وحدة ضمان الجودة

# Courses Specifications
# Faculty of Pharmacy

## Bachelor of pharmacy- Pharm D

## Program

## Fifth level

## 2025-2026

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وحدة ضمان الجودة

# Semester 9

# COURSE SPECIFICATIONS

## Clinical Pharmacy & Pharmacotherapeutics I

**Fifth year – semester 9**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Clinical Pharmacy and Pharmacotherapeutics I | | | |
| **Course Code (according to the bylaw)** | PP 903 | | | |
| **Department/s participating in delivery of the course** | Pharmacy Practice Department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 2 hrs/week | 1 hrs/week | - | 3 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 9 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of Pharmacy | | | |
| **University/Academy** | Zagazig University | | | |
| **Name of Course Coordinator** | Assist. Prof. Esraa Zakaria | | | |
| **Course Specification Approval Date** | 25/8/2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Quality Assurance Unit Council | | | |

## 2. Course Overview (Brief summary of scientific content)

On completion of the course, students will be able to describe the fundamental concepts of clinical pharmacy and pharmaceutical care, including the qualifications and responsibilities of clinical pharmacists. The course focuses on therapeutic planning, identification and resolution of drug-related problems, interpretation of

clinical laboratory data, and basic principles of physical examination. Students will also apply the principles of pharmacotherapeutic management and patient education for special populations, including geriatric, pediatric, renal, hepatic, obese, pregnant, and lactating patients. The course also covers the principles of management and supportive care in oncology, hematological disorders, nutritional deficiencies, rheumatoid arthritis, gout, and fibromyalgia, with emphasis on evidence-based clinical decision-making and individualized care.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | **1.C.1.7.1** | Apply principles of pharmacy practice and clinical sciences to select and manage appropriate drug therapy, focusing on patient safety, efficacy, and evidence-based care. |
| **1.1.2** | Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice | **1.C.1.8.1** | Use proper pharmaceutical and medical terms, abbreviations, and symbols in pharmacy practice. |
| **1.1.4** | Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations. | **1.C.1.11.1** | Apply core knowledge to identify and resolve drug-related problems, ensuring safe and effective therapy to improve patient outcomes. |
| **1.1.5** | Retrieve information from fundamental sciences to solve therapeutic problems. | **1.C1.13.1** | Apply functional knowledge to solve pharmacotherapy-related problems and make informed decisions in clinical practice. |
| **2.1.3** | Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team. | **2.C.1.7.1** | Collaborate with patients and healthcare professionals to select treatments that best meet the patient's therapeutic goals. |

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **2.4.1** | Ensure safe handling/ use of poisons to avoid their harm to individuals and communities. | **2.C.4.1.1** | Advise patients and healthcare professionals on the safe and effective use of medicines and poisons. |
| **2.4.3** | Take actions to solve any identified medicine-related and pharmaceutical care problems. | **2.C.4.3.1** | Identify and manage drug-related problems such as adverse reactions, interactions, contraindications, errors, misuse, and product defects. |
| **2.5.2** | Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession. | **2.C5.3.1** | Demonstrate the ability to make accurate, evidence-based, and timely decisions by critically evaluating clinical information, applying therapeutic guidelines, and considering patient-specific factors to ensure optimal medication use and patient care within the pharmacy profession. |
| **3.1.4** | Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches. | **3.C1.4.1** | Select appropriate medication therapy by integrating knowledge of disease etiology, epidemiology, pathophysiology, clinical presentation, and laboratory findings to ensure effective and targeted treatment. |
| **4.1.1** | Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills. | **4.C1.2.1** | Collaborate effectively with other healthcare professionals by sharing relevant clinical information, participating in treatment planning, and contributing pharmacotherapeutic expertise to ensure coordinated, safe, and optimized patient care. |

## 4. Teaching and Learning Methods

1. Lectures (data show, board)
2. Practical sessions
3. Problem solving (Practical)
4. Role Play (Activity)
5. Case Study (Practical)
6. Flipped Class.

## 5. Course Schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>- Introduction to Clinical Pharmacy: definition, evolution, goals<br>- Responsibilities & qualifications of the Clinical Pharmacist<br>- Clinical pharmacy guidelines | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>- Orientation to clinical pharmacy<br>- Clinical pharmacist skills and qualifications | **2** | **-** | **1** | **-** | **-** |
| 2 | **Lecture**<br>• Medication-related problems: Definition & types, adverse drug reactions, drug-drug interactions<br>• Patient compliance<br>• Taking Medication and case history | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>• Medication-related problems: definition, categories, and management<br>• Pharmaceutical Care concept and plan: case study | **2** | **-** | **1** | **-** | **-** |
| **3** | **Lecture**<br>Pharmacotherapy of rheumatic pain<br>Pharmacotherapy of rheumatoid arthritis | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>• Rheumatic pain<br>• Rheumatoid arthritis<br>• Treatment guidelines-case study | **2** | **-** | **1** | **-** | **-** |
| **4** | **Lecture**<br>• Pharmacotherapy of fibromyalgia<br>• Pharmacotherapy of gout<br>**Formative assessment (quiz1)** | **2** | **2** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Practical session**<br>Treatment guidelines for gout | **2** | **-** | **1** | **-** | **-** |
| **5** | **Lecture**<br>Symptomatology: Pallor | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Pallor Case study. | **2** | **-** | **1** | **-** | **-** |
| **6** | **Lecture**<br>Symptomatology: Jaundice. | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>JaundiceCase-Study | **2** | **-** | **1** | **-** | **-** |
| **7** | **Lecture**<br>Symptomatology: Fever. | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Fever Case Study | **2** | **-** | **1** | **-** | **-** |
| **8** | **Midterm exam** | | | | | |
| **9** | **Lecture**<br>Pharmacotherapy of thyroid disorders:<br>• Physiology<br>• Grave's disease<br>• Multinodular goitre<br>• Thyroid storm | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Case Study on blood disorders and nutritional deficiencies | **2** | **-** | **1** | **-** | **-** |
| **10** | **Lecture**<br>Pharmacotherapy of thyroid disorders:<br>• • Hashimoto's thyroiditis<br>• Cretinism<br>• Myxoedema coma<br>**Formative assessment (quiz 2)** | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Case Study and treatment guidelines of thyroid disorders. | **2** | **-** | **1** | **-*** | **-** |
| **11** | **Lecture**<br>Pharmacotherapy of diabetes mellitus (Part 1) | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Diabetes Mellitus: | **2** | **-** | **1** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | (treatment guidelines and case study) (Part 1) | | | | | |
| **12** | **Lecture**<br>Pharmacotherapy of GI diseases<br>Pharmacotherapy of diabetes mellitus (Part 2)<br>**Formative assessment (quiz 3)** | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>(treatment guidelines and case study) (Part 2) | **2** | **-** | **1** | **-** | **-** |
| **13** | **Lecture**<br>Flipped Class. | **2** | **2** | **-** | **-** | **-** |
| | **Practical Exam** | **2** | **-** | **1** | **-** | **-** |
| **14** | **Lecture**<br>General discussion and revision | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Discussion and Assessment of activity | **2** | **-** | **1** | **-*** | **-** |
| **15** | **Final written exam** | | | | | |

***** As part of a role-play activity in Clinical Pharmacy and Pharmacotherapeutics I course, a part of practical session in week 10 was specified for the explanation of activity guidelines, rules and assessment rubric. Also, practical sessions in weeks 14 were facilitated for students to present their patient history taking and drug-drug interactions observed according to the announced student distribution groups. Supervisors engaged students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity was formally evaluated against a set of established criteria to ensure a rigorous and consistent assessment.

## 6-Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Mid-term Exam**) | Week 8 | 10 | 10% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 50 | 50% |
| **4** | Final **Practical**/Clinical/… Exam | Weeks 13 | 25 | 25% |
| **5** | Final Oral Exam | Week 15 | 10 | 10% |
| **6** | Project (**Self-learning Activity**) | Weeks 14 | 5 | 5% |
| **7** | Assignment (**Formative assessment**) | Weeks 4,10,12 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | - Student book of Clinical Pharmacy and Pharmacotherapeutics I, approved by Pharmacy Practice Department 2025-2026. |
| | **Other References** | 1. American College of Clinical Pharmacy, Updates in Therapeutics®: Pharmacotherapy Preparatory Review and Recertification Course,2024 Edition Volume 1 & 2.<br>2. Harvey M. Rappaport et al. The Guidebook for Patient Counselling. Technomic Publishing Company, 1994.<br>3. Tindall, William N., Robert S. Beardsley, Carole L. Kimberlin. Communication Skills in Pharmacy Practice (4th ed.). Lippincott Williams & Wilkins, 2003.<br>4. Managing Conflict and Preventing Violence in the Pharmacy. Canadian |

| | | |
|---|---|---|
| | | Pharmacist Letter, Vol. 2014.<br>5. ASHP Guidelines on Pharmacist-Conducted Patient Education and Counseling. Medication Therapy and Patient Care: Organization and Delivery of Services – Guidelines, 310–312 (2011). |
| | **Electronic Sources**<br>(Links must be added) | https://www.ekb.eg<br>www.Pubmed.Com and<br>www.sciencedirect.com |
| | **Learning Platforms**<br>(Links must be added)<br>**Electronic platform of Faculty of Pharmacy- Zagaig University for students** | **https://shorturl.at/sar8D** |
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning *** | **Devices/Instruments** | Computer, board |
| | **Supplies** | |
| | **Electronic Programs** | 1. Microsoft Office |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator**<br>**Assist. Prof. Esraa Zakaria** | **Name and Signature**<br>**Head of Department**<br>**Assist. Prof. Esraa Zakaria** |

# COURSE SPECIFICATIONS

## Drug Information

**Fifth year – semester 9**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Drug Information | | | |
| **Course Code (according to the bylaw)** | PO 906 | | | |
| **Department/s participating in delivery of the course** | Pharmacology and Toxicology Department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 1 hrs/week | - | - | 1 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 9 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | **Assist. Prof.Nesreen Ibrahim** | | | |
| **Course Specification Approval Date** | 18-8-2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Department Council | | | |

## 2. Course Overview **(Brief summary of scientific content)**

On completion of the course, the student will be able to effectively access, evaluate, interpret, and communicate drug information, use of various drug information resources (primary, secondary, tertiary), literature evaluation, evidence-based practice, and pharmacoeconomic principles to support rational medication use, explore the structure and function of Drug Information Centers (DICs), the systematic approach to handling drug-related queries, and the ethical and legal considerations in professional communication and decision-making.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| 1-1-1 | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.7.1 | Describe the structure, function, and services Drug Information Centers (DICs) provide. |
| | | 1.C1.7.2 | Apply systematic approaches to respond to drug-related queries using evidence-based methods. |
| | | 1.C1.7.3 | Identify and classify drug information resources (primary, secondary, tertiary) and assess their appropriate use in pharmacy practice. |

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| 1-1-6 | Utilize scientific literature, and collect and interpret information to enhance professional decision | 1.C1.14.1 | Utilize pharmacoeconomic principles to support medication-use decisions and promote cost-effective care. |
| 1-1-7 | Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care. | 1.C1.15.1 | Critically evaluate scientific literature for quality, relevance, and applicability to clinical practice. |
| 2-5-1 | Fulfill the requirements of the regulatory framework to authorize a medicinal product including quality, safety, and efficacy requirements. | 2.C5.1.1 | Describe the phases and ethical considerations of clinical trials in drug development<br>Describe the role of Institutional Review Boards (IRBs) and international ethical guidelines for research involving human subjects. |
| | | 2.C5.1.2 | Explain the regulatory requirements for conducting clinical trials and gaining drug approval. |
| 2-5-2 | Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession. | 2.C5.2.1 | Retrieve accurate and up-to-date information from computerized databases and online platforms relevant to medications and patient care. |
| | | 2.C5.3.1 | Demonstrate the ability to make well-informed, timely, and evidence-based clinical recommendations. |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| 2-5-3 | Contribute in planning and conducting research studies using appropriate methodologies. | 2.C5.5.1 | Define the purpose and importance of the peer review process in scientific publishing and identify the steps involved in submitting, reviewing, and revising a scientific manuscript. |
| 4-1-2 | Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team. | 4.C1.4.1 | Retrieve accurate and up-to-date information from computerized databases and online platforms relevant to medications and patient care. |
| 4-2-2 | Use contemporary technologies and media to demonstrate effective presentation skills. | 4. C2.2.1 | Demonstrate good information technology skills as well as presentation skills. |

## 4. Teaching and Learning Methods

1. Lectures (data show, board)
2. Self- learning (Activity)
3. Problem-based learning (Activity)

## 5. Course schedule :

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | - Introduction to drug information<br>-Drug information centers | **1** | **1** | - | - | - |
| 2 | - Background Questions<br>-Response formulation | **1** | **1** | - | - | - |
| 3 | - Modified systematic approach to answering questions<br>-Drug Information request/response form | **1** | **1** | - | - | - |
| 4 | - Drug information resources<br>**Formative assessment ( quiz 1)** | **1** | **1** | - | - | - |
| 5 | - Controlled clinical trial evaluation | **1** | **1** | - | - | - |
| 6 | Peer review Process | **1** | **1** | - | - | - |
| **7** | **Midterm exam** | | | | | |
| **8** | Institutional Review Board (IRB) | **1** | **1** | - | - | - |
| **9** | - Pharmaco-economics | **1** | **1** | - | - | - |
| **10** | - Pharmaco-economics decision analysis<br>**Formative assessment ( quiz 2)** | **1** | **1** | - | - | - |
| **11** | - Medication misadventures | **1** | **1** | - | - | - |
| **12** | - Adverse drug reactions and Medication errors<br>**Formative assessment ( quiz 3 )** | **1** | **1** | - | - | - |
| **13** | - The Drug Approval Process<br>- **Activity (IRB application report)** | **1** | **1** | - | - | - |
| **14** | - Revision and Open discussion | **1** | **1** | - | - | - |

| | |
|---|---|
| **15** | **Final written exam** |

## 6. Methods of students' assessment

| No. | Assessment Methods | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Mid-term Exam**) | Week 7 | 10 | 10% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 75 | 75 % |
| **4** | Final **Practical**/Clinical/… Exam | - | - | - |
| **5** | Final Oral Exam | - | - | - |
| **6** | Project (**Self-learning Activity**) | Week 13 | 15 | 15% |
| **7** | Assignment (**Formative assessment**) | Week 4,10,12 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7. Learning Resources and Supportive Facilities

