

COURSE DESCRIPTION INDUSTRIAL PHARMACY II

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Industrial Pharmacy II aims to provide students with the scientific knowledge and practical skills needed to understand modern pharmaceutical manufacturing methods, deal with contemporary pharmaceutical manufacturing equipment, and become familiar with advanced drug-delivery and dosage-form production approaches. The course also supports the development of scientific research awareness in pharmaceutical manufacturing.

1. Educational Institution	Al-Zahrawi University - Ministry of Higher Education and Scientific Research
2. University Department / Center	College of Pharmacy
3. Course Name / Code	Industrial Pharmacy II / PPCT 59
4. Programs in which it is included	Bachelor of Pharmacy
5. Available Forms of Attendance	Classroom attendance
6. Semester / Year	First Semester / Fifth Year
7. Total Number of Study Hours	45 Hours (3 hours/week × 15 weeks)
8. Date of preparing this description	2026

Course Objectives: This course aims to enable students to:

- Understand modern pharmaceutical manufacturing methods and processes.
- Recognize the major pharmaceutical dosage forms and their industrial production requirements.
- Understand tablet manufacture, evaluation, coating, and coating technologies.
- Understand industrial capsule technologies, including hard capsules, soft capsules, and microcapsules.
- Understand the manufacture of liquid and semisolid pharmaceutical dosage forms.
- Develop the scientific and professional skills required for work in pharmaceutical manufacturing facilities.
- Become familiar with modern pharmaceutical manufacturing equipment and developments in drug delivery and pharmaceutical industry.

Learning Outcomes, Teaching and Learning Methods, and Evaluation

Upon successful completion of this course, the student will be able to:

- Identify and describe major pharmaceutical dosage forms.
- Explain industrial manufacturing procedures for tablets, capsules, liquids, and semisolid dosage forms.
- Explain tablet evaluation and coating processes.
- Compare hard-capsule and soft-capsule manufacturing technologies.
- Describe microencapsulation and its pharmaceutical applications.
- Apply acquired industrial-pharmacy knowledge to pharmaceutical manufacturing practice.

Knowledge and Understanding

- Recognize the major pharmaceutical dosage forms.
- Understand pharmaceutical manufacturing procedures and preparations.
- Understand the manufacture and evaluation of tablets, capsules, liquids, and semisolid dosage forms.
- Understand the role of the pharmacist in pharmaceutical manufacturing.

Subject-Specific Skills

- Acquire skills in preparing pharmaceutical formulations.
- Develop skills related to pharmaceutical manufacturing.
- Develop the ability to select appropriate pharmaceutical dosage forms.

Teaching and Learning Methods

Theoretical lectures, PowerPoint presentations, educational videos, seminars, reports, classroom activities, and laboratory demonstrations where applicable.

A. Evaluation Methods

Written examinations, short quizzes, oral questions, homework assignments, reports, classroom discussions, and other course activities.

Thinking Skills

- Apply scientific knowledge to pharmaceutical manufacturing problems.
- Compare manufacturing techniques and dosage-form technologies.
- Interpret industrial processes and select appropriate manufacturing approaches.

Teaching and Learning Methods

Lectures, seminars, homework assignments, educational videos, visual learning, class discussions, and field/industrial learning activities where applicable.

Evaluation Methods

Evaluation of examinations, quizzes, assignments, reports, seminar participation, and classroom discussion.

e. General and Transferable Skills

- Apply acquired knowledge in academic and professional settings.
- Build confidence through seminars and scientific discussion.
- Use acquired knowledge for continuing professional development.

11. Course Structure					
Wee ks	Hours	Required Learning Outcome s	Unit Name / Course or Topic	Learning Methods	Evaluation Method
1	3 HOURS	Knowledge	Solid pharmaceutical dosage forms - Tablets	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
2	3 HOURS	Knowledge	Tablet evaluation	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
3	3 HOURS	Knowledge	Tablet coating	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
4	3 HOURS	Knowledge	Techniques used in tablet coating	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
5	3 HOURS	Knowledge	Capsules - Introduction	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
6	3 HOURS	Knowledge	Industrial capsule technologies	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
7	3 HOURS	Knowledge	Hard capsules and soft capsules	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
8	3 HOURS	Knowledge	Soft-capsule manufacturing techniques	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
9	3 HOURS	Knowledge	Microcapsules / Microencapsulation	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
10	3 HOURS	Knowledge	Liquid pharmaceutical dosage forms	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments

11	3 HOURS	Knowledge	Semisolid pharmaceutical dosage forms	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
12	3 HOURS	Knowledge	Tablet evaluation - Reinforcement and applications	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
13	3 HOURS	Knowledge	Tablet coating and coating techniques - Reinforcement and review	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
14	3 HOURS	Knowledge	Capsule technologies - Reinforcement of hard- and soft-capsule manufacturing	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments
15	3 HOURS	Knowledge	Integrated review: tablets, capsules, microcapsules, liquid and semisolid dosage forms	PowerPoint presentations, board explanation, visual examples, and class discussion	Quizzes, oral questions, discussion, and assignments

12. Infrastructure	
Required Readings:	References: The Theory and Practice of Industrial Pharmacy by Leon Lachman et al.
Special Requirements (Workshops, Journals, Software, Websites):	Electronic websites, scientific journals, educational videos, and relevant pharmaceutical manufacturing resources.
Social Services (Guest Lectures, Professional Training, Field Studies, Others)	Guest lectures, professional training, workshops, and field/industrial visits where applicable.

13.	
Prerequisites	Admission according to the central academic plan
Minimum Number of Students	Not specified
Maximum Number of Students	According to the approved admission capacity

Name of the Instructor: Assistant Professor Dr. Salam Waheed Ajel