

Course Description Form

1. Course Name:					
Industrial Pharmacy I (Theoretical+ Practical)					
2. Course Code:					
Phind25 429-					
3. Semester / Year:					
Second semester/2025-2026					
4. Description Preparation Date:					
15/01/2026					
5. Available Attendance Forms:					
Students' signature on attendance sheet					
6. Number of Credit Hours (Total) / Number of Units (Total)					
3 hours Theoretical + 2 hours Practical /4 units					
7. Course administrator's name					
Theoretical					
Dr. Thamer Abduljabbar Omar Email: thamer.omar@uomosul.edu.iq					
Practical					
Assist. Lecturer: Haider Fouad Email: ph.hayderfouad89@uomosul.edu.iq					
Assist. Lecturer: Saad Mohammed Majeed Email: Saad.mohammed@uomosul.edu.iq					
Assist. Lecturer: Zahraa Hosain Email: zahraa.2021@uomosul.edu.iq					
Assist. Lecturer: Shahad Moyaser Email: shmn89@uomosul.edu.iq					
8. Course Objectives					
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This course provides an introduction to the basic operations and industrial units used in the pharmaceutical industry. These operations include mixing, grinding, filtration, and sterilization. The course covers the fundamentals of each process and the equipment used. It also addresses how to manufacture and test sterile pharmaceutical products, as well as how to meet the required sterility conditions.					
9. Teaching and Learning Strategies					
Strategy		Lecturing Homework Quiz Practical laboratory demonstrations, oral exam and practical tests			
10. Course Structure					
Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method

1	3+1	Introduction to the pharmaceutical process Introduction in industrial pharmacy and pre-formulation	Principles of pharmaceutical processing	Theoretical lectures. Laboratory experiments	Paper-based exam
2	3+1	Principles and importance of fluid mixing in pharmaceutical manufacturing	Fluid mixing; Flow characteristics; mechanisms of mixing; mixing equipment	Theoretical lectures. Laboratory demonstration.	Paper-based exam
3	3+1	Understanding the parameters that control solid mixing process	Solid mixing theory and particulate solid variables; forces and mechanisms	Theoretical lectures. Laboratory demonstration.	Paper-based exam
4	3+1	Introduction into milling as a main pharmaceutical unit operation	Milling; pharmaceutical application; size measurement methods; theory and energy of comminution	Theoretical lectures. Laboratory demonstration.	Paper-based exam
5	3+1	Describing the main equipment; Discussing the main parameters that control this process	Types of mills; factors influencing milling; selection of mill techniques;	Theoretical lectures. Laboratory experiments.	Paper-based exam
6	3+1	Introduction into drying as a main pharmaceutical unit operation	Drying: definition purpose Psychrometry (humidity measurement)	Theoretical lectures. Laboratory demonstration.	Paper-based exam
7	3+1	Understanding the main theory of drying; Describing the main equipment; Discussing the main parameters that control this process	theory of drying drying of solids, classification of dryer specialized drying methods	Theoretical lectures. Laboratory demonstration.	Paper-based exam
8	Mid-term exam				
9	3+1	Introduction into clarification as a main pharmaceutical unit operation	Clarification and filtration: Theory filter media filter aids	Theoretical lectures. Laboratory demonstration.	Paper-based exam
10	3+1	Describing the main equipment; Discussing the main parameters that control this process, addressing the essential needed tests for evaluating the filtration process.	filter selection sterile operations integrity testing equipment and systems (commercial and laboratory)	Theoretical lectures. Laboratory demonstration.	Paper-based exam
11	3+1	Introduction into sterilization as an important pharmaceutical unit operation	Sterilization; validation of methods; microbial death kinetics	Theoretical lectures. Laboratory demonstration.	Paper-based exam

12	3+1	Investigating the different sterilization methods	methods of sterilization (thermal and non-thermal mechanisms; evaluation	Theoretical lectures. Laboratory demonstration.	Paper-based exam
13	3+1	Comprehending the main properties and requirements of sterile products	Pharmaceutical dosage forms; sterile products	Theoretical lectures. Laboratory demonstration.	Paper-based exam
14	3+1	Understanding the formulation requirements and quality control testing of sterile products	development; formulation; production; processing; quality control	Theoretical lectures. Laboratory demonstration.	Paper-based exam

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Course Review**11. Course Evaluation**

- 20 M Theoretical assessment; (paper-based mid-term exam + quiz + attendance)
- 20 M practical assessment (attendance + quiz + practice+ reports)
- 60 M paper-based theoretical final exam

 Total 100 M
12. Learning and Teaching Resources

Required textbooks

 Lachman L., Liberman H. and Kanig J.;
 The Theory and Practice of Industrial
 Pharmacy; Third Edition

Main references (sources)

 •Lachman L., Liberman L. and Schwartz J.
 Pharmaceutical Dosage Forms: Tablets;
 Second Edition: Volume I.

Electronic References, Websites