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.)** * | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | - Student book of Drug information approved by pharmacology department 2025 |
| | **Other References** | 1-Drug information: a guide for pharmacists by Malone P.M., Mosdell K.W. (2022) (7th edition).<br>2- Drug Information: A Guide to Current Resources by Snow B. (2008).<br>3-Drug information handbook: a clinically relevant resource for all healthcare professionals 24th edition Lexi-Comp, Hudson, Ohio, 2015 |
| | **Electronic Sources** (Links must be added) | - |

| | | |
|---|---|---|
| | | |
| | **Learning Platforms** (Links must be added) **Electronic platform of Faculty of Pharmacy-Zagaig University for students** | http://phstudent.eps.zu.edu.eg/Views/StudentViews/StudentLogin |
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | White boards, data show, air-conditioned classroom |
| | **Supplies** | - |
| | **Electronic Programs** | 1. Microsoft office<br>2. Microsoft teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

**Name and Signature**
**Course Coordinator**
**Assist. Prof.Nesreen Ibrahim**

**Name and Signature**
**Head of Department**
**Prof . Dr . Islam Ahmed**

# COURSE SPECIFICATIONS

## Community Pharmacy Practice

**Fifth year – semester 9**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | **Community pharmacy practice** | | | |
| **Course Code (according to the bylaw)** | **PP 904** | | | |
| **Department/s participating in delivery of the course** | **Pharmacy practice-pharmaceutics** | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | **2 hrs/week** | **1 hr/week** | **-** | **3 hrs/ week** |
| **Course Type** | **Faculty requirements** | | | |
| **Academic level at which the course is taught** | **Level 5** | | | |
| **Academic Program** | **Bachelor of pharmacy (Pharm D)** | | | |
| **Faculty/Institute** | **Pharmacy** | | | |
| **University/Academy** | **Zagazig** | | | |
| **Name of Course Coordinator** | **Shereen sabry** | | | |
| **Course Specification Approval Date** | **25 August 2025** | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | **Council of Quality Assurance** | | | |

## 2. Course Overview (Brief summary of scientific content)

On completion of the course, students will be able to identify higher risk of a serious condition and consider when referring the patient to the doctor. The student will be able to manage common disorders of the upper respiratory tract, gastrointestinal, and musculosketal symptoms. In addition, skin, eyes, and ears, women's health and childhood symptoms, as well as lifestyle education for patients with diabetes and high cholesterol will be discussed.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| 1-1-1 | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.7.1 | Explain the etiology, epidemiology of different diseases related to women health, childhood conditions, respiratory, nervous, gastrointestinal and dermatological systems |
| 2-1-1 | Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team. | 2.C1.3.1 | Evaluate the pharmacist's behavior in different communication scenarios |
| 2-1-3 | Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team. | 2.C1.7.1 | Select proper medicines according to the disease and the patient's state |
| | | 2.C1.8.1 | Identify different conditions that require physician referral |
| 2-4-1 | Ensure safe handling/ use of poisons to avoid their harm to individuals and communities. | 2.C4.1.1 | Advise patients and other health care professionals about the safe and effective use of medicines and poisons when visit community pharmacies. |
| 3-2-5 | Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices. | 3.C2.5.1 | Improve public awareness on the proper use of over the counter (OTC) and prescribed drugs of natural or synthetic origin as well as medical devices for repiratory, gatro intestinal central nervous system diseases |
| 4.2.1 | Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities. | 4.C2.1.1 | Interact effectively with patients, the public and health care professional orally and written |

## 4. Teaching and Learning Methods

1. Lectures
2. Practical session (case study, role play)

## 5. Courde schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br><br>**Course orientation Strategies for Communicating Effectively with Patients** | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>Patient education | **1** | **-** | **1** | **-** | **-** |
| 2 | **Lecture**<br>Women health | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**Women health cases** | **1** | **-** | **1** | **-** | **-** |
| 3 | **Lecture**<br>Childhood conditions | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**Childhood conditions, case study** | **1** | **-** | **1** | **-** | **-** |
| 4 | **Lecture**<br>Respiratory system disorders (cough, common cold) | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>visit to faculty educational pharmacy & report writing formative assessment | **1** | **-** | **1** | **-** | **-** |
| 5 | **Lecture**<br>Respiratory system disorders 9sore throat, rhinitis)<br>Activity | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>Respiratory system disorders<br>(Case study) | **1** | **-** | **1** | **-** | **-** |
| 6 | **Lecture**<br>Central nervous system disorders (hadach, insomnia, nausea and vomiting) | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>Central nervous system disorders<br>(Case study) | **1** | **-** | **1** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | **Periodical exam** | | | | | |
| 8 | **Lecture**<br>Gastroenterology (aphthus ulcer, oral thrush, gingivitis) | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**GIT disorders (Case study)** | **1** | **-** | **1** | **-** | **-** |
| 9 | **Lecture**<br>**Gastroenterology (dyspepsia, diarrhea, constipation)** | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**GIT disorders (Case study)** | **1** | **-** | **1** | **-** | **-** |
| 10 | **Lecture**<br>Gastroenterology (haemorrhoids, IBS, abdominal pain) | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**GIT disorders (Case study)** | **1** | **-** | **1** | **-** | **-** |
| 11 | **Lecture**<br>**Common Dermatologic Diseases and Conditions** | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**Dermatological disorders (case study)** | **1** | **-** | **1** | **-** | **-** |
| 12 | **Lecture**<br>**Common Dermatologic Diseases and Conditions**<br>**Formative assessment** | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>Eye disorders (case study) | **1** | **-** | **1** | **-** | **-** |
| 13 | **Lecture**<br>Eye conditions | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**Practical exam** | **1** | **-** | **1** | **-** | **-** |
| 14 | **Lecture**<br>Patient Education and life-style modification in diabetes and hyperlipidemia | **2** | **2** | **-** | **-** | **-** |
| | **Practical**<br>**Discussion on activity** | **1** | **-** | **1** | **-** | **-** |
| 15 | **Final written exam** | | | | | |

## 6-Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| 1 | Exam 1written (periodical) | Week7 | 10 | 10% |
| 2 | Exam 2 ..... (Semester work) | - | - | - |
| 3 | Final Written Exam | Week15 | 50 | 50% |
| 4 | Final Practical/Clinical/… Exam | Week13 | 25 | 25% |
| 5 | Final Oral Exam | Week15 | 10 | 10% |
| 6 | Self-learning-activity | Week5 | 5 | 5% |
| 7 | Formative assessment | Week4, 12 | - | - |
| 8 | Other (Mention) | - | - | - |

## 7-Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | Student book of Community pharmacy practice approved by pharmacy practice department (2025-2026) |
| | **Other References** | 1. Harvey M. Rappaport et al. The Guidebook for Patient Counselling. Lancaster, Pennsylvania: Technomic Publishing Company, 1994.<br>2. Tindall, William N, Robert S. Beardsley, Carole L. Kimberlin. Communication Skills in Pharmacy Practice (fourth edition). Baltimore, Maryland and Philadelphia, Pennsylvania : Lippincott Williams & Wilkins, 2003.<br>3. Managing Conflict and Preventing Violence in the Pharmacy. Canadian Pharmacist Letter. Volume 2014, Course No.<br>4. ASHP Guidelines on Pharmacist-Conducted Patient Education and Counseling. Medication Therapy and Patient Care: Organization and Delivery of Services– |

| | | |
|---|---|---|
| | | Guidelines, 310 – 312 (2011).<br>5- Paul Rutter. Community pharmacy: Symptoms, diagnosis and treatment. 3rd edition, Churchill Livingstone, Elsevier, 2013<br>6- Non-prescription drugs, Li Wan, P., 2nd ed., Oxford Blackwell Scientific publications (1990).<br>7- Pharmacy practice and law 5/ed. Richard R. Abood, David B,Brushwood, (2010).<br>8- Communication skills in pharmacy practice 6th ed, 2017. |
| | **Electronic Sources**<br>(Links must be added) | **www.ekb.eg**<br>**www.pubmed.com**<br>**www.cochran.com** |
| | **Learning Platforms**<br>(Links must be added) | **https://shortul.at/sar8D** |
| | **Other**<br>(to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | Computer, board |
| | **Supplies** | |
| | **Electronic Programs** | 1. Microsoft office<br>2. Microsoft teams |
| | **Skill Labs/ Simulators** | |
| | **Virtual Labs** | |
| | **Other** (to be mentioned) | |

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator**<br><br>**Shereen sabry** | **Name and Signature**<br>**Head of department**<br>**Esraa zakria** |

# COURSE SPECIFICATIONS

## Quality Control of Pharmaceuticals

**Fifth year – semester 9**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | **Quality Control of Pharmaceuticals** | | | |
| **Course Code (according to the bylaw)** | PA 905 | | | |
| **Department/s participating in delivery of the course** | Analytical chemistry department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | Theoretical | Practical | Other | Total |
| | 2 hr/week | 1 hr/week | --- | 3 hr/week |
| **Course Type** | Faculty Requirements (Compulsory) | | | |
| **Academic level at which the course is taught** | level five/ semester nine | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of Pharmacy | | | |
| **University/Academy** | Zagazig University | | | |
| **Name of Course Coordinator** | Prof. Dr. Gamal Ragab | | | |
| **Course Specification Approval Date** | 18/8/2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Department Council | | | |

## 2. Course Overview (Brief summary of scientific content)

On completion of the course, students will be able to: Illustrate principals of quality control & quality assurance, in process control and validation, Sampling,

Analysis of raw materials & pharmaceuticals using reference standard, Pharmacopeial methods of stability and Stability testing of drugs, Validation of analytical method.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1-1-1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.2.1 | Illustrate principles of Quality control of pharmaceuticals |
| **1-1-3** | Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/ natural pharmaceutical materials/products.. | 1.C1.9.1 | Explain working principles of pharmaceutical sampling, analysis of raw material and pharmaceuticals, stability testing. and method validation. |
| **2-2-3** | Recognize the principles of various tools and instruments, and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.. | 2.C2.5.1 | Apply proper analytical chemistry techniques for determination of raw material and pharmaceuticals for quality control purposes. |
| | | 2.C2.5.2 | Interpret results into concentrations. |
| **2-3-1** | Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field. | 2.C3.1.1 | Handle and dispose chemicals safely employing GLP guidelines. |
| **2-3-2** | Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and | 2.C3.2.1 | Adopt safety guidelines. |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| | pharmaceutical materials/products. | | |
| **4-1-1** | 4-1-1 Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills. | 4.C1.3.1 | Perform tasks within time limit. |
| **4-1-2** | Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team. | 4.C1.5.1 | Demonstrate problem solving, and decision-making skills. |

## 4. Teaching and Learning Methods

- Lectures (data show, board)
- Practical sessions
- Self-learning (Activity)
- Co-operative Learning (Activity)
- Flipped Class (Practical sessions)

## 5. Course Schedule

| Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | **Theoretical teaching (lectures/ discussion groups/ .....)** | **Training (Practical/ Clinical/ .....)** | **Self-learning (Tasks/ Assignments/ Projects/ ...)** | **Other (to be determined)** |
| **1** | **Lecture**<br>**Quality assurance of pharmaceuticals** | **2** | **2** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | - Overview, Concepts of drug quality control, | | | | | |
| | **Practical session**<br>- Safety guidelines<br>- Introduction to QC and QA | **1** | **-** | **1** | **-** | **-** |
| **2** | **Lecture**<br>**Quality assurance of pharmaceuticals**<br>- Total quality management (TQM), practice (GAP) and (GLP), Drug standards. | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Validation of analytical methods<br>- Linearity, range, detection and quantitation limits calculations | **1** | **-** | **1** | **-** | **-** |
| **3** | **Lecture**<br>**Sampling**<br>Purpose of sampling and sampling facilities | **2** | **2** | **-** | **-** | **-** |
| | Validation of analytical methods<br>- Accuracy and precision calculation | **1** | **-** | **1** | **-** | **-** |
| **4** | **Lecture**<br>**Sampling**<br>- Health and safety, Sampling process<br>**- Formative assessment (quiz 1)** | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Validation of analytical methods<br>- Robustness and specificity | **1** | **-** | **1** | **-** | **-** |
| **5** | **Lecture**<br>**Introduction to Pharmaceutical Analysis** | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Assay of Lasix ampoules | **1** | **-** | **1** | **-** | **-** |
| **6** | **Lecture**<br>**Pharmaceutical Analysis** | **2** | **2** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | - Selection and development of the analytical method | | | | | |
| | **Practical session**<br>Assay of Zn Origin syrup | **1** | **-** | **1** | **-** | **-** |
| **7** | Mid-term Exam | | | | | |
| **8** | **Lecture**<br>Analysis of raw materials and pharmaceutical products | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Assay of Sodium chloride (Saline) intravenous infusion | **1** | **-** | **1** | **-** | **-** |
| **9** | **Lecture**<br>Analysis of raw materials and pharmaceutical products (continued).<br>**- Formative assessment (quiz 2)** | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Assay of Ibuprofen tablets | **1** | **-** | **1** | **-** | **-** |
| **10** | **Lecture**<br>- Calibration (Performance verification) of instruments & equipments | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Activity orientation | **1** | **-** | **1** | **-*** | **-** |
| **11** | **Lecture**<br>Method development and validation | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Practical Exam | **1** | **-** | **1** | **-** | **-** |
| **12** | **Lecture**<br>Pharmaceutical Product Stability | **2** | **2** | **-** | **-** | **-** |
| | **Practical session** | **1** | **-** | **1** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Practical exam | | | | | |
| **13** | **Lecture**<br>Pharmaceutical Product Stability (continued) | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Activity assessment and discussion | **1** | **-** | **1** | **-*** | **-** |
| **14** | **Lecture**<br>General discussion and revision | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Activity assessment and discussion | **1** | **-** | **1** | **-*** | **-** |
| **15** | **Final written exam** | | | | | |

* As part of the self-learning activity, week 10 of practical session was used to explain the activity guidelines and assessment rubric. In weeks 13 and 14, students presented their reports on the assigned topics. Supervisors discussed the students' skills, findings, and conclusions with them, and the activity was formally evaluated using clear and consistent criteria.

