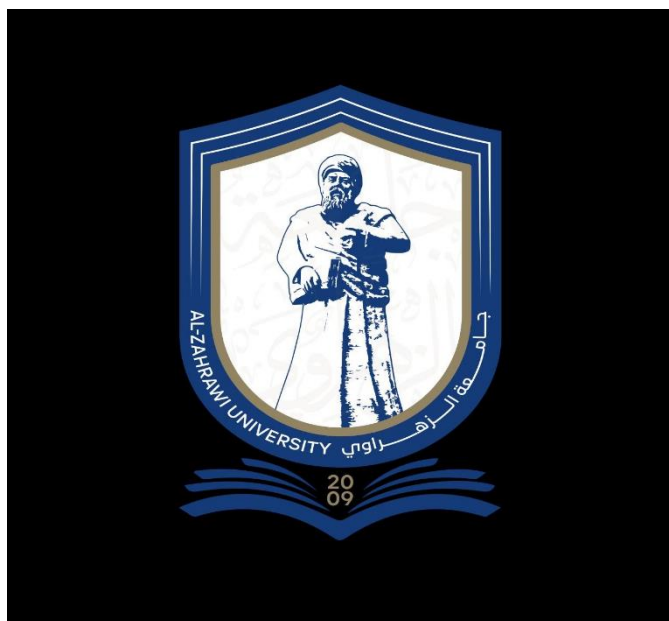




Ministry of Higher Education and Scientific Research

Al-Zahrawi University

College of Pharmacy

Course Description for Physical Pharmacy (practical) Second year First Semester

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

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
2. University Department / Center	College of Pharmacy
3. Course Name / Code	Physical Pharmacy (practical) PPCT 23
4. Programs in which it is included	Bachelor of Pharmacy
5. Available Forms of Attendance	Daily Attendance
6. Semester / Year	First Semester, second stage (2026-2025)
7. Total Number of Study Hours	2 hours per week for each group
8. Date of preparing this description	2026-2025
9. Course Objectives: 1- The main objective of physical pharmacy is to provide the necessary information, basic principles, pharmaceutical systems and energy forms in the system. 2- Teaching students the appropriate and safe methods for preparing the required standard solutions in practical experiments. 3- Teaching students the techniques used to identify how to prepare buffer solutions, their types and their comprehension. 4- Teaching students the different techniques and methods used in studying pharmaceutical solutions with diverse states of matter and containing two or three phases of the solution. 5- Teaching students to know the partition or distribution coefficient of drugs in scientific experiments.	
10. Learning Outcomes, Teaching and Learning Methods, and Evaluation	

A. Knowledge and Understanding

- A-1 The student should be familiar with scientific concepts.
- A-2 The student should be familiar with the correct handling of chemicals and glassware.
- A-3 The student should be familiar with how to operate scientific equipment in the correct and appropriate ways.
- A-4 The student should be familiar with gaining experience in using the various techniques used in practical experiments.
- A-5 Preparing trained and qualified cadres to work in health institutions.

B. Subject-Specific Skills

- B 1. Acquire the skill of how to prepare pharmaceutical solutions with different concentrations.
- B 2. Acquire the skill of knowing the pH value of the solution.
- B 3. Acquire the skill of using the titration method.
- B 4. The student should have knowledge of the distribution coefficient of drugs.
- B 5. The student should be able to distinguish and compare solutions with one or two phases and containing two or three components.

Teaching and Learning Methods

- 1. Educational laboratories
- 2. Thinking and discussion method.
- 3. Learning through videos and visual aids.
- 4. Scientific laboratory assessments
- 5. Exploratory thinking

Evaluation Methods

- 1. Submit weekly reports and work in the laboratory.
- 2. Oral assessment and Written tests

C. Thinking Skills

- C 1. Dialogue method between student and teacher.
- C 2. Preparing weekly reports.
- C 3. Conducting discussions of the results.
- C 4. Exploratory thinking.

Teaching and learning methods

- 1. Discussion and dialogue
- 2. Practical experiment
- 3. Written tests
- 4. Oral grades

Evaluation Methods

- 1. Deductive surprise questions during the discussion on various aspects of education (oral exams)
- 2. Written exams
- 3. Practical exams
- 4. Practical reports

D. General and Transferable Skills

- D 1. Planning and implementing laboratory experiments using modern equipment and devices
- D 2. Analyzing, interpreting and evaluating experimental data in experimental measurements
- D 3. The student is able to employ the knowledge he has received
- D 4. The student is able to embody what he has acquired in future professional development
- D 5. Acquiring skill in using the computer

11. Course Structure					
Weeks	Hours	Required Learning Outcomes	Unit Name / Course or Topic	Learning Methods	Evaluation Method
1	2	Knowledge	Concentration Expression and Dilution Solutions and Mixture	Blackboard and Screen Presentations	Daily exam and oral questions
2	2	Knowledge	Preparation of Different Types of Solutions	Blackboard and Screen Presentations	Daily exam and oral questions
3	2	Knowledge	Preparation of Different Types of Solutions	Blackboard and Screen Presentations	Daily exam and oral questions
4	2	Knowledge	Determination Normality of Sodium hydroxide Solution by a Standard Solution of Hydrochloric acid	Blackboard and Screen Presentations	Daily exam and oral questions
5	2	Knowledge	Determination Normality of Sodium hydroxide Solution by a Standard Solution of Hydrochloric acid	Blackboard and Screen Presentations	Daily exam and oral questions
6	2	Knowledge	Determination of Ascorbic acid in Tablets	Blackboard and Screen Presentations	Daily exam and oral questions
7	2	Knowledge	Buffer Solutions	Blackboard and Screen Presentations	Daily exam and oral questions
8	2	Knowledge	Buffer Solutions	Blackboard and Screen Presentations	Daily exam and oral questions
9	2	Knowledge	Buffer Capacity	Blackboard and Screen Presentations	Daily exam and oral questions
10	2	Knowledge	Tow Components System Containing Liquid Phases	Blackboard and Screen Presentations	Daily exam and oral questions
11	2	Knowledge	Tow Components System Containing Liquid Phases	Blackboard and Screen Presentations	Daily exam and oral questions

12	2	Knowledge	Three Components System	Blackboard and Screen Presentations	Daily exam and oral questions
13	2	Knowledge	Three Components System	Blackboard and Screen Presentations	Daily exam and oral questions
14	2	Knowledge	Determination of Partition Coefficient of Benzoic Acid in Benzene and Water	Blackboard and Screen Presentations	Daily exam and oral questions
15	2	Knowledge	Determination of Partition Coefficient of Benzoic Acid in Benzene and Water	Blackboard and Screen Presentations	Daily exam and oral questions

12. Infrastructure	
Required readings and observations: • Experiments included in the prepared booklet • Books on practical physical pharmacy • Others	Reference • Martins Physical Pharmacy and Pharmaceutical Sciences • Physicochemical Principles of Pharmacy by Alexander Taylor Florence and David Attwood
Special Requirements (Workshops, Journals, Software, Websites):	Electronic Websites: FDA, BP, USP
Social Services (Guest Lectures, Professional Training, Field Studies, Others)	Organizing workshops and courses for graduates:

13. Admission:	
Prerequisites	Admission according to the central plan
Minimum Number of Students	/
Maximum Number of Students	Admission exceeds the capacity plan

Name of the Instructor: Ahmed Mohamed Jawad Kmkm