



T-104
2022

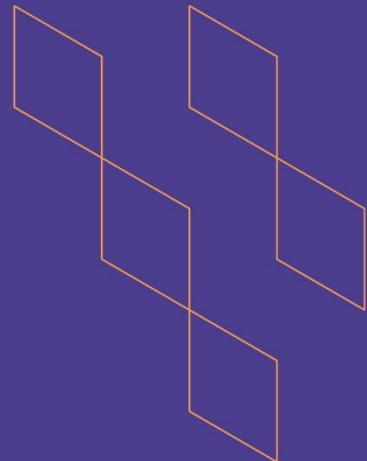
Course Specification





T-104
2022

Course Specification



Course Title: **Medicinal Chemistry-2**

Course Code: **PHC 312**

Program: **Bachelor of Pharmaceutical Sciences (B.Pharm.SC)**

Department: **Pharmaceutical Chemistry**

College: **Pharmacy**

Institution: **Najran University**

Version: **CS- V1**

Last Revision Date: 26-5-1445



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A. General information about the course:

Course Identification

1. Credit hours:

2. Course type

a. University ☐ College ☒ Department ☐ Track ☐ Others ☐

b. Required ☒ Elective ☐

3. Level/year at which this course is offered: 6th Level/ 4th year

4. Course general Description

The course describes the medicinal chemistry of an important class of drugs that act on the CNS; the therapeutic agents that are used to treat many of the CNS-based disorders are studied such as antipsychotic agents, sedative, hypnotic, anti-depressants analgesics and general anesthetics. General information and danger of drug abuse are illustrated. The course exposes the students to the study of SAR, mechanism of action and the pharmacokinetics of these drugs i.e. absorption, distribution, metabolism and excretion of these agents and the factors that may affect them.

5. Pre-requirements for this course (if any): (PHC -311)

6. Co- requirements for this course (if any): None

7. Course Main Objective(s)

- a- Identify functional groups and ring systems that characterize each of the drug classes.
- b- Identify the structural features and functional groups important for the pharmacological actions(s) of each drug class.
- c- Recognize how changes in structural features and functional groups affect potency and activity of each drug class.
- d- Understand the mechanism of action (where known) of the various drugs.
- e- Make intelligent hypotheses about the biological activity, mechanism, and/or metabolism of an unknown compound based on the structural features found in the molecule.
- f- Describe the cross-reactivity between drug classes based on structure-activity relationships.

At the end of this course the students are expected to understand the role of medicinal chemistry in discovery, development, synthesis, and study of therapeutic agents.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
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No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	30	100
2.	E-learning		
3.	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4.	Distance learning		

2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30
2.	Laboratory/Studio	30
3.	Field	
4.	Tutorial	
5.	Others (specify) homework's and assignments	30
	Total	90

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	Describe basic medicinal chemistry concepts, principles and theories about GIT drugs, analgesics and anti-psychotics drugs	K3	Lectures Laboratory experiments Assignment Interactive questioning and answering	Midterm, and final exams
1.2	Interpret of chemicals information's and data concern SAR of GIT drugs, analgesics and anti-psychotics drugs	K3		
...				
2.0	Skills			
2.1	Predict suitable synthetic pathways and purification of known related drug.	S1	Lectures Laboratory experiments Assignment Interactive questioning and answering	Practical exam
2.2	Conclude the major activity and pharmacokinetic properties of a given drug based on the chemical structure	S1		Midterm, and final exams
...	Communicate clearly by verbal and writing means	S5		Assignment,
3.0	Values, autonomy, and responsibility			
3.1	Show time and self-management in class or labs as an individual and as a part of team	V4	Lectures Laboratory classes Assignment Interactive questioning and answering	O.C
3.2				
...				



C. Course Content

No	List of Topics	Contact Hours
1.	Gastrointestinal Drugs <ul style="list-style-type: none"> - Antacid agent - H2 blocker - PBI - Prostaglandin analogue 	4
2.	Analgesics <ul style="list-style-type: none"> - Narcotic Analgesics Non-Steroidal Anti-Inflammatory Drugs	4
3	Anesthesia agents <ul style="list-style-type: none"> - General Anesthesia - Local Anesthetics 	4
4	CNS depressants <ul style="list-style-type: none"> - Sedative and hypnotics - Anti-anxiety agents - Schizophrenia - Anticonvulsants - Antiparkinson agents 	10
5	CNS Stimulants <ul style="list-style-type: none"> - Analeptics - Antidepressants - Psychomotor stimulants 	6
6	Drug abuse	2
	Practical section List of Practical experiments <ol style="list-style-type: none"> 1- General Information & Lab Results Reporting 2- Recrystallization 3- Synthesis of Aspirin (NSAID) 4- Synthesis of Paracetamol (NSAID) 5- Synthesis of benzocaine (Local Anesthetic) 6- Synthesis of Phenytoin (CNS depressants) 	30
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz 1	4	5
2.	Midterm Exam	6	20
3.	Quiz 2	8	5
6	Assignment	10	5
	Practical quiz	11	5



No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
	Observation Card	11	5
	Final Practical exam	11	15
	Final Written Exam	12	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	Wilson and Gisvold's Textbook of Organic Medicinal and Pharmaceutical Chemistry PowerPoints slides
Supportive References	
Electronic Materials	http://www.dlaf.nu.edu.sa/ http://www.drugdesign.com/web/
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	1. Suitable lecture room equipped with data show and internet and sufficient number of seats. 2. Suitable laboratories equipped with health and safety tools, internet, and sufficient number of seats.
Technology equipment (projector, smart board, software)	Computers, data show, sound systems and internet
Other equipment (depending on the nature of the specialty)	<ul style="list-style-type: none"> • Melting point apparatus • Oven • Condenser

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of department Students	Indirect Questioners(indirect)
Effectiveness of students assessment	Faculty members Students	Indirect Questioners(indirect)
Quality of learning resources	Students	Questioners(indirect)
The extent to which CLOs have been achieved	Students peer reviewer	Direct Indirect
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Pharmaceutical Chemistry Department Council
REFERENCE NO.	Council No.
DATE	26-5-1445