## 6. Methods of students' assessment

| No. | Assessment Methods | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Mid-term Exam | **Week 7** | **10** | **10%** |
| **3** | Final Written Exam | **Week 15** | **50** | **50%** |
| **4** | Practical Exam | **Weeks 11, 12** | **25** | **25%** |
| **5** | Final Oral Exam | **Week 15** | **10** | **10%** |
| **6** | Self-learning Activity | **Weeks 13,14** | **5** | **5%** |
| **7** | **Assignment (Formative assessment)** | **Weeks 4,9** | **-** | **-** |

## 7. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course**<br>method) | i- Guidance for the Validation of Analytical Methodology and Calibration of Equipment used for Testing of Illicit Drugs in Seized Materials and Biological Specimens, Laboratory and Scientific Section, United Nations Office on Drugs and Crime, 2009<br>ii- A. Kar, Pharmaceutical Drug Analysis, New Age International (P) Limited, Publishers, New Delhi,2005<br>iii- B.p. & U.S Pharmacopeia (1988-2007)<br>iv- Chemical Stability of Pharmaceuticals: A Handbook for Pharmacists, 2nd Edition ; Connors K.A., Amidon G.L., Stella V.J.<br>v- Pharmaceutical Process Validation: An International (Drugs and the Pharmaceutical Sciences Book 129) 3rd Edition, Robert A. Nash, Alfred H. Wachter, 2003<br>vi- Photostability of drugs and drug formulations; 2nd Edition. Hanne Hjorth Tønnesen (2004) |
| | Other References | i-Quality assurance of pharmaceuticals: a compendium of guidelines and related materials. Vol. 2, Good manufacturing practices and inspection. – 2nd ed, 2007 |
| | **Electronic Sources** | www.Pubmed.Com<br>www.sciencedirect.com |
| | **Learning Platforms**<br>(Links must be added)<br>**Electronic platform of Faculty of Pharmacy- Zagaig University for students** | **https://shorturl.at/sar8D** |
| | | |
| **Supportive facilities & equipment for** | **Devices/Instruments** | Computer, board |
| | **Supplies** | - Chemicals and Glassware |
| | **Electronic Programs** | - Microsoft office |

| | | |
|---|---|---|
| **teaching and learning** * | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

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| **Name and Signature**<br>**Course Coordinator**<br>**Prof.Dr. Gamal Ragab** | **Name and Signature**<br>**Head of Department**<br>**Gendi -Prof . Dr. Amal Al** |

# COURSE SPECIFICATIONS

## Good Manufacturing Practice

**Fifth year – semester 9**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Good Manufacturing Practice | | | |
| **Course Code (according to the bylaw)** | PT910 | | | |
| **Department/s participating in delivery of the course** | Pharmaceutics Department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 1 hrs/week | 1 hrs/week | - | 2 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- Semester 9 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of Pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | Prof. Dr. Mahmoud AbdelGhany | | | |
| **Course Specification Approval Date** | 18/8/2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Department Council | | | |

## 2. Course Overview **(Brief summary of scientific content)**

The course provides students with information about the guidelines for the manufacturing of dosage forms and the good practices that should be followed during sampling, packaging, storing, and labeling of different dosage forms.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | **1.C1.2.1.** | Outline the principles of drug design and good manufacturing practice. |
| **1.1.7** | Identify newly emerging issues related to pharmaceutical industry | **1.C1.16.1.** | Identify newly emerging issues related to the pharmaceutical industry. |
| **2.2.2** | Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities. | **2.C2.2.1.** | Describe appropriate techniques for safe and efficient formulation, compounding, manufacturing, packaging, labeling, storing, dispensing, and distributing various pharmaceutical dosage forms while adhering to good manufacturing practice (GMP) guidelines. |
| **4.1.1** | Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills. | **4.C1.3.1** | Perform a task within specified time. |

## 4. Teaching and Learning Methods

1. Lectures (data show, board)
2. Practical sessions (Tutorials)
3. Problem solving (Practical)
4. Self-learning (Activity)
5. Blended- learning (Activity)

## 5. Course Schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>Introduction for the pharmaceutical industry and GMP | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Introduction of various definitions and abbreviations concerning GMP | **2** | **-** | **1** | **-** | **-** |
| 2 | **Lecture**<br>History of GMP development | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Implementation of GMP toward examples of product quality defects "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| 3 | **Lecture**<br>Therapeutic good regulators | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Premises and cleaning guidelines "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| 4 | **Lecture**<br>Storage areas<br>**Formative assessment (quiz1)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Discussion about keeping premises and equipment cleanliness | **2** | **-** | **1** | **-** | **-** |
| 5 | **Lecture**<br>Introduction of quality control | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Design and types of airlocks in pharmaceuticals "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| 6 | **Lecture**<br>Documentation and sampling in quality control | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Types of isolators and airflow systems "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| 7 | **Lecture**<br>Testing and storage in quality control | **2** | **2** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Practical session**<br>Personnel, sanitation and hygiene "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **8** | **Midterm exam** | | | | | |
| **9** | **Lecture**<br>Storage duration and conditions, and an ongoing stability program | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Starting materials and sampling tools "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **10** | **Lecture**<br>Premises and ancillary areas<br>**Formative assessment (quiz 2)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Examples of different sheets of sampling plans "Tutorial"<br>- Orientation on Activity | **2** | **-** | **1** | **-*** | **-** |
| **11** | **Lecture**<br>Fundamentals of quality assurance | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Description of quality management "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **12** | **Lecture**<br>Validation and qualification | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Discussion about differences between quality control and quality assurances | **2** | **-** | **1** | **-** | **-** |
| **13** | **Lecture**<br>Complaints, Recalls and Product quality review | **1** | **1** | **-** | **-** | **-** |
| | **Practical Exam** | **2** | **-** | **1** | **-** | **-** |
| **14** | **Lecture**<br>Revision and open discussion | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Discussion and Assessment of activity | **2** | **-** | **1** | **-*** | **-** |
| **15** | **Final written exam** | | | | | |

***** As part of a self-learning activity in pharmaceutical analytical chemistry II course, a part of practical session in week 10 was specified for the explanation of activity guidelines, rules and assessment rubric. Also, practical sessions in week 14 were facilitated for students to present their reports on the various activity self-learning topics according to the announced student distribution on topics. Supervisors engaged students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity was formally evaluated against a set of established criteria to ensure a rigorous and consistent assessment.

## 6-Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of Total Course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Mid-term Exam**) | Week 8 | 10 | 10% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 50 | 50% |
| **4** | Final **Practical**/Clinical/… Exam | Week 13 | 25 | 25% |
| **5** | Final Oral Exam | Week 15 | 10 | 10% |
| **6** | Project (**Self-learning Activity**) | Weeks 10,14 | 5 | 5% |
| **7** | Assignment (**Formative assessment**) | Weeks 4,10 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7-Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | Student book and practical notes of "Good Manufacturing Practice" approved by the Pharmaceutics Department 2025-2026. |
| | **Other References** | 1. Brendan Cooper. 2017, The GMP Handbook: A Guide to Quality and Compliance. ISBN-13 :978-1548370251.<br>2. The Inspection and Standards Division of the Medicines and Healthcare products Regulatory Agency, Rules and Guidance forPharmaceutical Manufacturers and Distributors (the "OrangeGuide"), Pharmaceutical Press, 2007. |

| | | |
|---|---|---|
| | | 3. Gero Beckmann; WilfriedBellack; Helmut Bender; and others, GMPMANUAL; Good Manufacturing Practice & Implementation, Maas &Peither AG – GMP Publishing, 2007.<br>4. World Health Organization, Quality Assurance of Pharmaceuticals; A compendium of guidelines and related materials; Volume 2, 2nd updated edition; Good manufacturing practices and inspection, WHO Press, 2006.<br>5. WHO Expert Committee on Specifications for Pharmaceutical Preparations, WHO Technical Report Series 937, WHO Press, 2006<br>6. Gillian Chaloner-Larsson; Roger Anderson; Anik Egan; Manoel Antonio da Fonseca Costa Filho; Jorge F. Gomez Herrera, A WHO guide to good manufacturing practice (GMP) requirements; Part 1: Standard operating procedures and master formulae, World Health Organization; Global Programme for Vaccines and Immunization, 1997.<br>7. Office of Women's Health, FDA Milestones in Women's Health: Looking Back as We Move into the New Millennium (FDA, Rockville, MD, 2000),<br>8. FDA History: FDA Commissioners and Their Predecessors, U.S. Food and Drug Administration, Rockville, MD, rev. 6 April 2000,<br>9. "Jonas Salk, MD — Biography" (American Academy of Achievement, 2000),<br>10. Code of Federal Regulations, Food and Drugs, "Current Good Manufacturing Practice in Manufacturing, Processing, Packing, or Holding of Drugs," revised April 2000, Title 21 Part 210–211 (U.S. Printing Office, Washington, DC). |
| | **Electronic Sources**<br>(Links must be added) | https://www.ekb.eg/<br>www.Pubmed.Com and<br>www.sciencedirect.com |
| | **Learning Platforms**<br>(Links must be added)<br>**Electronic platform of Faculty of Pharmacy- Zagaig University for students** | **https://shorturl.at/sar8D** |
| | **Other** (to be mentioned) | - |
| | | |

| | | |
|---|---|---|
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | Computer, board |
| | **Supplies** | - |
| | **Electronic Programs** | 1. Microsoft Office<br>2. Microsoft Teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

**Name and Signature**
**Course Coordinator**
Prof. Dr. Mahmoud AbdelGhany

**Name and Signature**
**Head of Department**
Prof. Dr. Shereen Sabry

# COURSE SPECIFICATIONS

**Marketing & Pharmacoeconomis**

**Fifth year – semester 9**
**2025-2026**

# Course Specification

# (2025/2026)

## 1-Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | **Marketing & Pharmacoeconomis** | | | |
| **Course Code (according to the bylaw)** | **NP 905** | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | **1** | **-** | **-** | **1** |
| **Course Type** | **Minor** | | | |
| **Academic level at which the course is taught** | **5th level (9th semester)** | | | |
| **Academic Program** | **Bachelor of Pharmacy (Pharm D)** | | | |
| **Faculty/Institute** | **Faculty of Pharmacy** | | | |
| **University/Academy** | **Zagazig university** | | | |
| **Name of Course Coordinator** | **Prof. Dr. Emad El-Qamhawy** | | | |

## 2-Course Overview **(Brief summary of scientific content)**

The course aims to provide students with a comprehensive understanding of market-ing principles and pharmacoeconomic evaluation within pharmaceutical and healthcare contexts. It introduces the fundamentals of market segmentation, target-ing, and the marketing mix (product, price, place, and promotion), while emphasizing their application in institutional and community pharmacy settings. In parallel, the course equips students with the knowledge and skills to apply pharmacoeconomic assessment methods, including cost-effectiveness and cost-benefit analysis, to support

evidence-based decision-making. By integrating marketing strategies with economic evaluation and professional ethics, the course prepares students to design, implement, and evaluate customized marketing plans that enhance patient care, organizational efficiency, and the sustainable use of healthcare resources.

## 3-Course Learning Outcomes CLOs

**Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)**

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| 1-1-1 | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.5.1 | Explain the role of marketing within administrative sciences |
| | | 1.C1.5.2 | Analyze market segmentation, targeting, and positioning strategies rel-evant to pharmaceuticals |
| 2-6-1 | Apply the principles of business administration and management to ensure rational use of financial and human re-sources | 2.C6.1.1 | Understand the principles of marketing and pharmacoeconomics as essential components of effective organization and management in the pharmaceutical field. |
| 2-6-2 | Utilize the principles of drug pro-motion, sales, marketing, accounting, and pharmacoeconomic analysis. | 2.C6.4.1 | Apply fundamental principles of drug promotion, sales, and marketing within the pharmaceutical industry. |
| | | 2.C6.5.1 | Integrate the principles of pharmacoeconomic evaluation to critically assess and compare the cost–benefit and value of medicines. |
| 4-2-2 | Use contemporary technologies and media to demonstrate effective presentation skills. | 4.C2.2.1 | Demonstrate effective oral and visual presentation skills, tailored to academic, professional, or policy audiences. |

## 4-Teaching and Learning Methods

1. Lectures
2. Blended-learning (internet search as activity)

## 5-Course Schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **What Is Marketing? Understand the Marketplace and Customer Needs** | **1** | **1** | **--** | **-** | **-** |
| 2 | **Designing a Customer-Driven Marketing Strategy Preparing an Integrated Marketing Plan and Program** | **1** | **1** | **---** | **-** | **-** |
| 3 | **Building Customer Relationships Capturing Value from Customers** | **1** | **1** | **--** | **-** | **-** |
| 4 | **The Changing Marketing Landscape** | **1** | **1** | **--** | **-** | **-** |
| 5 | **Model of Consumer Behavior Characteristics Affecting Consumer Behavior Types of Buying Decision Behavior** | **1** | **1** | **--** | **-** | **-** |
| 6 | **The Buyer Decision Process The Buyer Decision Process for New Products Activity 1** | **1** | **1** | **--** | **-** | **-** |
| 7 | **Midterm exam** | | | | | |
| 8 | **Product Policy & Branding Pricing & Customer Value** | **1** | **1** | **--** | **-** | **-** |
| 9 | **Distribution Networks & Place Value Marketing Communication & Promotion** | **1** | **1** | **--** | **-** | **-** |
| 10 | **Segmentation Targeting Activity 2** | **1** | **1** | **--** | **-** | **-** |
| 11 | **Target Customers** | **1** | **1** | **--** | **-** | **-** |
| 12 | **Product Life Cycle** | **1** | **1** | **--** | **-** | **-** |
| 13 | **Pharmacoeconomics** | **1** | **1** | **--** | **-** | **-** |
| 14 | **Final revision** | **1** | **1** | **--** | **-** | **-** |
| 15 | **Written exam** | | | | - | - |

