



T-104  
2022

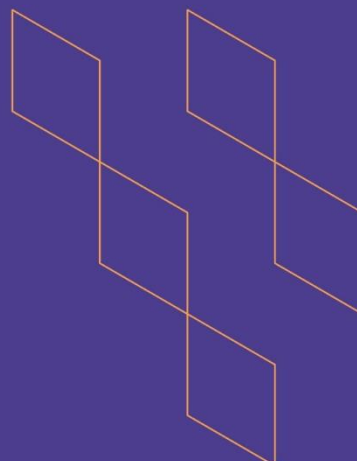
# Course Specification





T-104  
2022

## Course Specification



Course Title:	Computational Chemistry
Course Code:	PHC 513
Program:	Pharmaceutical Sciences
Department:	Pharmaceutical chemistry
College:	Pharmacy
Institution:	Najran University
Version:	CS-V1
Last Revision Date:	20-12-2023



## Table of Contents:

Content	Page
A. General Information about the course	3
Teaching mode (mark all that apply)	3
2. Contact Hours (based on the academic semester)	
Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	5
Course Content	5
D. Student Assessment Activities	6
E. Learning Resources and Facilities	7
1. References and Learning Resources	7
2. Required Facilities and Equipment	7
F. Assessment of Course Quality	7
G. Specification Approval Data	8

## A. General information about the course:

Course Identification	
1. Credit hours:	<b>2 hours (2)</b>
2. Course type	
a.	University <input type="checkbox"/> College <input type="checkbox"/> Department <input type="checkbox"/> Track <input type="checkbox"/> Others <input type="checkbox"/>
b.	Required <input type="checkbox"/> Elective <input checked="" type="checkbox"/>
3. Level/year at which this course is offered:	9 <sup>th</sup> level / fifth year
4. Course general Description	
This course focuses on describing and explaining theoretical background and principles that are used for computer aided drug discovery and molecular docking of chemical compounds using biological databases and some essential soft wares as well as their results interpretation	
5. Pre-requirements for this course (if any): <b>None</b>	
6. Co- requirements for this course (if any): <b>None</b>	
7. Course Main Objective(s)	
1- Theoretical background and principles that are used for computer aided drug discovery and molecular docking of chemical compounds 2- Operation of the molecular docking software 3- Interpret the results professionally	

## B. 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"> <li>Traditional classroom</li> <li>E-learning</li> </ul>		
4.	Distance learning		

## 2. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	30

2.	Laboratory/Studio	
3.	Field	
4.	Tutorial	
5.	Others (specify) <b>homeworks and assignments</b>	40
	<b>Total</b>	<b>70</b>





## C. 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 fundamentals and principles that are used for computer aided drug discovery and molecular docking of chemical compounds using biological databases and some essential soft wares	K3	Lectures	Theoretical exams Assignment
1.2				
...				
2.0	Skills			
2.1	Demonstrate skills using advanced software and tools used for computer aided drug discovery and molecular docking of chemical compounds as well as results interpretation	S3	Lectures, Problems Solving	Theoretical exams
3.0	Values, autonomy, and responsibility			
3.1	Work independently and professionally with <b>independent thinking</b>	V4	Seminars	Reports, Observation card
...				

## D. Course Content

No	List of Topics	Contact Hours
1.	Introduction	2



2.	Introduction to Computer-aided drug discovery	3
3	Introduction to Biological Database	6
4	Computer-aided drug discovery tools and techniques	6
5	Introduction to Visualization of proteins and ligands binding	5
6	Introduction to Molecular docking	2
7	Rationale behind molecular docking	3
8	Data interpretation of docking output result	3
Total		30

## 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	10%
4.	Observation card	12	5%
5.	Reports	2-13	5%
7.	Final exam	16	50%
8.			100%

\*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	1. Molecular Docking for Computer-Aided Drug Design Fundamentals, Techniques, Resources and Applications, 2021.
Supportive References	1. Power point slides
Electronic Materials	<a href="http://www.dlaf.nu.edu.sa">www.dlaf.nu.edu.sa</a>
Other Learning Materials	ChemDraw and other drug docking tools

### 2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Suitable lecture room equipped with data show and internet and sufficient number of seats. 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)	

## F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Head of departments and students	Indirect Questionnaires (indirect)
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	20-12-2023

