



T-104
2022

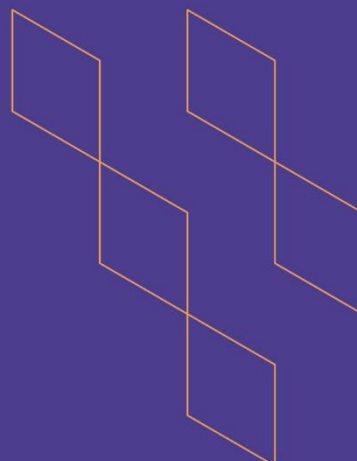
Course Specification





T-104
2022

Course Specification



Course Title: **Physical Pharmacy**

Course Code: **331-PHU-3**

Program: **Pharmaceutical Sciences**

Department: **Pharmaceutics**

College: **Pharmacy**

Institution: **Najran University**

Version: \

Last Revision Date: **20 December 2023**



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A. General information about the course:

Course Identification

1. Credit hours: 3 (2+1)

2. Course type

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

b. Required ☒ Elective ☐

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

5th Level/ 3rd year

4. Course general Description

This course is designed to introduce the quantities and theoretical physical principles of science to pharmacy students that can be applied to pharmacy practice. Principles of chemistry, physics and mathematics are applied to pharmaceutical sciences.

5. Pre-requirements for this course (if any): 233-PHU-3

6. Co- requirements for this course (if any): NA

7. Course Main Objective(s)

At the end of this course the student will be able to:

1. Acquire knowledge in Physical principles of states of matter and phase rule.
2. To develop knowledge of the fundamental physicochemical properties of different states of matter and assess their role and applications in dosage forms.
3. To learn the methodology of preparing buffered isotonic solution with proper capacity.
4. To be able to carry out calculations that is vital in pharmacy such as: pH, concentration, isotonicity. etc.
5. Understand the concepts of diffusion, dissolution and explain their role in drug release
6. Understand the different modes of drug decomposition and drug stability.

1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	60	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)	
	Total	60





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	Demonstrate the concepts of physicochemical properties of drugs and excipients in pharmaceutical dosage form design	K3	Lectures	1. Written exam 2. MCQ 3. Assignments
1.2				
...				
2.0	Skills			
2.1	Demonstrate the evaluation of physicochemical properties that govern dosage form design of pharmaceutical products	S3	1. Lectures 2. Practical experiments	1. Written exam 2. Practical exam
2.2				
...				
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate ability to confidence and independent thinking	V4	Problem-based learning	Observation card, Lab reports
3.2				
...				

C. Course Content (theoretical)

No	List of Topics	Contact Hours (T)
1.	Introduction to biopharmaceutics	2
2.	States of Matter Related to Pharmaceutical Formulations	4
3.	Physical properties of solutions	4
4.	Solubility, dissolution, and partitioning	3
5.	Rheology	4
6.	Buffers and isotonic solution:	4
7.	Surface tension and interfacial phenomenon	4
8.	Dispersed systems	3
10	Revision	2
Total		30



Course Content (practical)

No	List of Topics	Contact Hours (P)
1.	Introduction (lab rules and safety)	2
2.	Determination of Solubility	4
3.	Viscosity measurement (Ostwald viscometer)	4
4.	Surface tension (drop weigh method)	4
5.	Surface tension (drop count method)	4
6.	Critical Micelle Concentration (Stalagmometer)	4
7.	Physical Stability of Suspension	4
8.	Adsorption	2
9.	Revision	2
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz 1	4	5
2.	Midterm	7-9	20
3.	Quiz 2	12	5
4.	Assignment	1-15	5
5.	Observation card	1-15	5
6.	Practical continuous evaluation	1-15	10
7.	Practical final exam	16	10
8.	Final theoretical exam	17- 19	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	<ol style="list-style-type: none"> 1. Martin's Physical Pharmacy and Pharmaceutical Sciences, Ed., Sinko, PJ, 8th ed., Lippincott Williams & Wilkins, Philadelphia. 2. Applied physical pharmacy, 3e. by W. Cary Mobley, Mansoor M. Amiji, Thomas J. Cook
Supportive References	<ol style="list-style-type: none"> 1. Pharmaceutical Dosage Forms and Drug Delivery by H. C. Ansel, N. G. Popovich. 9th edition 2011. 2. Pharmaceutical and Clinical Calculations, Mansoor A. Khan, Indra K. Reddy, 2nd Edition, 2000, CRC Press LLC 3. Pharmaceuticals, the Science of dosage form design, Michael E. Aulton 2005.
Electronic Materials	<ol style="list-style-type: none"> 1. Saudi Digital Library (https://sdl.edu.sa/SDLPortal/ar/Publishers.aspx) 2. www.ashp.org (American Society of Health-System Pharmacists) 3. www.pubmed.com
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	<ol style="list-style-type: none"> (a). A lecture hall containing at least 25 seats for students (b). A laboratory containing at least 20 seats for the student.
Technology equipment (projector, smart board, software)	Projector for PowerPoint presentations with the internet. Smart board
Other equipment (depending on the nature of the specialty)	<ol style="list-style-type: none"> 1. Beaker 2. Measuring cylinder 3. Ostwald viscometer 4. Stalagmometer 5. Sieve shaker

F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students	1. Indirect
Effectiveness of students' assessment	Examination committee	1. Direct

Assessment Areas/Issues	Assessor	Assessment Methods
Quality of learning resources	Course coordinator and students	Indirect
The extent to which CLOs have been achieved	Course coordinator	Direct
Other		

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

Assessment Methods (Direct, Indirect)

G. Specification Approval Data

COUNCIL /COMMITTEE	Pharmaceutics department council
REFERENCE NO.	Department meeting No. 13
DATE	25/12/2023