## 6-Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (mid-term exam) | **Week 7** | **15** | **15%** |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | **Week 15** | **75** | **75%** |
| | Final Practical/Clinical/… Exam | - | - | - |
| | Final Oral Exam | - | - | - |
| | Project ( self-learning activity) | **6,10** | **10** | **10%** |
| | Field training | - | - | - |
| | Other (Mention) | - | - | - |

## 7-Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | **Student book of Marketing & Pharmacoeconomics** |
| | **Other References** | **1. Kotler, P., & Keller, K. L. (16th edition). Marketing Management. Pearson. Xiong, J. (2006). Essential bioinformatics. Cambridge University Press.**<br>**2. Shah, B., & Chitnis, K. (2019). Pharmaceutical Marketing: Principles, Environment, and Practice. PharmaMed Press.**<br>**3. Drummond, M. F., Sculpher, M. J., Claxton, K., Stoddart, G. L., & Torrance, G. W. (2015). Methods for the Economic Evaluation of Health Care Programmes (4th ed.). Oxford University Press.**<br>**4. Kotler, P., Shalowitz, J., & Stevens, R. J. (2011). Strategic Marketing for Health Care Organizations: Building a Customer-Driven Health System. Jossey-Bass.** |
| | **Electronic Sources** (Links must be added) | 1- ISPOR – International Society for Pharmacoeconomics and Outcomes Research<br>**Error! Reference source not found.**<br>2- **World Health Organization (WHO)** |

| | | |
|---|---|---|
| | | **– Essential Medicines & Pharmaceutical Policy**<br>https://www.who.int/medicines<br>3- www.ekb.eg<br>4- www.Pubmed.com<br>5- www.sciencedirect.com |
| | **Learning Platforms**<br>(Links must be added) | |
| | **Other**<br>(to be mentioned) | |
| | | |
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | **Computer / Data show** |
| | **Supplies** | **White/black board** |
| | **Electronic Programs** | |
| | **Skill Labs/ Simulators** | |
| | **Virtual Labs** | |
| | **Other** (to be mentioned) | |

**Name and Signature**
**Course Coordinator**
Prof. Dr. Emad El-Qamhawy

**Name and Signature**
**Program Coordinator**

**Prof. Hanan ELnahas**

# COURSE SPECIFICATIONS

**First Aid and Basic Life Support**

**Fifth year – semester 9**
**2025-2026**

# Course Specification

# (2025-2026)

## 1-Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | First Aid and Basic life Support | | | |
| **Course Code (according to the bylaw)** | MD 906 | | | |
| **Department/s participating in delivery of the course** | Pharmacy Practice department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 1 hrs/week | - | - | 1 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 9 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | Dr. Yasser Ali Orban | | | |
| **Course Specification Approval Date** | 25/8/2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Council of Quality Assurance unit | | | |

## 2-Course Overview **(Brief summary of scientific content)**

Our Basic Life Support training aims to provide learners with the skills and knowledge needed to act in an emergency, providing crucial life-saving aid to the casualty until help arrives. The course includes CPR Training and defibrillator Training (AED).

Also, principles of diagnosis and management of patients exposed to medical emergencies or trauma in a concise and illustrative manner that would help students of the faculty of clinical pharmacy in their early years of study.

Also, the course includes some basic surgical skills that are necessary for the practical life of these students.

On completion of the course, students will be able to

- Provide Cardiopulmonary Resuscitation (CPR) for patients with cardiac arrest as an emergency pre-hospital stage of management.
- The ability of early diagnose and manage patients exposed to medical emergencies or trauma until professional medical help arrives.

## 3-Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | **1.C1.6.1.** | Describe the basic principles of first aid and basic life support in emergency situations. |
| | | **1.C1.6.2** | Identify common medical and traumatic emergencies such as shock, burns, fractures, coma, and choking. |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **2.1.3** | Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team. | **2.C1.8.1.** | Get experience in the practical management of Basic Life Support. |
| **2.4.2** | Demonstrate understanding of the first aid measures needed to save patient's life. | **2.C4.2.1** | Handle First Aids emergency situations. |
| **4.1.1** | Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills. | **4.C1.3.1** | Demonstrate strong time management skills, effectively planning and implementing efficient work methods. |

## 4-Teaching and Learning Methods

- Lectures (data show, board)
- Self- Learning (Activity)
- Blended learning (Activity)

## 5-Course Schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>- Introduction to the Importance of CPR. | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- | **-** | **-** | **-** | **-** | **-** |
| 2 | **Lecture**<br>Chest compressions and rescue breaths to maintain blood flow and oxygenation to vital organs until .professional medical help arrives | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- | **-** | **-** | **-** | **-** | **-** |
| **3** | **Lecture**<br>An Automated External Defibrillator (AED) is a life-saving device used during CPR. | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- | **-** | **-** | **-** | **-** | **-** |
| **4** | **Lecture**<br>- Upper respiratory tract obstruction (choking)<br>**Formative assessment (quiz1)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- | **-** | **-** | **-** | **-** | **-** |
| **5** | **Lecture**<br>- Wounds and their management | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- | **-** | **-** | **-** | **-** | **-** |
| **6** | **Lecture**<br>Shock | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- | **-** | **-** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **7** | **Lecture**<br>Burns | **1** | **1** | - | - | - |
| | **Practical session**<br>- | - | - | - | - | - |
| **8** | **Midterm exam** | | | | | |
| **9** | **Lecture**<br>Bone Fracture | **1** | **1** | - | - | - |
| | **Practical session**<br>- | - | - | - | - | - |
| **10** | **Lecture**<br>- Head and Spine Injury<br>**Formative assessment (quiz 2)** | **1** | **1** | - | - | - |
| | **Practical session**<br>- | - | - | - | - | - |
| **11** | **Lecture**<br>- Management of polytraumatized patients | **1** | **1** | - | - | - |
| | **Practical session**<br>- | - | - | - | - | - |
| **12** | **Lecture**<br>Chest pain<br>**Formative assessment (quiz 3)** | **1** | **1** | - | - | - |
| | **Practical session**<br>- | - | - | - | - | - |
| **13** | **Lecture**<br>- Coma | **1** | **1** | - | - | - |
| | **Practical session**<br>- | - | - | - | - | - |
| **14** | **Lecture**<br>Activity | **1** | **1** | - | - | - |
| | **Practical session**<br>- | - | - | - | - | - |
| **15** | **Final written exam** | | | | | |

***** As part of a self-learning activity in First Aid and Basic life Support course, a part of practical session in week 12 was specified for the explanation of activity guidelines, rules and assessment rubric. Also, practical sessions in week 14 were facilitated for students to present their reports on the various activity self-learning topics according to the announced student distribution on topics. Supervisors engaged students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity was formally evaluated against a set of established criteria to ensure a rigorous and consistent assessment.

## 6-Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1 written (**Mid-term Exam**) | Week 8 | 20 | 20% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 75 | 75% |
| **4** | Final **Practical**/Clinical/… Exam | - | - | - |
| **5** | Final Oral Exam | - | - | - |
| **6** | Project (Self-learning Activity) | Weeks 14 | 5 | 5% |
| **7** | Assignment (**Formative assessment**) | Weeks 4,10,12 | - | - |
| **8** | Other (Mention) | - | - | - |

## 6. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | - Student book "First Aid and Medical Emergency- Third Edition"<br>- BLS for Healthcare Providers Student Manual: Basic Life Support Handbook Daniel C. Harris, Quantitative Chemical Analysis (10th Edition). (2020).<br>- Vitality Guide's First Aid Manual: CPR, Wound Care, and Practical Solutions for Everyday Emergencies. Book by CAREN. WOODS |

| | | |
|---|---|---|
| | **Other References** | 1. HANDBOOK OF FIRST AID AND EMERGENCY CARE By Feldman Bernard J. M.d. **Mint** |
| | **Electronic Sources** (Links must be added) | https://www.ekb.eg/<br>http://chemwiki.ucdavis.edu/<br>http://en.wikipedia.org/<br>www.Pubmed.Com and<br>www.sciencedirect.com |
| | **Learning Platforms** (Links must be added) **Electronic platform of Faculty of Pharmacy- Zagaig University for students** | **https://shorturl.at/sar8D** |
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning *** | **Devices/Instruments** | Black (white) boards, data show, air conditioned classroom |
| | **Supplies** | None. |
| | **Electronic Programs** | 1. Microsoft office<br>2. Microsoft teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator** | **Name and Signature**<br>**Head of Department** |
| Dr. Yasser Ali Orban | Ass. Prof. Esraa Zakria |

# Semester 10

# COURSE SPECIFICATIONS

**Phytotherapy and Aromatherapy**

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Phytotherapy and Aromatherapy | | | |
| **Course Code (according to the bylaw)** | PG 007 | | | |
| **Department/s participating in delivery of the course** | Pharmacognosy Department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 2 hrs/week | 1 hr/week | | 3 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 10 | | | |
| **Academic Program** | Bachelor of pharmacy- Pharm D | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | Prof. Dr. Wafaa Hassan Badr | | | |
| **Course Specification Approval Date** | 18-8-2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Department Council | | | |

## 2. Course Overview (Brief summary of scientific content)

On completion of the course, students will be able to describe fundamental knowledge about complementary and alternative medicine, in particular herbal medicine and its relation to conventional medicine. They will be able to know guideline for prescribing herbal medicinal drugs on the basis of the pharmacological properties of these drugs including therapeutic uses, mechanism of action, dosage, adverse reactions,

contraindications & drug interactions. In addition, they will understand pharmacotherapeutic principles applied to the treatment of different diseases, pharmacovigilance and rational use of drugs in addition to studying of medicinal plants portfolios in relation to Phytopharmaceuticals in Egyptian Market.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1-1-1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | **1.C1.7.1** | Illustrate the principles of alternative medicine (history and forms) and its relation to conventional medicine. |
| | | **1.C1.7.2** | Outline the principles of herbal medicine preparation and efficacy. |
| | | **1.C1.7.3** | Illustrate the principles of using some herbal medications to relief some common health problems e.g. GIT, cardiovascular, respiratory, urinary, CNS, ….etc |
| **1-1-4** | Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations. | **1.C1.10.1** | Identify pharmacological properties, adverse reactions and contraindications of some herbal medications used in some specific health problems |
| **3-2-3** | Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals. | **3.C2.3.1** | Describe a herbal remedy for treatment of common health problems. |
| **3-2-5** | Educate and counsel patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices. | **3.C2.5.1** | Improve public awareness on the proper use of prescribed natural drugs. |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **4-1-2** | Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team | **4.C1.5.1** | Demonstrate critical thinking, problem-solving and decision-making abilities. |
| **4-2-2** | Use contemporary technologies and media to demonstrate effective presentation skills. | **4.C2.2.1** | Develop information technology skills as well as presentation skills. |

## 4. Teaching and Learning Methods

1. Interactive lectures
2. Practical sessions
3. Case study.
4. Co-operative and self-learning (Activity).

## 5. Course Schedule

| Numbe rof the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined ) |
| 1 | **Lecture**<br>-Definition, history and forms of alternative medicine<br>-Herbal medicine versus conventional medicine | 2 | 2 | - | - | - |
| | **Practical session**<br>- An introduction to the use of herbal medicine for treatment of simple health problems. | 2 | - | 1 | - | - |
| 2 | **Lecture**<br>- Herb-drug interaction<br>- Preparation of herbal medications | 2 | 2 | - | - | - |
| | **Practical session**<br>**Activity**: Oral presentation for different forms of alternative medicine e.g: Homeopathy, chiropractic ..etc | 2 | - | 1 | -* | - |
| 3 | **Lecture**<br>-Herbal remedies for GIT disorders<br>(mouth disorder, peptic ulcer, diarrhea, constipation) | 2 | 2 | - | - | - |
| | **Practical session**<br>-Case study for GIT disorders<br>(mouth disorder, peptic ulcer, diarrhea, constipation) | 2 | - | 1 | -* | - |
| | **Activity**: Oral presentation for commercially available herbal market preparations used for GIT disorders (mouth disorder, peptic ulcer, diarrhea, constipation). | | | | | |
| 4 | **Lecture**<br>-Herbal remedies for GIT disorders<br>(intestinal worms, hemorrhoids…..etc)<br>- Herbal medications for hepatic disorders | 2 | 2 | - | - | - |
| | **Practical session**<br>-Case study for anthelmintic problems<br>- Case study for hemorrhoids | 2 | - | 1 | -* | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | - Case study for hepatic disorders<br>**Activity:** Oral presentation for commercially available herbal market preparations used for hepatic disorders, hemorrhoids and used as anthelmintic | | | | | |
| **5** | **Lecture**<br>-Herbal medications for renal problems<br>**Formative assessment (quiz 1)** | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Case study for renal disorders<br>**Activity**: Oral presentation for commercially available herbal market preparations used for renal disorders | **2** | **-** | **1** | **-*** | **-** |
| **6** | **Lecture**<br>-Herbal remedies for CNS disorders | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>Case study for CNS disorders<br>**Activity**: Oral presentation for commercially available herbal market preparations used for CNS disorders | **2** | **-** | **1** | **-*** | **-** |
| **7** | **Periodical Exam** | | | | | |
| **8** | **Lecture**<br>-Herbal medications for cardiovascular disorders. | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>- Case study for cardiovascular disorders<br>**Activity**: Oral presentation for commercially available herbal market preparations used for cardiovascular disorders | **2** | **-** | **1** | **-*** | **-** |
| **9** | **Lecture**<br>-Herbal medications for respiratory tract problems. | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>-Case study for cold and other respiratory disorders<br>**Activity**: Oral presentation for commercially available herbal market preparations used for respiratory tract disorders | **2** | **-** | **1** | **-*** | **-** |
| **10** | **Lecture**<br>- Herbal medications for diabetes<br>- Herbal medications for obesity | **2** | **2** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Formative assessment (quiz 2)** | | | | | |
| | **Practical session**<br>- Case study for diabetes and obesity | **2** | **-** | **1** | **-*** | **-** |
| | **Activity**: Oral presentation for commercially available herbal market preparations used for diabetes and obesity. | | | | | |
| **11** | **Lecture**<br>-Herbal remedies for dermatologic use<br>-Herbal medications for skeletal system | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>- Case study for dermatological use and skeletal disorders | **2** | **-** | **1** | **-*** | **-** |
| | **Activity**: Oral presentation for commercially available herbal market preparations used for dermatological use and skeletal disorders | | | | | |
| **12** | **Lecture**<br>- Nutraceuticals<br>- Drugs during pregnancy | **2** | **2** | **-** | **-** | **-** |
| | **Practical exam** | **2** | **-** | **1** | **-** | **-** |
| **13** | **Lecture**<br>- Aromatherapy | **2** | **2** | **-** | **-** | **-** |
| | **Practical exam** | **2** | **-** | **1** | **-** | **-** |
| **14** | **Lecture**<br>-General discussion and revision | **2** | **2** | **-** | **-** | **-** |
| | **Practical session**<br>-Discussion and Assessment of activity | **2** | **-** | **1** | **-*** | **-** |
| **15** | **Final Written and Oral Exams** | | | | | |

***** As part of a self-learning activity in phytotherapy and aromatherapy course, a part of practical session was specified for the explanation of activity guidelines, rules and assessment rubric. Also, practical sessions were facilitated for students to present their reports on the various activity self-learning topics according to the announced student distribution on topics. Supervisors engaged students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity was formally evaluated against a set of established criteria to ensure a rigorous and consistent assessment.

