

## Faculty of Pharmacy

### Pharos University in Alexandria



# Program Specification

## Bachelor's Degree in Pharmacy

### (Pharm-D)

## 2025

إعتماد مجلس كلية 14\9\2025

**University: Pharos University in Alexandria.**  
**Faculty: Faculty of Pharmacy**

## Program Specification (2025)

### 1. Basic Information

|                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ProgramTitle</b>                                                                            | Bachelor's Degree in Pharmacy (Pharm-D)                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Total number of credit hours/points of the program:</b>                                     | 175 Crs + 6 university requirements = 181 credit hours Total                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Number of academic years/levels (expected program duration):</b>                            | Five years + 1 academic year (9 months) internship                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Department (s) Participating (if any) in teaching the program:</b>                          | Department of Pharmaceutical Chemistry (PC).<br>Department of Pharmacognosy & Natural Products (PG).<br>Department of Pharmacology and Therapeutics (PL).<br>Department of Microbiology and Immunology (PM).<br>Department of Clinical Pharmacy & Pharmacy Practice (PN).<br>Department of Pharmaceutics & Pharmaceutical Technology (PP).<br>English Language center<br>Arabic Language center<br>Computer center<br>Communication center<br>Career development and entrepreneurship center |
| <b>Faculty/Institute:</b>                                                                      | Pharmacy                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>University/Academy:</b>                                                                     | Pharos University in Alexandria                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Program majors/divisions/tracks/specialties in the final year (if any):</b>                 | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Partnerships with other parties and the nature of each (if any):</b>                        | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Name of the program coordinator (attach the assignment decision):</b>                       | Associate Professor. Marwa Atef                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Program Specification Approval Date:</b>                                                    | 9\9\2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Council responsible for Program Specification Approval (Attach the Decision / Minutes):</b> | 14\9\2025                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## 2. Program Aims (Brief description of the overall purpose of the program)

The principal aim of the Pharm-D program in the faculty of Pharmacy Pharos University in Alexandria, is to graduate distinguished pharmacists who are fully qualified for roles in public and private pharmacies, pharmaceutical manufacturing and firms, drug control and food analysis labs, as well as media, marketing, research, and academia. By focusing on the pharmacist's vital role in providing optimal healthcare, we empower our students to improve therapeutic outcomes and reduce disease incidence through community education and a strict adherence to professional ethics and patient rights. We prepare them to utilize evidence-based data for delivering pharmaceutical services while mastering leadership, entrepreneurship, and effective communication. Committed to quality standards and interactive learning, the program ensures students to become lifelong learners with the regional competitiveness necessary to drive community development and provide a tangible economic return through the optimized use of medicines.

## 3. Program Structure (Curriculum)

### Program Components

| Requirement Category/Type                                                        |                         | Number of Courses                                                                                                                            | Number of Credit Hours/Points | Percentage from the total number of hours/points |
|----------------------------------------------------------------------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|--------------------------------------------------|
| University Requirements                                                          |                         | 3                                                                                                                                            | 6                             | 3.3%                                             |
| Faculty/College Requirements (if applicable)                                     |                         | 75                                                                                                                                           | 175                           | 96.7%                                            |
| Program Requirements                                                             | Total courses           | 78                                                                                                                                           | 181                           | 100%                                             |
|                                                                                  | Compulsory Courses      | 74                                                                                                                                           | 173                           | 95.6%                                            |
|                                                                                  | Elective Courses        | 4                                                                                                                                            | 8                             | 4.4%                                             |
| Requirements of the majors/ divisions/ tracks/ specializations in the final year |                         | NA                                                                                                                                           |                               |                                                  |
| Other requirements                                                               | Field Training          |                                                                                                                                              | 100                           |                                                  |
|                                                                                  | Graduation Project      | Graduated projects are included within the mandatory training year and considered as 1 round from the 6 rounds provided during the 9 months. |                               |                                                  |
|                                                                                  | Mandatory training year |                                                                                                                                              | 9 month\ 6 rounds             |                                                  |
|                                                                                  | Other (to be mentioned) |                                                                                                                                              | NA                            |                                                  |
| Total Compulsory Courses                                                         |                         | 74                                                                                                                                           | 173                           | 95.6%                                            |
| Elective Courses                                                                 |                         | 4                                                                                                                                            | 8                             | 4.4%                                             |
| Total                                                                            |                         | 78                                                                                                                                           | 181                           | 100%                                             |

| Categories               | Number of courses | Credit Hours | Percentage |
|--------------------------|-------------------|--------------|------------|
| Basic                    | 9                 | 18           | 10%        |
| Pharmaceutical           | 32                | 83           | 46%        |
| Medical                  | 13                | 35           | 19.3 %     |
| Pharmacy practice        | 7                 | 17           | 9 %        |
| Health and environmental | 5                 | 10           | 5.5%       |
| Behavioral and social    | 5                 | 5            | 3 %        |
| Pharmacy management      | 2                 | 3            | 1.7 %      |
| Discretionary            | 5                 | 10           | 5.5 %      |

