

Performance review of higher education institution (assessment of the academic program)

وصف المقرر

This course description summarizes the key characteristics and anticipated learning objectives for students, assessing their utilization of available learning resources, and must be aligned with the .program description

1. Educational Institution	Ministry of Higher Education and Scientific Research / Al-Zahrawi University College
2. University Department / Center	Pharmacy Department / Pharmaceuticals Branch
3. Course Name / Code	Industrial Pharmacy I / PPCT 48
4. Programs in which it is included	Bachelor of pharmacy
5. Available Forms of Attendance	Daily attendance
6. Semester / Year	2024-2025 / second course / fourth stage
7. Total Number of Study Hours	3 hours weekly
8. Date of preparing this description	2024-2025
9. Course Objectives:	
Students were taught the necessary steps before preparing pharmaceutical forms, including grinding, mixing, drying and filtration, in addition to sterilization to achieve appropriate treatments for pharmaceutical forms. They also learned the principles of preparing sterile preparations, methods of administration, composition and quality control.	
1. Learning Outcomes, Teaching and Learning Methods, and Evaluation	

A. Knowledge and Understanding

1. To be able to know different principles of pharmaceutical processing, mixing solids, liquids, mixing mechanisms and devices.
2. To be able to differentiate between different types of mills and application of grinding in pharmacy, in addition to measuring particle size and factors affecting their grinding. Along with a set of grinding techniques.
3. To be able to describe drying, moisture measurement, classification of dryers and drying theories.
4. To gain experience in the requirements of drugs to obtain sterile products along with the approval in development, production, processing and quality control.
5. To provide different solutions for purification of pharmaceutical products by knowing the required means for filtration filters and sterilization processes.

B. Subject-Specific Skills

1. Enabling students to acquire the necessary skills before manufacturing various pharmaceutical preparations.
2. Enabling students to acquire the principles of preparing sterile preparations, methods of administration, composition and quality control.
3. Acquiring the skill of extracting the required information from its approved sources.

Teaching and Learning Methods

1. Using the smart board.
2. Teaching and giving theoretical lectures
3. Educational seminars and posters .3

C. Evaluation Methods

1. Midterm and final exams
2. Oral and written exams
3. Classroom activities and poster .

D. Thinking Skills

1. Thinking skills through translating, analyzing, evaluating and extracting ideas.
2. Extracting the appropriate and necessary processes before manufacturing pharmaceutical products of all kinds .

e. General and Transferable Skills

1. Acquire skill in using the computer
2. Give confidence to the student through presenting scientific research
3. Give confidence to the student through discussing reports
4. Acquire skill in dealing
5. Acquire skill in leadership

10. Course Structure					
Evaluation Method	Learning Methods	Unit Name / Course or Topic	Required Learning Outcomes	Hours	week
Daily and monthly exams and discussion	Using the smart board	Principles of pharmaceutical processing; mixing	Fluid mixing; flow characteristics; mechanisms ;of mixing	۳	۱
Daily and monthly exams and discussion	Using the smart board	Principles of pharmaceutical processing; mixing	Mixing equipments; batch and continuous mixing; mixer ;selection	۳	۲
Daily and monthly exams and discussion	Using the smart board	Principles of pharmaceutical processing; mixing	Solid mixing theory and particulate solid variables; .forces and mechanisms	۳	۳
Daily and monthly exams and discussion	Using the smart board	Principles of pharmaceutical processing; milling	Pharmaceutical application; size measurement methods; theory and energy of comminution	۳	۴
Daily and monthly exams and discussion	Using the smart board	Principles of pharmaceutical processing; milling	Types of mills; factors ;influencing milling selection of mill techniques; specialized drying methods	۳	۵
Daily and monthly exams and discussion	Using the smart board	Principles of pharmaceutical processing; drying	Definition of drying; purpose; humidity measurement; ;theory of drying	۳	۶
Daily and monthly exams and discussion	Using the smart board	Principles of pharmaceutical processing; drying	Drying of solids, and classification of dryer; .specialized drying methods	۳	۷
Daily and monthly exams and discussion	Using the smart board	Clarification and filtration	Theory; filter media; filter aids; selection of ;drying method	2	۸
Daily and monthly exams and discussion	Using the smart board	Clarification and filtration	Non-sterile and sterile operations; integrity testing	2	۹
Daily and monthly exams and discussion	Using the smart board	Clarification and filtration	Equipments and systems .(commercial and laboratory)	2	۱0
Daily and monthly exams and discussion	Using the smart board	Sterilization	Validation of methods; microbial death kinetics	2	۱1
Daily and monthly exams and discussion	Using the smart board	Sterilization	Methods of sterilization (thermal and non-thermal)	2	12

Daily and monthly exams and discussion	Using the smart board	Sterilization	Mechanisms; evaluation.	2	13
Daily and monthly exams and discussion	Using the smart board	Pharmaceutical dosage forms; sterile products	Development and Formulation	3	14
Daily and monthly exams and discussion	Using the smart board	Pharmaceutical dosage forms; sterile products	Production, processing; quality control	3	15

11. Learning and teaching resources	
Required books	Leon Lachman, "The Theory and practice of industrial pharmacy"
Main References (Sources)	Aulton's Pharmaceutics: The Design and Manufacture of Medicines, 3ed Michael E. Aulton (Author). Churchill, Livingstone- Elsevier.

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