## 6. Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| ١ | Exam ١written (**Mid-term Exam**) | Week 7 | 10 | 10% |
| ٢ | Exam ٢ ..... (Semester work) | - | - | - |
| ٣ | Final Written Exam | Week 15 | 50 | 50% |
| 4 | Final **Practical**/Clinical/… Exam | Weeks 12 and 13 | 25 | 25% |
| 5 | Final Oral Exam | Week 15 | 10 | 10% |
| 6 | Project (**Self-learning Activity**) | Weeks 2-6, 8-11 and 14 | 5 | 5% |
| 7 | Assignment (**Formative assessment**) | Weeks 5 and 10 | - | - |
| 8 | Other (Mention) | - | - | - |

*** The methods mentioned are examples, the organization may add and/or delete**

## 7. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | Student´s book and practical notes of "Phytotherapy and Aromatherapy" approved by the Pharmacognosy Department (2025-2026). |
| | **Other References** | - Andrew C. Herbal Remedies Handbook. 2nd Ed., Published by Dorling Kindersley Ltd., Delhi, 2018<br>-Lesley B. and Marc C. Herbs and Natural Supplements. 4th Ed., volume 2, Published by Sydney, Edinburg, London & New York, 2015<br>-Michael H., Joanne B., Jose P. G., Elizabeth M. W., Simon G. Fundamentals of Pharmacognosy and Phytotherapy, 3rd Ed., Published by Elsevier, 2018<br>-Kuhn M. A. and Winston D. Herbal Therapy Supplements; 2nd Ed. Published by Lippincott, Williams & Wilkins, 2008. |
| | **Electronic Sources** (Links must be added) | -Fitoterapia, Die Pharmazie, Journal of Natural Products, Phytochemistry, Planta medica |

| | | |
|---|---|---|
| | | -http:// www.elsevier.com/phytochem<br>-http:// www.elsevier.com/phytomed<br>-http:// www.wiley.co.uk.<br>-http:// www.sciencedirect.com |
| | **Learning Platforms**<br>(Links must be added)<br>**Electronic platform of Faculty of Pharmacy- Zagazig University for students** | **https://shorturl.at/sar8D** |
| | **Other**<br>(to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning *** | **Devices/Instruments** | Computer, data show, board |
| | **Supplies** | - |
| | **Electronic Programs** | 1. Microsoft office<br>2. Microsoft teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

*** The list mentioned is an example, the institution may add and/or delete depending on the nature of the course**

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator**<br><br>**Prof. Dr. Wafaa Hassan Badr** | **Name and Signature**<br>**Head of Department**<br><br>**Prof. Dr. Amal Al-Gendy** |

# COURSE SPECIFICATIONS

## Advanced Drug Delivery Systems

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Advanced Drug Delivery Systems | | | |
| **Course Code (according to the bylaw)** | PT011 | | | |
| **Department/s participating in delivery of the course** | **Pharmaceutics** | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | **2hrs/week** | **-** | **-** | **2 hrs/week** |
| **Course Type** | **Faculty requirements** | | | |
| **Academic level at which the course is taught** | **Level 5** | | | |
| **Academic Program** | **Bachelor of pharmacy (Pharm D)** | | | |
| **Faculty/Institute** | **Pharmacy** | | | |
| **University/Academy** | **Zagazig** | | | |
| **Name of Course Coordinator** | **Shereen sabry** | | | |
| **Course Specification Approval Date** | **8/18/2025** | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | **Department council** | | | |

## 2. Course Overview **(Brief summary of scientific content)**

On completion of the course, students will gain an overview of the new strategies for drug delivery and targeting. Students will be able to compare between different delivery systems (e.g., delayed, sustained, controlled, osmotic pressure-based systems and matrix delivery systems, etc.). Students will understand and choose suitable drug delivery systems (e.g., liposomes, niosomes, microemulsion, nanoparticles, etc.). Delivery of macromolecules, including proteins, vaccines, and therapeutic agents using different delivery systems and various routes of administration will also be discussed.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| 1-1-1 | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.2.1 | Introduce different drug delivery systems. |
| 1-1-7 | Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care. | 1.C1.16.1 | Explain new colloidal and nano drug delivery systems and rationalize reasons for incorporating drugs including macromolecules in the different delivery systems. |
| 2-2-4 | Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and bio-pharmaceutics and their applications systems, dose in new drug delivery modification, bioequivalence studies, and pharmacy practice. | 2.C2.8.1 | Choose suitable drug delivery systems based on drug properties (pharmacokinetics and biopharmaceutics). |

## 4. Teaching and Learning Methods

1- Lectures (data show, board)
2. Self-learning (activity)

## 5. Course schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | Introduction to drug delivery Immediate release dosage for Modified release dosage forms (Delayed release dosage forms: small intestine-specific delivery, colon-specific delivery) | 2 | 2 | - | - | - |
| 2 | Extended-release dosage forms (Advantages, disadvantages, candidates) | 2 | 2 | - | - | - |
| 3 | Technologies for preparing modified release solid dosage forms (Dissolution-based sustained-release dosage forms, diffusion-based sustained-release dosage forms) **Formative assessment quiz1** | 2 | 2 | - | - | - |
| 4 | Technologies for preparing modified release solid dosage forms (continued) (Gastro-retentive drug delivery systems, bio-erodible sustained-release dosage forms, osmotic pressure-activated controlled drug delivery systems) | 2 | 2 | - | - | - |
| 5 | Colloidal drug delivery systems (Liposomes) **Formative assessment quiz2** | 2 | 2 | - | - | - |
| 6 | Liposomes (continued) | 2 | 2 | - | - | - |
| 7 | Niosomes | 2 | 2 | - | - | - |
| 8 | **Periodical exam** | | | | | |
| 9 | Niosomes (continued) | 2 | 2 | - | - | - |
| 10 | Microemulsion+activity | 2 | 2 | - | - | - |
| 11 | Microemulsion (continued) | 2 | 2 | - | - | - |
| 12 | Nanoparticles as controlled drug delivery systems | 2 | 2 | - | - | - |
| 13 | Targeted delivery and | 2 | 2 | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | delivery of macromolecules. | | | | | |
| 14 | **Revision and open discussion** | 2 | 2 | - | - | - |
| 15 | **Final written exam** | | | | | |

## 6. Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Periodical exam | Week 8 | 15 | 15 |
| **2** | Final Written exam | Week 15 | 75 | 75 |
| **3** | Activity (self-learning) | Week 10 | 10 | 10 |
| **4** | Assignment (formative assessment) | Week3, 5 | - | - |

*** The methods mentioned are examples, the organization may add and/or delete**

## 7. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | Course Notes: Student book of Advanced drug delivery systems approved by Department of Pharmaceutics (2025-2026) |
| | **Other References** | I. Controlled Release in Oral Drug Delivery (Advances in Delivery Science and Technology) Clive G. Wilson, Patrick J. Crowley, 425, 2011<br>II. Design of Controlled Release Drug Delivery Systems (McGraw-Hill Chemical Engineering) Xiaoling Li, 435, 2005<br>III. Modified-Release Drug Delivery Technology (Drugs and the Pharmaceutical Sciences) Michael Rathbone, Jonathan Hadgraft, Michael S. Roberts , 1032, 2002.<br>**4- review articles** |

| | | |
|---|---|---|
| | | I. A comprehensive review of controlled drug delivery systems: current status and future directions. EIJPPR, April 2024, volume 14, issue 2, page 24-30<br>II. Advances in oral controlled release drug delivery systems. GSC Biological and pharmaceutical sciences, 2024, 29(03), 286-297 |
| | **Electronic Sources**<br>(Links must be added) | www.Science direct.com<br>www.pubmed.net<br>www.ekb.eg |
| | **Learning Platforms**<br>(Links must be added) | **https://shortul.at/sar8D** |
| | **Other**<br>(to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | Black (white) boards, data show |
| | **Supplies** | |
| | **Electronic Programs** | Microsoft teams<br>Microsoft office |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

*** The list mentioned is an example, the institution may add and/or delete depending on the nature of the course**

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator**<br>**Shereen sabry** | **Name and Signature**<br>**Head of department**<br>**Shereen sabry** |

# COURSE SPECIFICATIONS

## Public Health and Preventive Medicine

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Public Health and Preventive Medicine | | | |
| **Course Code (according to the bylaw)** | **PM 006** | | | |
| **Department/s participating in delivery of the course** | Microbiology and Immunology department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 2 hrs/week | - | - | 2 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 10 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | Prof.Dr. Amira El-Ganiny | | | |
| **Course Specification Approval Date** | 18/8/2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Department Council | | | |

## 2. Course Overview (Brief summary of scientific content)

On completion of the course, the student will be able to: Illustrate the basic concepts of public health including general topics in Epidemiology and control of infectious diseases (definitions, prevention and control of infectious diseases), Environmental health (air pollution, water pollution, food sanitation, proper residential environment, refuse and sewage disposal, occupational diseases and industrial health), Nutrition, Malnutrition, Overpopulation, Family planning and bioterrorism.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | **1.C1.6.1** | List and apply the principles of public health and environmental sciences including epidemiological methods, environmental sanitation, occupational health, nutrition, communicable disease control, and preventive health programs. |
| **1.1.2** | Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice | **1.C1.8.1** | Apply proper public health, medical, and epidemiological terminology, abbreviations, and symbols in disease prevention, health promotion, and healthcare system analysis. |
| **3.1.2** | Apply the principles of public health and pharmaceutical microbiology to select and assess proper methods of infection control. | **3.C1.2.1** | Communicate effectively in academic settings by explaining public health concepts such as disease prevention, epidemiology, and health promotion to peers and instructors. |
| **3.2.6** | Maintain public awareness on social health hazards of drug misuse and abuse. | **3.C2.6.1** | Demonstrate the ability to explain and discuss principles of safe and rational use of medicines and medical devices in the context of public health education and awareness. |
| **4.2.2** | Use contemporary technologies and media to demonstrate effective presentation skills. | **4.C2.2.1** | Utilization of information technology tools to collect, analyze, and present public health data, and deliver presentations on various related topics. |

## 4. Teaching and Learning Methods

- **Lectures**
- **Self-learning (Presentation)**

## 5. Course schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>o Introduction to public health and epidemiology<br>o Epidemiological terms and forms of outbreaks<br>o Classification of infectious diseases | **2** | **2** | - | - | - |
| 2 | **Lecture**<br>**Environmental health:**<br>**Air** pollution<br>introduction to **Water** supply & sanitation | **2** | **2** | - | - | - |
| **3** | **Lecture**<br>**Environmental health:**<br>o Disease transmitted by water pollution<br>o Analysis and control of microbiological water pollution | **2** | **2** | - | - | - |
| **4** | **Lecture**<br>o Food sanitation & Milk sanitation<br>o Food poisoning (Food-borne illness)<br>**Formative assessment (quiz1)** | **2** | **2** | - | - | - |
| **5** | **Lecture**<br>Refuse, sewage and Wastes disposal<br>• Hazards of improper Wastes disposal<br>Occupational diseases and industrial health | **2** | **2** | - | - | - |
| **6** | **Lecture**<br>Nutrition, malnutrition and nutritional deficiency diseases | **2** | **2** | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| **7** | **Lecture**<br>Specific measurements in epidemiology:<br>○ I. Morbidity rates<br>II. Mortality rates | **2** | **2** | **-** | **-** | **-** |
| **8** | **Periodical exam** | | | | | |
| **9** | **Lecture**<br>Nosocomial infections | **2** | **2** | **-** | **-** | **-** |
| **10** | **Lecture**<br>○ Immunization and vaccination programs<br>**Formative assessment (quiz 2)** | **2** | **2** | **-** | **-** | **-** |
| **11** | **Lecture**<br>Dental caries | **2** | **2** | **-** | **-** | **-** |
| **12** | **Lecture**<br>Bioterrorism<br>**Activity** | **2** | **2** | **-** | **-*** | **-** |
| **13** | **Lecture**<br>○ - Family planning & Overpopulation<br>○ child and mother care programs | **2** | **2** | **-** | **-** | **-** |
| **14** | **Lecture**<br>Smoking**,** alcoholism and narcotic drugs hazards | **2** | **2** | **-** | **-** | **-** |
| **15** | **Final written exam** | | | | | |

