

COURSE DESCRIPTIONS

Faculty	Pharmacy				
Department	Pharmacy			NQF level	
Course Title	Pharmaceutical Technology Laboratory	Code	PHC 446	Prerequisite	PHC 445 or Synchronizing
Credit Hours	1	Theory	-	Practical	1
Course Leader	Assoc.Professor. Dr. Ahmed Rifaat	email	Ahmed.ga@jadara.edu.jo		
Lecturers	Assoc.Professor. Dr. Ahmed Rifaat	emails	Ahmed.ga@jadara.edu.jo		
Lecture time		Classroom			
Semester		Production		Updated	
Awards				Attendance	Fulltime

Short Description

- This course describes how the term has been interpreted for the purpose of this course and how pharmaceuticals fits into the overall scheme of pharmaceutical science and the process of designing and manufacturing a new medicine. An understanding of the concept and design of various pharmaceutical dosage forms.

Course Objectives

- Importance of unit transfer
- Understand the concepts of pharmaceutical operations.
- Review the use and application of each operation in relation
- Explain and discuss Include drawing and understanding equipment of heat transfer and other operations, milling, particle size separation and analysis, powder flow, powder mixing, granulation, drying, clarification.

Learning Outcomes

A. Knowledge - Theoretical Understanding

- a1.The data generated at this stage allow decisions to be made on the likely ease of formulation of each drug candidate indicates the most appropriate dosage form and highlight any potential issues with processability.
- A2. Formulation is the process of developing a drug candidate into a drug product.

B. Knowledge - Practical Application

- A3. Point out the principles of each unite operation in pharmaceutical processes and Define the physical principle of each unite operation in industrial pharmacy

C. Skills - Generic Problem Solving and Analytical Skills

- B1. Explain and discuss the use of different equipment to achieve certain operational pharmaceutical industry.

B2. Predict the relationship between the equipment design and product characteristics
D. Skills - Communication, ICT, and Numeracy
E. Competence: Autonomy, Responsibility, and Context
C1. use information technology tools .
Teaching and Learning Methods
<ul style="list-style-type: none"> • Lectures. • Research projects and information collection. • discussion during lectures and tutorial • self-learning (presenting scientific proposal)
Assessment Methods
(presentations, sketches, quizzes) Final exam

Course Contents					
Week	Hours	CLOs	Topics	Teaching & Learning Methods	Assessment Methods
.1	3	A1, b1	Heat transfer problems	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.2	3	A1, b1	Evaporation and problems	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.3	3	A2,b1	Drying and problems	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.4	3	A2, b2	Extraction and problems	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.5	3	A2,b2	Crystallization practical	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.6	3	A3, b2	Filtration, centrifugation, and distillation	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.7	3	A3,B2	Mixing	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.8	3	A2,C1	Mixing	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.9	3	A3, c1	Size reduction	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam
.10	3	A3,b2	size separation and size enlargement	(presentations, sketches, quizzes) Final exam	(presentations, sketches,

					quizzes) Final exam
.11	3	A2, b2	size separation and size enlargement	(presentations, sketches, quizzes) Final exam	(presentations, sketches, quizzes) Final exam

Infrastructure	
Textbook	The Theory and Practice of Industrial Pharmacy, Edited by. LEON LACHMAN, HERBERT A. LIEBERMAN, and JOSEPH L. KANIG. Lea & Febiger, 4 th Edition.2013.
References	a) M.E. Aulton. Pharmaceutics: The science of dosage form design. Churchill Living Stone, 1996. b) Bentley's textbook of pharmaceutics.
Required reading	
Electronic materials	Presentations and animated materials
Other	

Course Assessment Plan								
Assessment Method	Grade	CLOs						
		A1	A2	A3	B1	B2	C1	
First (Midterm)	30	10	5		15			
Second (if applicable)								
Final Exam	50	5	10	10	5	10	10	
Coursework								
Coursework assessment methods	Assignments							
	Case study							
	Discussion and interaction							
	Group work activities							
	Lab tests and assignments	20			5		5	10
	Presentations							
Quizzes								
Total	100	15	15	15	20	15	20	

Plagiarism
<p>Plagiarism is claiming that someone else's work is your own. The department has a strict policy regarding plagiarism and, if plagiarism is indeed discovered, this policy will be applied. Note that punishments apply also to anyone assisting another to commit plagiarism (for example by knowingly allowing someone to copy your code). Plagiarism is different from group work in which a number of individuals share ideas on how to carry out the coursework. You are strongly encouraged to work in small groups, and you will certainly not be penalized for doing so. This means that you may work together on the program. What is important is that you have a full understanding of all aspects of the completed program. In order to allow proper assessment that this is indeed the case, you must adhere strictly to the course work requirements as outlined above and detailed in the coursework problem description. These requirements are in place to encourage individual understanding, facilitate individual assessment, and deter plagiarism.</p>