



T-104
2022

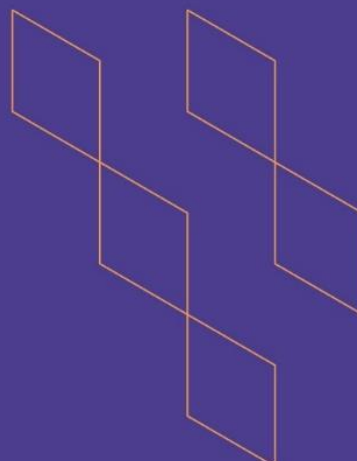
Course Specification





T-104
2022

Course Specification



Course Title: **Advanced Pharmaceutical Formulations**

Course Code: **534-PHU-2**

Program: **Pharmaceutical Sciences**

Department: **Pharmaceutics**

College: **Pharmacy**

Institution: **Najran University**

Version: **1**

Last Revision Date: **20/12/2023**



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A. General information about the course:

Course Identification

1. Credit hours: 2 (2+0)

2. Course type

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

b. Required ☐ Elective ☒

3. Level/year at which this course is offered: 10th level/ 5th year

4. Course general Description

This course will provide insights on the biological barriers that implicated to the bioavailability of drugs and strategies exploited to overcome these biological barriers. It discusses about advanced pharmaceutical formulation (liposomes, nanoparticles, micelles, hydrogels, and implantable systems) involved to enhance drug targeting and therapeutic efficacy. It provides concept to design of controlled release systems for optimal drug delivery profiles and minimizing side effects. Also, exploring fundamentals of cutting-edge technologies like 3D printing, microfluidics, and sustainable approaches in pharmaceutical formulation, considering their potential to overcome specific barriers

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

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

7. Course Main Objective(s)

1. To provide concepts and understanding to students related to pharmaceutical formulations and strategies to overcome biological barriers.
2. To design and develop effective pharmaceutical formulations with advancement for various routes of administration and explore cutting-edge technologies involved in its fabrication.

1. Teaching mode (mark all that apply)

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	
3.	Field	
4.	Tutorial	
5.	Others (specify)	
	Total	30

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 Knowledge and understanding related to drug delivery	K1	Lectures	Theoretical exams (Essay exam, MCQ, Quizzes); Presentations
1.2	Demonstrate knowledge of physicochemical characteristics of materials utilized in advanced pharmaceutical formulations	K3	Lectures	Theoretical exams; Presentations
2.0	Skills			
2.1	Demonstrate ability to solve/answer problem related to pharmaceutical formulations	S3	Lectures, Group discussion	Theoretical exams, Presentations
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate ability to present independently and professionally on related topic.	V1	Problem-based learning	Presentation, Observation card

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction and Biological Barriers to Pharmaceutical Formulations	2
2.	Strategies to Overcoming Biological Barriers	4
3.	Biopharmaceutical Drug Design and Pre-formulation Study	6
4.	Advanced Controlled Release Technologies	6
5.	Emerging Trends in Pharmaceutical Formulation Design	6
6.	Nano-pharmaceutical Products in Market (Liposomes, Micelles, Nanogels, SNEDDS, Albumin nanoparticles)	6
Total		30

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz exam -I	5	05%
2.	Midterm exam	7-9	25%
3.	Quiz exam -II	12	05%
4.	Presentation	15	10%
5.	Observation card	1-15	05%
6.	Final Theory exam	17-19	50%

*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. Advanced drug formulation design to optimize therapeutic outcomes. Williams RO, Taft DR, McConville JT. CRC Press; 2007. 2. Advanced Pharmaceutical Formulations. Paul SD, Mazumder A, Mazumder R. Birla Publications, 2011.
Supportive References	1. Pharmaceutical Formulation: The Science and Technology of Dosage Forms. Tovey GD. RSC, 2018.
Electronic Materials	https://sdl.edu.sa/SDLPortal/en/Publishers.aspx https://www.nu.edu.sa/en/web/deanship-of-libraries-affairs/85
Other Learning Materials	https://www.elsevier.com/products/journals



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 computer laboratory with 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	Students and the Head of the department	1. Indirect (survey) 2. Head of the department evaluates the faculty member
Effectiveness of students' assessment	Head of department, faculty, and student	1. Checking marking by the students themselves. 2. Using the help of other members in reviewing the quizzes and exams
Quality of learning resources	Students	Survey: Instructor's assessment by students
The extent to which CLOs have been achieved	Quality and development unit	Course specifications are periodically reviewed at Departmental level.
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