***** As part of a self-learning activity in Public Health and Preventive Medicine course, a part of the lecture in week 12 will be specified for the explanation of activity guidelines, rules and assessment rubric. Supervisors will engage students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity will formally be evaluated against a set of established criteria to ensure a rigorous and consistent assessment

## 6. Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Periodical Exam**) | Week 8 | 10 | 10% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 75 | 75% |
| **4** | Final **Practical**/Clinical/… Exam | - | - | - |
| **5** | Final Oral Exam | Week 15 | 10 | 10% |
| **6** | Project (**Self-learning Activity**) | Weeks 12 | 5 | 5% |
| **7** | Assignment (**Formative assessment**) | Weeks 4 &10 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | **Course Notes:** Student book of Public Health and Preventive Medicine approved by the Microbiology and Immunology department 2025-2026 |
| | **Other References** | 1. Pharmacy in Public Health: Basics and Beyond. By Jean Carter and Marion Slack, 2010.<br>2. Foodborne disease outbreaks: Guidelines for investigation and control. Publisher: World Health Organization, 2020.<br>3. Global Burden of Disease and Risk Factors by Alan D. Lopez, Colin D. Mathers, Majid Ezzati - World Bank Publications , 2021. |
| | **Electronic Sources** (Links must be added) | • http://medicaleducationonline.org/<br>• http://www.who.int/<br>• http://www.who. int/countries/egy/en/ |

| | | |
|---|---|---|
| | | |
| | **Learning Platforms**<br>(Links must be added)<br>**Electronic platform of Faculty of Pharmacy- Zagaig University for students** | http://phstudent.eps.zu.edu.eg/Views/StudentViews/StudentLogin |
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | Computer, board, datashow |
| | **Supplies** | - |
| | **Electronic Programs** | 3. Microsoft office<br>4. Microsoft teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator** | **Name and Signature**<br>**Head of Department** |
| **Prof.Dr.** Amira El-Ganiny | Ass. Prof. Momen Askoura |

# COURSE SPECIFICATIONS

## Clinical pharmacy & Pharmacotherapeutics II

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Clinical Pharmacy and Pharmacotherapeutics II | | | |
| **Course Code (according to the bylaw)** | pp 005 | | | |
| **Department/s participating in delivery of the course** | Pharmacy practice | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 1 hr./week | 1 hr./week | - | 2 hrs./week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5 - semester 10 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | Prof. Dr. Shereen Ahmed Sabry | | | |
| Course Specification Approval Date | **25/8/2025** | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Council of Quality assurance unit | | | |

## 2. Course Overview (Brief summary of scientific content)

The aim of this course is to equip students with the essential knowledge and clinical skills required for the effective pharmacotherapeutic management of a wide range of common and critical health conditions. These include hematological disorders such as anemias, and clinical presentations like cyanosis, jaundice, peripheral edema, generalized abdominal enlargement, fever, headache, vomiting, and gastrointestinal bleeding. The course also addresses the management of gastrointestinal symptoms including diarrhea and constipation, as well as reproductive and gynecological conditions such as male infertility, uterine fibroids, ovarian cysts, polycystic ovary syndrome (PCOS), vaginitis, pre-eclampsia, and eclampsia. Through evidence-based approaches and patient-centered care, students will develop clinical reasoning and problem-solving skills to optimize pharmacotherapy and improve patient outcomes.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioural, administrative, and clinical sciences. | 1.C1.7.1 | Apply principles of pharmacy practice and clinical sciences to select and manage appropriate drug therapy, focusing on patient safety, efficacy, and evidence-based care. |
| **1.1.2** | Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice | 1.C1.8.1 | Use proper pharmaceutical and medical terms, abbreviations, and symbols in pharmacy practice. |
| **1.1.4** | Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations. | 1.C1.11.1 | Apply core knowledge to identify and resolve drug-related problems, ensuring safe and effective therapy |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| | | | to improve patient outcomes. |
| **1.1.5** | Retrieve information from fundamental sciences to solve therapeutic problems. | 1.C1.13.1 | Apply functional knowledge to solve pharmacotherapy-related problems and make informed decisions in clinical practice. |
| **2.1.3** | Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other members of the health care team. | 2.C1.7.1 | Collaborate with patients and healthcare professionals to select treatments that best meet the patient's therapeutic goals. |
| **2.4.1** | Ensure safe handling/ use of poisons to avoid their harm to individuals and communities. | 2.C4.1.1 | Advise patients and healthcare professionals on the safe and effective use of medicines and poisons. |
| **2.4.3** | Take actions to solve any identified medicine-related and pharmaceutical care problems. | 2.C4.3.1 | Identify and manage drug-related problems such as adverse reactions, interactions, contraindications, errors, misuse, and product defects. |
| **2.5.2** | Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession. | 2.C5.3.1 | Demonstrate the ability to make accurate, evidence-based, and timely decisions by critically evaluating clinical information, applying therapeutic guidelines, and considering patient-specific factors to ensure optimal medication use and patient care within the pharmacy profession. |
| **3.1.4** | Relate aetiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches. | 3.C1.4.1 | Select appropriate medication therapy by integrating knowledge of disease etiology, epidemiology, pathophysiology, clinical presentation, and laboratory findings to ensure effective and targeted treatment. |

| Program Outcomes (NARS/ARS)<br>(according to the matrix in the program specs) | | Course Learning Outcomes<br>Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **4.1.1** | Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills. | 4.C1.2.1 | Collaborate effectively with other healthcare professionals by sharing relevant clinical information, participating in treatment planning, and contributing pharmacotherapeutic expertise to ensure coordinated, safe, and optimized patient care. |

## 4. Teaching and Learning Methods

1. Lectures (data show, board)
2. Practical sessions (case study)
3. Self- learning (Activity)

## 5. Course schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>**Anemias, Cyanosis & Jaundice**<br>- Classification & causes<br>- Role of drugs in anemia<br>- Drug-induced hemolysis | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Interpretation of CBC & Liver Tests**<br>- Anemia types via CBC<br>- Jaundice causes via LFTs<br>- Choosing iron formulations | **2** | **-** | **1** | **-** | **-** |
| 2 | **Lecture**<br>**Peripheral Edema**<br>- Pathophysiology<br>- Edema-causing drugs (e.g. CCBs, NSAIDs)<br>- Diuretic use | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Diuretic Selection & Monitoring**<br>- Loop vs thiazide<br>- Electrolyte monitoring<br>- Counseling on salt restriction | **2** | **-** | **1** | **-** | **-** |
| **3** | **Lecture**<br>**Abdominal Distension**<br>- Causes (ascites, obstruction)<br>- Drug-induced bloating<br>- Hepatic complications | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Pharmacologic Management of Ascites**<br>- Role of spironolactone & furosemide<br>- Dosing adjustments in hepatic failure | **2** | **-** | **1** | **-** | **-** |
| **4** | **Lecture**<br>**Fever: Diagnosis & Management**<br>- Drug-induced fever<br>- Rational antibiotic use<br>- Red flags for infection<br>-**Formative assessment (quiz1)** | **1** | **1** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Practical session**<br>**Antibiotic Stewardship in Fever Cases**<br>- Empirical therapy selection<br>- Fever work-up (labs)<br>- Fever in immunocompromised | **2** | **-** | **1** | **-** | **-** |
| **5** | **Lecture**<br>**Headache Syndromes**<br>- Migraine vs tension<br>- Pharmacologic management<br>- Medication overuse headache | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Headache Treatment Plan**<br>- Choosing triptans, NSAIDs, prophylaxis<br>- Counseling on medication overuse | **2** | **-** | **1** | **-** | **-** |
| **6** | **Lecture**<br>**Vomiting & GI Bleeding**<br>- Emetic causes<br>- Drug-induced GI bleed (NSAIDs, steroids)<br>- Emergency signs | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Anti-Emetic & PPI Use in GI Cases**<br>- Selecting antiemetics<br>- Role of PPIs<br>- Dosing in acute bleeds | **2** | **-** | **1** | **-** | **-** |
| **7** | **Lecture**<br>**Chest Pain**<br>- Cardiac vs non-cardiac<br>- Drug management of angina/ACS<br>- Drug interactions | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Cardiovascular Drug Use & Monitoring**<br>- Nitrates, beta-blockers, antiplatelets<br>- Avoiding DDI (e.g. aspirin + NSAID) | **2** | **-** | **1** | **-** | **-** |
| **8** | **Midterm exam** | | | | | |
| **9** | **Lecture**<br>**Diarrhea & Constipation**<br>- Functional vs organic<br>- Drug-induced GI symptoms<br>- Treatment strategies | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Laxative & Antidiarrheal Selection** | **2** | **-** | **1** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | - OTC counseling<br>- Avoiding chronic laxative misuse<br>- Case-based selection | | | | | |
| **10** | **Lecture**<br>**Male Infertility (Part 1)**<br>- Hormonal and obstructive causes<br>- Drug-induced infertility (e.g. chemo, spironolactone)<br>**Formative assessment (quiz 2)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Pharmacologic Causes of Infertility**<br>- Case analysis: drug withdrawal<br>- Reviewing semen analysis & hormone labs | **2** | **-** | **1** | **-** | **-** |
| **11** | **Lecture**<br>**Male Infertility (Part 2)**<br>- Semen analysis interpretation<br>- Hormonal treatment options<br>- Lifestyle role | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Designing a Pharmacotherapy Plan**<br>- Hormonal therapy counseling<br>- Role of antioxidants & supplements | **2** | **-** | **1** | **-** | **-** |
| **12** | **Lecture**<br>**Fibroids, Ovarian Cysts, PCOS**<br>- Hormonal basis<br>- Drug therapy: COCs, metformin, GnRH analogs<br>**Formative assessment (quiz 3)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**PCOS & Fibroid Drug Management**<br>- Treating hirsutism, anovulation<br>- Avoiding DDI with OCPs<br>**Safe Drug Use in Pregnancy Cases**<br>- Antifungal & antibiotic selection<br>- Counseling in pregnancy<br>- Emergency protocols | **2** | **-** | **1** | **-*** | **-** |
| **13** | **Lecture**<br>**Vaginitis, Pre-eclampsia, Eclampsia**<br>- Types of vaginitis and treatment<br>- Drug safety in pregnancy<br>- $MgSO_4$ use | **1** | **1** | **-** | **-** | **-** |
| | **Practical exam** | **2** | **-** | **1** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| **14** | **Lecture**<br>General discussion and revision | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Discussion and Assessment of activity | **2** | **-** | **1** | **-*** | **-** |
| **15** | **Final written exam and oral exam** | | | | | |

***** As part of a self-learning activity in Clinical Pharmacy and Pharmacotherapeutics II course, a part of practical session in week 12 was specified for the explanation of activity guidelines, rules and assessment rubric. Also, practical sessions in week 14 were facilitated for students to present their reports on the various activity self-learning topics according to the announced student distribution on topics. Supervisors engaged students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity was formally evaluated against a set of established criteria to ensure a rigorous and consistent assessment.

## 6. Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Mid-term Exam**) | Week 8 | 10 | 10% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 50 | 50% |
| **4** | Final **Practical**/Clinical/… Exam | Weeks 12 | 25 | 25% |
| **5** | Final Oral Exam | Week 15 | 10 | 10% |
| **6** | Project (**Self-learning Activity**) | Week 14 | 5 | 5% |
| **7** | Assignment (**Formative assessment**) | Weeks 4,10,12 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course**<br>(must be written in full according to the scientific documentation method) | 1. Student book of Clinical Pharmacy and Pharmacotherapeutics II, approved by Pharmacy Practice Department (2025-2026).<br>2. Harvey M. Rappaport et al. The Guidebook for Patient Counselling. Technomic Publishing Company, 1994.<br>3. Tindall, William N., Robert S. Beardsley, Carole L. Kimberlin. Communication Skills in Pharmacy Practice (4th ed.). Lippincott Williams & Wilkins, 2003.<br>4. Managing Conflict and Preventing Violence in the Pharmacy. Canadian Pharmacist Letter, Vol. 2014.<br>5. ASHP Guidelines on Pharmacist-Conducted Patient Education and Counseling. Medication Therapy and Patient Care: Organization and Delivery of Services – Guidelines, 310–312 (2011). |
| | **Other References** | 1. Paul Rutter. Community Pharmacy: Symptoms, Diagnosis and Treatment. 3rd ed., Churchill Livingstone, Elsevier, 2013.<br>2. Non-prescription Drugs, Li Wan, P., 2nd ed., Oxford Blackwell Scientific Publications, 1990.<br>3. Pharmacy Practice and Law, 5th ed., Richard R. Abood, David B. Brushwood, 2010.<br>4. Communication Skills in Pharmacy Practice, 6th ed., 2017. |
| | **Electronic Sources**<br>(Links must be added) | https://www.ekb.eg/<br>www.Pubmed.Com<br>www.sciencedirect.com<br>www.medscape.com |
| | **Learning Platforms**<br>(Links must be added)<br>**Electronic platform of Faculty of Pharmacy- Zagaig University for students** | **https://shorturl.at/sar8D** |

| | | |
|---|---|---|
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning *** | **Devices/Instruments** | Computer, board, Conductometer |
| | **Supplies** | -- |
| | **Electronic Programs** | 5. Microsoft office<br>6. Microsoft teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator** | **Name and Signature**<br>**Head of Department** |
| Prof. Dr. Shereen Ahmed Sabry | Ass.prof. Esraa Zakria |

# COURSE SPECIFICATIONS

## Drug Interaction

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | **Drug Interaction** | | | |
| **Course Code (according to the bylaw)** | **PP 006** | | | |
| **Department/s participating in delivery of the course** | Pharmacy practice Department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify )** | **Total** |
| | 1 hrs/week | 1 hrs/week | - | 2 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 2 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | Ass . prof . Nora Ahmed Hassan | | | |
| **Course Specification Approval Date** | 25/8/2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Council of quality assurance unit | | | |

