



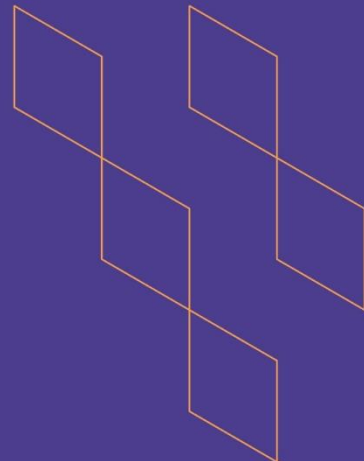
T-104  
2022

# Course Specification



T-104  
2022

## Course Specification



Course Title	Pharmaceutical Calculations
Course Code:	231-PHU-3
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:	3 (3+0)
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: 3 <sup>rd</sup> Level, 2 <sup>nd</sup> year	
4. Course general Description	
This course covers the essentials of pharmaceutical calculations to provide understanding for effective pharmacy operations, including dosing, compounding, and metric conversions. It provides fundamental concepts related to use of specific mathematical approaches involved in the manufacturing of dosage forms design. Students will solve exercises that require to apply fundamental mathematical approaches. It will also built their understanding related to various measurement techniques used in the production of medicament and dosage estimations.	
5. Pre-requirements for this course (if any): Preparatory year	
6. Co- requirements for this course (if any): NA	
7. Course Main Objective(s)	
<ul style="list-style-type: none"> <li>To provide concept and understanding related to pharmaceutical calculations.</li> <li>To provide ability related to convert metric measurements, estimation of concentrations and dilutions, calculation of dose for adults and children, as well as reduce and enlarge proportion factors including other related calculation.</li> </ul>	

### 1. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1.	Traditional classroom	45	100
2.	E-learning		
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	45
2.	Laboratory/Studio	
3.	Field	



4.	Tutorial	
5.	Others (specify)	
	Total	45

## 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 pharmaceutical calculations	K1	Lectures	Theoretical exams (Essay exam, MCQ, Quizzes); Assignment
2.0	Skills			
2.1	Demonstrate ability to solve problems related to pharmaceutical calculations	S3	Lectures, Group discussion	Theoretical exams, Assngments
3.0	Values, autonomy, and responsibility			
3.1	Demonstrate ability to work independently and professionally on related topic.	V1	Problem-based learning	Theoretical exams, Assignment, Observation cards

## C. Course Content

No	List of Topics	Contact Hours
1.	Fundamentals of pharmaceutical calculations	2
2.	International system of units, pharmaceutical measurement	4
3.	Interpretation of prescriptions and medication orders	4
4.	Determination of density, specific gravity, and specific volume; determination of percentage, ratio strength, and other expressions of concentration.	4
5.	Calculation of doses: general considerations	6
6.	Calculation of doses: patient parameters	6
7.	Dilution and concentration, and ways of expression conc.	4
8.	Electrolyte solutions: milliequivalents, millimoles, and milliosmoles .	4





9.	Intravenous infusions, parenteral admixtures, and rate-of-flow calculations	4
10.	Altering product strength, use of stock solutions, and problem-solving by allegation, reducing and enlarging formulas	4
11.	Calculations in contemporary compounding	3
Total		45

## 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.	Assignment	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	<ul style="list-style-type: none"> <li>Pharmaceutical calculations 16th edition by Selly Stockton, 2021</li> </ul>
Supportive References	<ul style="list-style-type: none"> <li>Calculations and Pharmaceutics in Practice, 1st Edition by Jennie Watson &amp; Louise Siobhan Cogan, 2019</li> <li>Pharmacy Calculations for Pharmacy Technicians: Master Calculations The Safe &amp; Easy Way Without Formulas Paperback, by Bradley J. Wojcik, 2020,</li> </ul>
Electronic Materials	<a href="https://sdl.edu.sa/SDLPortal/en/Publishers.aspx">https://sdl.edu.sa/SDLPortal/en/Publishers.aspx</a> <a href="http://www.nu.edu.sa/en/web/deanship-of-libraries-affairs/85">http://www.nu.edu.sa/en/web/deanship-of-libraries-affairs/85</a>
Other Learning Materials	<a href="https://www.elsevier.com/products/journals">https://www.elsevier.com/products/journals</a> Microsoft office excel

### 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.





Items	Resources
	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

