www.organic-chemistry.org/ http://www.acdlabs.com/iupac/nomenclature/ http://www.chem1.com/acad/webtext/gas/gas_3.htm. http://www.chemistry.ohio-state.edu. Elsevier (www.sciencedirect.com) Springerlink (w**ww.springerlink.com**)
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Class room,
Technology equipment (projector, smart board, software)	data show, Smart Board, chemdraw, chemsketch
Other equipment (depending on the nature of the specialty)	**None**

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	students	indirect
Effectiveness of Students assessment	staff	Direct **(internal report)**
Quality of learning resources	students	indirect
The extent to which CLOs have been achieved	staff	Direct(PLO assessment)
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	**CHEMISTRY COMMITTEE**
REFERENCE NO.	**FIRST COMMITTEE**
DATE	**11/2/1445**