## 2. Course Overview (Brief summary of scientific content)

This course equips students with the knowledge and skills to identify, evaluate, and manage clinically significant drug interactions, including those involving food, herbs, or diseases, and to apply this understanding in minimizing adverse outcomes through professional pharmacist intervention.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.7.1 | Recognize the principles and fundamental concepts of drug interaction that explain how and why drugs may interact when administered together, potentially altering their effects. These interactions can enhance, reduce, or cause unexpected effects of one or both drugs. |
| **1.1.5** | Retrieve information from fundamental sciences to solve therapeutic problems. | **1.C1.13.1.** | Memorize functional knowledge while solving problems and making decisions during completion of their professional responsibilities. |

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **2.4.3** | . Take actions to solve any identified medicine-related and pharmaceutical care problems. | **2.C4.3.1.** | Interpret and predict any drug related problems including adverse drug reactions, contraindications, allergies, drug-drug/drug-food interactions, medication errors, misuse or medicine abuse as well as defects in product quality. |
| **3.2.1** | Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions | **3.C2.1.1** | Summarize the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions as well as possible interactions with other drugs or food. |
| **3.2.2** | Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices. | **3.C2.2.1.** | Relate the principles of clinical pharmacology and impact of drug interactions on pharmacotherapy of various diseases, and pharmacovigilance to achieve safe use of medicines and medical devices. |
| **4.1.5** | Develop problem solving skills including problem identification and design of management plan in collaboration with other health care professionals. | 4.C1.5.1 | Develop problem - solving skills . |

## 4. Teaching and Learning Methods

1) Lectures (data show, board)
2) Practical sessions
3) Problem solving (Practical)
4) Self- learning (Activity)
5) Case study ( practical)
6) Open discussion

## 5. Course schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>Overview of drug interactions | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>-Introduction about drug interactions and Apps used for their detection | **2** | **-** | **1** | **-** | **-** |
| 2 | **Lecture**<br>Mechanisms of drug interactions | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Pharmacokinetic and Pharmacodynamics drug interaction | **2** | **-** | **1** | **-** | **-** |
| **3** | **Lecture**<br>Drug-food and drug-herb interaction | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Case studies about drug-food and drug-herb interaction | **2** | **-** | **1** | **-** | **-** |
| **4** | **Lecture**<br>Drug interaction of antibiotics | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Formative assessment (quiz1)**<br>Case studies about Drug interaction of antibiotics | **2** | **-** | **1** | **-** | **-** |
| **5** | **Lecture**<br>Drug interaction of CVS acting agents | **1** | **1** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Practical session**<br><br>. Case studies about Drug interaction of CVS acting agents | **2** | **-** | **1** | **-** | **-** |
| **6** | **Lecture**<br>Drug interaction of CNS acting agents | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Case studies about Drug interaction of CNS acting agents | **2** | **-** | **1** | **-** | **-** |
| **7** | **Lecture**<br>Drug interaction of respiratory system acting agents | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Case studies about respiratory system acting agents | **2** | **-** | **1** | **-** | **-** |
| **8** | **Midterm exam** | | | | | |
| **9** | **Lecture**<br>Drug interaction of GI tract acting agents | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Case studies about Drug interaction of GI tract acting agents | **2** | **-** | **1** | **-** | **-** |
| **10** | **Lecture**<br>Drug interaction of agents used for kidney disorders<br>**Formative assessment (quiz 2)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Case studies about Drug interaction of agents used for kidney disorders | **2** | **-** | **1** | **-*** | **-** |
| **11** | **Lecture**<br>Drug interaction of endocrine system- acting agents | **1** | **1** | **-** | **-** | **-** |
| | **Practical exam**<br>Case studies about Drug interaction of endocrine system- | **2** | **-** | **1** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | acting agents | | | | | |
| **12** | **Lecture**<br>Drug interaction of agents used for obesity and anemia | **1** | **1** | **-** | **-** | **-** |
| | **Practical exam**<br>**Formative assessment (quiz 3)**<br>Revision | **2** | **-** | **1** | **-** | **-** |
| **13** | **Lecture**<br>Case studies | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Practical exam** | **2** | **-** | **1** | **-*** | **-** |
| **14** | **Lecture**<br>General discussion and revision | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Discussion and Assessment of activity | **2** | **-** | **1** | **-*** | **-** |
| **15** | **Final written exam** | | | | | |

***** As part of a self-learning activity in drug interaction , a part of practical session in week 10 was specified for the explanation of activity guidelines, rules and assessment rubric. Also, practical sessions in weeks 14 were facilitated for students to present their reports on the various activity self-learning topics according to the announced student distribution on topics. Supervisors engaged students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity was formally evaluated against a set of established criteria to ensure a rigorous and consistent assessment.

## 6-Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks / Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Mid-term Exam**) | Week 8 | 10 | 10% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 50 | 50% |
| **4** | Final **Practical**/Clinical/… Exam | Weeks 13 | 25 | 25% |
| **5** | Final Oral Exam | Week 15 | 10 | 10% |
| **6** | Project (**Self-learning Activity**) | Weeks 10,14 | 5 | 5% |
| **7** | Assignment (**Formative assessment**) | Weeks 4,10,12 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7-Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | Student book and practical notes of "drug interaction " approved by the pharmacy practice department 2025-2026. |
| | **Other References** | 1. Richard A. Harvey, Michelle A. Clark, Lippincott's Illustrated Reviews Pharmacology 5th ed. Lippincott Williams & Wilkins, 2012<br>2. Tatro, D. S. (2013). Drug interaction facts 2013: The authority on drug interactions. Wolters Kluwer Health.<br>3. H.P.Rang, M.M.Dale, J.M.Ritter & R.J. Flower ed. RANG & DALE Pharmacology 6th 2008 Churchill 2. Livingstone |

| | | |
|---|---|---|
| | | Elsevier London.<br><br>4. Katzung, B.G., ed. Basic and Clinical Pharmacology. 9th ed. New York : McGraw Hill, 2006.<br>5. Bennet P.N., and M.J. Brown, eds. Clinical Pharmacology. 10th ed.<br><br>6. Hardman J.G., L.E. Limbrid, and A.G. Gilman, eds. Goodman &<br><br>Gilman's the Pharmacological Basis of Therapeutics. 10th ed.<br><br>New York : McGraw Hill, 2006.<br><br>7. Luellmann H., L. Hein, K. Mohr, and D. Bieger. Color Atlas of<br><br>Pharmacology. 3rd ed. Stuttgart :Thieme, 2005.<br><br>8. Tatro, D. S. (2013). Drug interaction facts 2013: The authority on drug interactions. Wolters Kluwer Health. |
| | **Electronic Sources** (Links must be added) | • British J Pharmacol,<br>• European J Pharmacol,<br>• Pharmacology, Pharmacology and Toxicology<br>• Pubmed.com<br>• www.medconsult.com/www.pharmanet.com<br>• https://reference.medscape.com/drug-interactionchecker<br>• https://www.drugs.com/drug_interactions.html |
| | **Learning Platforms** (Links must be added) | **https://shorturl.at/sar8D** |

| | | |
|---|---|---|
| | **Electronic platform of Faculty of Pharmacy-Zagaig University for students** | |
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | Computer, board |
| | **Supplies** | - |
| | **Electronic Programs** | 1. Microsoft office<br>2. Microsoft teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

**Name and Signature**
**Course Coordinator**
Ass . prof . Nora Ahmed Hassan

**Name and Signature**
**Head of Department**
Ass . prof . Esraa Mohamed Naguib Zakaria

# COURSE SPECIFICATIONS

## Clinical Research methodology & Pharmacovigilance

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Clinical Research methodology & Pharmacovigilance | | | |
| **Course Code (according to the bylaw)** | **PP 007** | | | |
| **Department/s participating in delivery of the course** | Pharmacy practice Department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify )** | **Total** |
| | 1 hrs/week | 1 hrs/week | - | 2 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 2 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | **Assoc. Prof. Eman Gomaa** | | | |
| **Course Specification Approval Date** | 25/8/2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Council of quality assurance unit | | | |

## 2. Course Overview (Brief summary of scientific content)

. The course provides students with information about the basic principles of research methodology: design experiments, analyze data, evaluate results, report findings, and write a scientific manuscript, in addition to, ethical guidelines in drug research. This course also provides the students with an understanding of pharmacovigilance importance, concept, processes, systems, global safety standards and regulations and reporting systems.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.7.1 | . List the principles of research methodology (including design of experiments, types of experiments, and data collection, analysis, and reporting) and the principles of pharmacovigilance. |
| | | 1.c1.4.1 | State the principles of writing a scientific manuscript. |

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **2.5.3** | . Contribute in planning and conducting research studies using appropriate methodologies | 2.C5.4.1 | . Demonstrate skills to design clinical experiments and to collect, analyze and report their data and to practice pharmacovigilance. |
| | | **2.C5.5.1.** | Communicate research findings effectively through presenting a research project in an appropriate scientific manner |
| **3.2.2** | Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices. | **3.C2.2.1.** | Provide future perspectives in clinical research and pharmacovigilance practice for safe use of medicines. |

## 4. Teaching and Learning Methods

1. Lectures (data show, board)
2. Practical sessions
3. Problem solving (Practical)
4. Self- learning (Activity)
5. Case discussion ( practical)
6. Open discussion

## 5. Course schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>Principles of research methodology: Design of experiments | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- Design of experiments "Tutorial | **2** | **-** | **1** | **-** | **-** |
| 2 | **Lecture**<br>- Principles of research methodology: Types of experiments | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- Types of experiments "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **3** | **Lecture**<br>Principles of research methodology: Data collection | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Data collection "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **4** | **Lecture**<br>Principles of research methodology: Data analysis and reporting | **1** | **1** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Practical session**<br>**Formative assessment (quiz1)**<br>Data analysis and reporting "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **5** | **Lecture**<br>Scientific manuscript: Writing and construction | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Scientific manuscript: Writing and construction "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **6** | **Lecture**<br>Ethical guidelines in drug research | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Ethical guidelines in drug research "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **7** | **Lecture**<br>Controlled clinical trial | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Controlled clinical trial "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **8** | **Midterm exam** | | | | | |
| **9** | **Lecture**<br>Controlled clinical trial | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>- Controlled clinical trial "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **10** | **Lecture**<br>**Pharmacovigilance (Principles and Historical Background)**<br>**Formative assessment (quiz 2)** | **1** | **1** | **-** | **-** | **-** |

| | | | | | | |
|---|---|---|---|---|---|---|
| | **Practical session**<br>Pharmacovigilance "Tutorial" | **2** | **-** | **1** | **-*** | **-** |
| **11** | **Lecture**<br>**Pharmacovigilance (Adverse Drug Reactions (ADRs) – Classification and Detection)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical exam**<br>Pharmacovigilance "Tutorial | **2** | **-** | **1** | **-** | **-** |
| **12** | **Lecture**<br>**Pharmacovigilance (Reporting Systems and Global Regulatory Frameworks)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical exam**<br>**Formative assessment (quiz 3)**<br>- Pharmacovigilance "Tutorial" | **2** | **-** | **1** | **-** | **-** |
| **13** | **Lecture**<br>**Pharmacovigilance (Risk Management, Signal Detection, and Pharmacovigilance in Clinical Practice)** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>**Practical exam** | **2** | **-** | **1** | **-*** | **-** |
| **14** | **Lecture**<br>**Revision, Presentation** | **1** | **1** | **-** | **-** | **-** |
| | **Practical session**<br>Discussion and Assessment of activity | **2** | **-** | **1** | **-*** | **-** |
| **15** | **Final written exam** | | | | | |

***** As part of a self-learning activity in clinical research methodology and Pharmacovigilance , a part of practical session in week 10 was specified for the explanation of activity guidelines, rules and assessment rubric. Also, practical sessions in weeks 14 were facilitated for students to present their

reports on the various activity self-learning topics according to the announced student distribution on topics. Supervisors engaged students in a discussion to evaluate the key skills acquired, findings, and conclusions they reached. The activity was formally evaluated against a set of established criteria to ensure a rigorous and consistent assessment.

