



T-104
2022

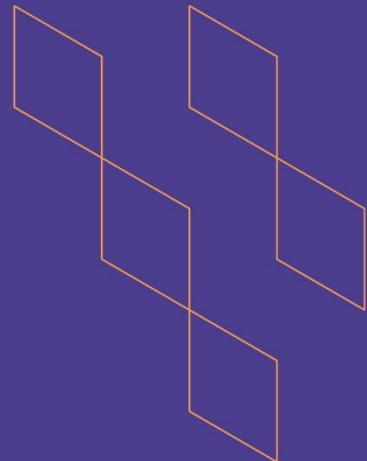
Course Specification





T-104
2022

Course Specification



Course Title:	Pharmaceutical Organic Chemistry
Course Code:	PHC 211
Program:	Pharmaceutical Sciences
Department:	Pharmaceutical chemistry
College:	Pharmacy
Institution:	Najran University
Version:	CS-V1
Last Revision Date:	8-6-1445

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A. General information about the course:

Course Identification	
1. Credit hours:	3 hours (2+1)
2. Course type	
a.	University <input type="checkbox"/> College <input checked="" type="checkbox"/> Department <input type="checkbox"/> Track <input type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input checked="" type="checkbox"/> Elective <input type="checkbox"/>
3. Level/year at which this course is offered:	4 th level / second year
4. Course general Description	
<p>The main purpose of this course is to understand the basic concept of organic and heterocyclic compounds chemistry, which are the structural back bone of drugs. In addition understanding the stereo-chemical aspects of drugs in drug action. The practical part deals with various laboratory techniques used for characterization and synthesis of different organic compounds.</p>	
5. Pre-requirements for this course (if any):	
None	
6. Co- requirements for this course (if any):	
None	
7. Course Main Objective(s)	
<ul style="list-style-type: none"> 1- Understand the basic concept of organic compounds which are the structural back bone of drugs. 2- Understand the chemistry of heterocycles which are the structural back bone of various medicinally active drugs. 3- Understand the stereochemistry aspects of chemical compounds 	

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	30	100
2.	E-learning	0	0
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) homeworks 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 the chemistry of organic and heterocyclic compounds	K3	Lectures	Theoretical exams Assignment
1.2	Outline syntheses and reactions of different organic and heterocyclic compounds	K3	Lectures	Theoretical exams Assignment
...				
2.0	Skills			
2.1	Interpret the stereochemistry of various medicinal active compounds.	S1	Lectures Data interpretation	Theoretical exams
2.2	Demonstrate pharmaceutical calculation, isolation, and drug development skills using advanced techniques, and tools	S3	Laboratory classes	Practical Exam (OSPE)
2.3	Communicate clearly and effectively with professionals, administrative staff and supportive personnel.	S5	Laboratory classes	Laboratory reports
3.0	Values, autonomy, and responsibility			
3.1	Work independently and professionally with independent thinking	V4	Practical work	Work Place-Based Assessment (WPBA)
3.2	Demonstrate accountability, confidence, and Use properly the chemicals	V4	Practical work	Practical Exam





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	according to the rules of good laboratory practice			
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Carboxylic acid derivatives (aldehydes, ketones, acids, amides, esters)	5
2.	Synthesis of organic compounds	2
3.	Substitution-Elimination reactions (SN1, SN2, E1, E2 reactions)	2
4.	Reactions of benzene	2
5.	Reduction and oxidation reactions	2
6.	Types of chemical interactions	2
7.	Resonance in organic compounds	2
8.	Heterocyclic Compounds Chemistry "Introduction"	2
9.	Nomenclature of Heterocyclic Compounds	2
7	6-Membered Heterocyclic Compounds (Pyridine) and its fused Heterocycles (Quinoline and Isoquinoline)	3
8	5-Membered Heterocyclic Compounds (Pyrrole, Furan, Thiophene) and its fused heterocycle (ex. Indole)	3
9	Stereochemistry of Organic Compounds	3
10		
Total		30

Practical sessions

List of experiments in this course

- General Information and Safety Rules
- Alcohols & phenols
- Aldehydes & Ketones
- Carboxylic acids
- General identification scheme I
- General identification scheme II
- General identification scheme III
- Heating Sources and Reflux
- Drying, Filtration, & Decolorization
- Recrystallization Techniques

30



11. Melting Point Determination
12. Boiling point determination
13. Synthesis of Acetanilide or 7-Hydroxy-4-methyl coumarin
- Final practical exam on week number 14

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz #1	6	10%
2.	Midterm exam	9	20%
3.	Individual assignments	12	5%
4.	Lab. practical quiz or Lab report	12	5%
5.	Observation card in lab	2-13	10%
6.	Final practical Exam	15	10%
7.	Final exam	16	40%
8.			

*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	<ul style="list-style-type: none"> - T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder-Organic Chemistry-Wiley (2013), 11th edition. 1. Robert Thornton Morrison, Robert Neilson Boyd, Organic Chemistry, 7th edition; Prentice Hall, 2010
Supportive References	<ul style="list-style-type: none"> - T. W. Graham Solomons, Craig B. Fryhle, Scott A. Snyder-Organic Chemistry-Wiley (2013), 11th edition. 1. PowerPoints slides
Electronic Materials	http://www.dlaf.nu.edu.sa/ www.organic-chemistry.org/
Other Learning Materials	ChemDraw program

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<p>Suitable lecture room equipped with data show and internet and sufficient number of seats.</p> <p>Suitable laboratories equipped with health and safety tools, internet and sufficient number of seats.</p>
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 • Magnetic Hot Plate Stirrer • Water bath

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of departments and students	Indirect Questionnaires (indirect)



Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of students assessment	Faculty members and students	Indirect Questionnaires (indirect)
Quality of learning resources	Students	Questionnaires (Indirect)
The extent to which CLOs have been achieved	Student 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	8-06-1445