## 6-Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks / Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Mid-term Exam**) | Week 8 | 10 | 10% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 60 | 60% |
| **4** | Final **Practical**/Clinical/… Exam | Weeks 13 | 25 | 25% |
| **5** | Final Oral Exam | - | - | - |
| **6** | Project (**Self-learning Activity**) | Weeks 10,14 | 5 | 5% |
| **7** | Assignment (**Formative assessment**) | Weeks 4,10,12 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7-Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.)** * | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | Student book and practical notes of "clinical research methodology and Pharmacovigilance " approved by the pharmacy practice department 2025-2026. |
| | **Other References** | i- A Textbook of Clinical Research and Pharmacovigilance, Chowdary, K., PharmaMed Press (2021).<br>ii- Principles of Research Methodology: A Guide for Clinical Investigators. United States: Springer New York (2016).<br>iii- Basic Principles of Clinical Research and Methodology. Gupta, S., Gupta, S. K. India: Jaypee Brothers Medical Publishers Pvt. Limited (2007).<br>iv- Fundamentals of Research Methodology for Health Care Professionals. Brink, H., Van der Walt, C. United Kingdom: Juta (2006). |
| | **Electronic Sources** (Links must be added) | Journal of pharmaceutical sciences<br>www.Pubmed.com<br>www.Sciencedirect.com |

| | | |
|---|---|---|
| | | |
| | **Learning Platforms**<br>(Links must be added)<br>**Electronic platform of Faculty of Pharmacy- Zagaig University for students** | **https://shorturl.at/sar8D** |
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning** * | **Devices/Instruments** | Computer, board |
| | **Supplies** | - |
| | **Electronic Programs** | 1. Microsoft office<br>2. Microsoft teams |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

**Name and Signature**
**Course Coordinator**
**Assoc. Prof. Eman Gomaa**

**Name and Signature**
**Head of Department**
Ass . prof . Esraa Mohamed Naguib Zakaria

# COURSE SPECIFICATIONS

## Biostatistics

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025-2026)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Biostatistics | | | |
| **Course Code (according to the bylaw)** | PO 007 | | | |
| **Department/s participating in delivery of the course** | Pharmacology and Toxicology Department | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 1 hrs/week | - | - | 1 hrs/week |
| **Course Type** | Faculty Requirements | | | |
| **Academic level at which the course is taught** | Level 5- semester 10 | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Faculty of pharmacy | | | |
| **University/Academy** | Zagazig university | | | |
| **Name of Course Coordinator** | - | | | |
| **Course Specification Approval Date** | 18-8-2025 | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | Department Council | | | |

## 2. Course Overview **(Brief summary of scientific content)**

On completion of the course, students will be able to understand and apply basic statistical concepts, including descriptive statistics, probability distributions and hypothesis testing, analyze data using appropriate statistical tools, interpret and critically evaluate statistical outcomes in clinical and pharmaceutical research and select appropriate methods for presenting different typed of data

## 3. Course Learning Outcomes CLOs

**Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)**

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| **1.1.1** | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.6.1 | Identify types and levels of data (qualitative and quantitative), scales of measurement (nominal, ordinal, interval, ratio) |
| | | 1.C1.6.2 | Select appropriate methods for presenting different types of data (using graphs, tables, and charts) |
| | | 1.C1.6.3 | Illustrate and compute measures of central tendency and variability (mean, median, mode, standard deviation), apply probability distributions |
| | | 1.C1.6.4 | Select appropriate statistical tests (e.g., t-tests, ANOVA, chi-square) for hypothesis testing, identify the assumptions underlying correlation and linear regression, recognize the components of a survival curve, and identify factors that influence sample size requirements. |

| Program Outcomes (NARS/ARS) (according to the matrix in the program specs) | | Course Learning Outcomes Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| | | 1.C1.6.5 | Interpret outputs from statistical calculations (confidence intervals, p-values, and correlation/regression analyses), assess biostatistical findings' validity, reliability, and clinical relevance for health-related decision-making. |
| **2.2.4** | Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and biopharmaceutics and their applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice. | 2.C2.6.1 | Apply appropriate biostatistical techniques to analyze pharmaceutical datasets. |
| | | 2.C2.6.2 | Analyze clinical or experimental data using biostatistical tools to draw valid conclusions. |
| **4.1.2** | Retrieve and critically analyze information, identify, and solve problems, and work autonomously and effectively in a team. | 4.C1.5.1 | Demonstrate critical thinking and problem-solving using statistical reasoning. |

## 4. Teaching and Learning Methods

1. Lectures (data show, board)
2. Self- learning (Activity)
3. Problem-based learning (Activity)
4. Blended learning (Activity)

## 5. Course schedule :

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | **Lecture**<br>- Background and Definitions | **1** | **1** | - | - | - |
| 2 | **Lecture**<br>- Presentation **of** Data | **1** | **1** | - | - | - |
| 3 | **Lecture**<br>- Descriptive statistics | **1** | **1** | - | - | - |
| 4 | **Lecture**<br>Theoretical distribution<br>**Formative assessment (quiz 1)** | **1** | **1** | - | - | - |
| 5 | **Lecture**<br>Transformation | **1** | **1** | - | - | - |
| 6 | **Lecture**<br>Sampling and sampling distributions | **1** | **1** | - | - | - |
| **7** | **Midterm exam** | | | | | |
| **8** | **Lecture**<br>Hypothesis testing (Significance testing)<br>Hypothesis testing: one-sample | **1** | **1** | - | - | - |
| **9** | **Lecture**<br>Hypothesis testing: two groups | **1** | **1** | - | - | - |
| **10** | **Lecture**<br>Hypothesis testing: more than two groups<br>**Formative assessment (quiz 2)** | **1** | **1** | - | - | - |
| **11** | **Lecture**<br>Hypothesis testing: Chi-square test | **1** | **1** | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | |
| **12** | **Lecture**<br>Correlation & Linear regression<br>**Formative assessment (quiz 3)**<br>**Activity1 (Report; problem solving)** | **1** | **1** | - | - | - |
| **13** | **Lecture**<br>Survival Analysis<br>Checking assumptions<br>Sample size calculations<br>**Activity2 (Report; problem solving)** | **1** | **1** | - | - | - |
| **14** | **Revision** | **1** | **1** | - | - | - |
| **15** | **Final written exam** | | | | | |

## 6. Methods of students' assessment

| No. | Assessment Methods | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| **1** | Exam 1written (**Mid-term Exam**) | Week 7 | 15 | 15% |
| **2** | Exam 2 ..... (Semester work) | - | - | - |
| **3** | Final Written Exam | Week 15 | 75 | 75 % |
| **4** | Final **Practical**/Clinical/… Exam | - | - | - |
| **5** | Final Oral Exam | - | - | - |
| **6** | Project (**Self-learning Activity**) | Week 12,13 | 10 | 10% |
| **7** | Assignment (**Formative assessment**) | Week 4,10,12 | - | - |
| **8** | Other (Mention) | - | - | - |

## 7. Learning Resources and Supportive Facilities

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.)** * | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | - Student book of "Biostatistics " approved by the pharmacology and toxicology department 2025-2026. |
| | **Other References** | 1. Medical Statistics at a Glance; 4th Edition, Petrie A and Sabin C (2020); Wiley Blackwell.<br>2. Daniel, W. W., & Cross, C. L. (2018). Biostatistics: A foundation for analysis in the health sciences (11th ed.). Wiley<br>3. Dinov, I. D. (2023). Data science and predictive analytics: Biomedical and health applications using R (2nd ed.). Springer.<br>4. Sharma, A., & Kaur, H. (2023). Biostatistics with R: A guide for medical doctors. Springer. |
| | **Electronic Sources** (Links must be added) | - Graphpad Prism online guidlines and resourses (https://www.graphpad Prism online .com/scientific-software/prism/)<br>- ClinCalc Academy. (2024). Biostatistics Rx: Online course for healthcare professionals. (https://clincalc.com/biostatisticsrx ) |
| | **Learning Platforms** (Links must be added) **Electronic platform of Faculty of Pharmacy-Zagaig University for students** | http://phstudent.eps.zu.edu.eg/Views/StudentViews/StudentLogin |
| | **Other** (to be mentioned) | **Recommended books and websites**<br>1. Introductory Biological Statistics, fourth edition.<br>2. Statistical methods for disease clustering<br>3. Basics of Biostatistics.<br>4. Quantitative methods for health research.<br>**5.** -Http://www.edx.org/ |
| | | |
| **Supportive** | **Devices/Instruments** | White boards, data show, air-conditioned classroom |

| | | |
|---|---|---|
| **facilities & equipment for teaching and learning *** | **Supplies** | - |
| | **Electronic Programs** | 1. Microsoft office<br>2. Microsoft teams<br>3. Graphpad prism |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

**Name and Signature**
**Course Coordinator**

**Name and Signature**
**Head of Department**
**Prof . Dr . Islam Ahmed**

# COURSE SPECIFICATIONS

## Entrepreneurship

**Fifth year – semester 10**
**2025-2026**

# Course Specification

# (2025)

## 1. Basic Information

| | | | | |
|---|---|---|---|---|
| **Course Title (according to the bylaw)** | Entrepreneurship | | | |
| **Course Code (according to the bylaw)** | UR 006 | | | |
| **Department/s participating in delivery of the course** | - | | | |
| **Number of credit hours/points of the course (according to the bylaw)** | **Theoretical** | **Practical** | **Other (specify)** | **Total** |
| | 1hr/week | - | - | 1hrs/week |
| **Course Type** | University requirement | | | |
| **Academic level at which the course is taught** | Level five/ semester ten | | | |
| **Academic Program** | Bachelor of Pharmacy (Pharm D) | | | |
| **Faculty/Institute** | Pharmacy | | | |
| **University/Academy** | Zagazig | | | |
| **Name of Course Coordinator** | Prof.Emad Kamhawi | | | |
| **Course Specification Approval Date** | - | | | |
| **Course Specification Approval (Attach the decision/minutes of the department /committee/council ....)** | - | | | |

## 2. Course Overview (Brief summary of scientific content)

On completion of the course, students will be able to:

1- Develop products, services, or innovations that generate income and contribute to the economy through job creation, investment, and GDP growth.

2- Identify market gaps and unmet needs, then create solutions—products or services—that improve people's lives or solve real-world problems.

## 3. Course Learning Outcomes CLOs

### Matrix of course learning outcomes CLOs with program outcomes POs (NARS/ARS)

| **Program Outcomes (NARS/ARS)** (according to the matrix in the program specs) | | **Course Learning Outcomes** Upon completion of the course, the student will be able to: | |
|---|---|---|---|
| **Code** | **Text** | **Code** | **Text** |
| 1-1-1 | Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences. | 1.C1.5.1 | Define different terminologies related to entrepreneurship in education including accreditation, vision, mission, academic guidance, survey, program and course specification, ILOs and others. |
| 2-6-1 | Apply the principles of business administration and management to ensure rational use of financial and human resources. | 2.C6.1.1 | Develop an integrated understanding of organizational and management principles through strategic planning , evaluation and decision-making processes, teamwork, and continuous improvement cycles in educational institutions. |
| | | 2.C6.2.1 | Identify human resources and staffing issues. |
| | | 2.C6.3.1 | Show proficiency in analyzing and handling financial data and budget information efficiently. |
| 4-1-2 | Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team. | 4.C1.3.1 | Use available technologies and other media to demonstrate effective presentation abilities and develop self-learning skills. |
| 4-1-3 | Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity. | 4.C1.6.1 | Exhibit innovative thinking and entrepreneurial abilities. |

## 4. Teaching and Learning Methods

- . Lectures
- Self-learning (Activity)

## 5. Course schedule

| Number of the Week | Scientific content of the course (Course Topics) | Total Weekly Hours | Expected number of the Learning Hours | | | |
|---|---|---|---|---|---|---|
| | | | Theoretical teaching (lectures/discussion groups/ .....) | Training (Practical/Clinical/ .....) | Self-learning (Tasks/ Assignments/ Projects/ ...) | Other (to be determined) |
| 1 | Introduction to entrepreneurship (benefits-drawbacks) | **1** | **1** | **-** | **-** | |
| 2 | Diversity and statistics of small business<br>Mistakes and avoiding pitfalls of small business | **1** | **1** | **-** | **-** | |
| 3 | Business models (Derek Abel, Peter Drucker and Clayton Christensen)<br>**- Formative assessment** | **1** | **1** | **-** | **-** | |
| 4 | Business models (Haung's two tiers, St. Gallen, Michael Morris et al and Shikar Gosh) | **1** | **1** | **-** | **-** | |
| 5 | Feasibility Analysis<br>**- Formative assessment** | **1** | **1** | **-** | **-** | |
| 6 | Business Plan | **1** | **1** | **-** | **-** | |
| 7 | Business opportunities for pharmacists | **1** | **1** | **-** | **-** | |
| 8 | **Midterm** | | | | | |
| 9 | Strategic management process (introduction) | **1** | **1** | **-** | **-** | |
| 10 | Environmental analysis | **1** | **1** | **-** | **-** | |
| 11 | Strategy formulation | **1** | **1** | **-** | **-** | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12 | Strategy implementation Strategy evaluation and control | **1** | **1** | - | - | |
| 13 | assignments assessment | **1** | **1** | - | - | |
| 14 | -Revision | **1** | **1** | - | - | |
| 15 | Final exam | | | | | |

## 6. Methods of students' assessment

| No. | Assessment Methods * | Assessment Timing (Week Number) | Marks/ Scores | Percentage of total course Marks |
|---|---|---|---|---|
| ١ | Exam ١written (Midterm exam) | **8** | **15** | **15%** |
| **2** | Exam 2……(semester work) | - | - | - |
| **3** | Final Written Exam | **15** | **75** | **75%** |
| **4** | Final **Practical**/Clinical/… Exam | - | - | - |
| **5** | Final Oral Exam | - | - | - |
| **6** | Project (Self learning activity) | **12** | **10** | **10%** |
| **7** | Assignments (Formative assessment) | **3,5** | - | - |
| **8** | Others | - | - | - |

*** The methods mentioned are examples, the organization may add and/or delete**

## 7. Learning Resources and Supportive Facilities *

| | | |
|---|---|---|
| **Learning resources (books, scientific references, etc.) *** | **The main (essential) reference for the course** (must be written in full according to the scientific documentation method) | Student book |
| | **Other References** | • دليل الاعتماد لمؤسسات التعليم بالعالى الاصدار الثانى الهيئه القوميه لضمان جوده التعليم والاعتماد - ٢٠١٥ |

| | | |
|---|---|---|
| | | • المعايير الاكاديمية الوطنية المرجعية للتعليم الصيدلي في إطار الجدارات جامعه الزقازيق-كلية الصيدلة- لائحه بكالوريوس فارم دى كلينيكال NARS ٢٠١٧ |
| | **Electronic Sources** (Links must be added) | www.ekb.eg<br>WWW.pubmed.com |
| | **Learning Platforms** (Links must be added) | https://adminph.eps.zu.edu.eg/Views/AdminViews/Login?AspxAutoDetectCookieSupport=1 |
| | **Other** (to be mentioned) | - |
| | | |
| **Supportive facilities & equipment for teaching and learning *** | **Devices/Instruments** | • White board and Data show. |
| | **Supplies** | - |
| | **Electronic Programs** | 1-Microsoft office |
| | **Skill Labs/ Simulators** | - |
| | **Virtual Labs** | - |
| | **Other** (to be mentioned) | - |

*** The list mentioned is an example, the institution may add and/or delete depending on the nature of the course**

| | |
|---|---|
| **Name and Signature**<br>**Course Coordinator**<br><br>**Prof.Emad Kamhawy** | **Name and Signature**<br>**Program Coordinator**<br><br>**Prof. Hanan ELnahas** |