• Program courses according to the expected study plan

| Academic Level | Semester | Course Code | Course Title                           | Course Type (Compulsory / Elective) | Requirement Category/ Type | Credit Hours/ Points | Weekly Hours         |          |                    |
|----------------|----------|-------------|----------------------------------------|-------------------------------------|----------------------------|----------------------|----------------------|----------|--------------------|
|                |          |             |                                        |                                     |                            |                      | Theoretical teaching | Tutorial | Practical training |
| الاول          | خريف     | PPD 101     | Pharmacy Orientation                   | اجباري                              | كلية                       | 1                    | 1                    | 0        | 0                  |
| الاول          | خريف     | PPD 102     | Medical Terminology                    | اجباري                              | كلية                       | 1                    | 1                    | 0        | 0                  |
| الاول          | خريف     | PCD 101     | Pharmaceutical Analytical Chemistry I  | اجباري                              | كلية                       | 3                    | 2                    | 1        | 2                  |
| الاول          | خريف     | PCD 102     | Pharmaceutical Organic Chemistry I     | اجباري                              | كلية                       | 3                    | 2                    | 1        | 2                  |
| الاول          | خريف     | PCD 103     | Mathematics                            | اجباري                              | كلية                       | 1                    | 1                    | 1        | 0                  |
| الاول          | خريف     | PCD 104     | Information Technology I               | اجباري                              | كلية                       | 2                    | 1                    | 0        | 2                  |
| الاول          | خريف     | PGD 101     | Human Rights and Fighting Corruption   | اجباري                              | كلية                       | 1                    | 1                    | 0        | 0                  |
| الاول          | خريف     | PLD 101     | Cell Biology                           | اجباري                              | كلية                       | 2                    | 2                    | 1        | 0                  |
| الاول          | خريف     | UGA 03      | Arabic Language Skills                 | اجباري                              | جامعة                      | 2                    | 2                    | 0        | 0                  |
| الاول          | خريف     | UGE 01      | English (1)                            | اجباري                              | جامعة                      | 2                    | 0                    | 2        | 2                  |
| الاول          | ربيع     | PPD 103     | Physical Pharmacy                      | اجباري                              | كلية                       | 3                    | 2                    | 0        | 2                  |
| الاول          | ربيع     | PCD 105     | Pharmaceutical Analytical Chemistry II | اجباري                              | كلية                       | 3                    | 2                    | 1        | 2                  |
| الاول          | ربيع     | PCD 106     | Pharmaceutical Organic Chemistry II    | اجباري                              | كلية                       | 3                    | 2                    | 1        | 2                  |
| الاول          | ربيع     | PGD 102     | Medicinal Plants                       | اجباري                              | كلية                       | 3                    | 2                    | 1        | 2                  |
| الاول          | ربيع     | PLD 102     | Anatomy and Histology                  | اجباري                              | كلية                       | 3                    | 2                    | 0        | 2                  |
| الاول          | ربيع     | PLD 103     | Psychology                             | اجباري                              | كلية                       | 1                    | 1                    | 1        | 0                  |
| الاول          | ربيع     | UGE 02      | English (2)                            | اجباري                              | جامعة                      | 2                    | 0                    | 2        | 2                  |



|        |      |                                      |                                                    |         |      |   |   |   |   |
|--------|------|--------------------------------------|----------------------------------------------------|---------|------|---|---|---|---|
| الثاني | خريف | PPD 201                              | Pharmaceutics I                                    | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثاني | خريف | PPD 203                              | Communication Skills I                             | اجباري  | كلية | 1 | 1 | 1 | 0 |
| الثاني | خريف | PCD 201                              | Pharmaceutical Analytical Chemistry III            | اجباري  | كلية | 2 | 1 | 1 | 2 |
| الثاني | خريف | PCD 202                              | Pharmaceutical Organic Chemistry III               | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثاني | خريف | PGD 201                              | Pharmacognosy I                                    | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثاني | خريف | PMD 201                              | General Microbiology and Immunology                | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثاني | خريف | PLD 201                              | Physiology and Pathophysiology                     | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثاني | ربيع | PPD 202                              | Pharmaceutics II                                   | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثاني | ربيع | PCD 203                              | Instrumental Analysis                              | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثاني | ربيع | PCD 204                              | Electroanalytical Methods                          | اجباري  | كلية | 1 | 1 | 1 | 0 |
| الثاني | ربيع | PGD 202                              | Pharmacognosy II                                   | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثاني | ربيع | PMD 202                              | Parasitology and Virology                          | اجباري  | كلية | 2 | 1 | 0 | 2 |
| الثاني | ربيع | PLD 202                              | Pathology                                          | اجباري  | كلية | 2 | 2 | 1 | 0 |
| الثاني | ربيع | PLD 203                              | Biochemistry I                                     | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثاني | ربيع | PND 201                              | Biostatistics                                      | اجباري  | كلية | 2 | 1 | 0 | 2 |
| الثالث | خريف | PPD 301                              | Pharmaceutics III                                  | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثالث | خريف | PCD 301                              | Medicinal Chemistry I                              | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثالث | خريف | PGD 301                              | Phytochemistry I                                   | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثالث | خريف | PMD 301                              | Pharmaceutical Microbiology                        | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثالث | خريف | PLD 301                              | Biochemistry II                                    | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثالث | خريف | PLD 302                              | Pharmacology I                                     | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثالث | ربيع | PPD 302                              | Biopharmaceutics and Pharmacokinetics              | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثالث | ربيع | PPD 303                              | Pharmaceutics IV                                   | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثالث | ربيع | PCD 302                              | Medicinal Chemistry II                             | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثالث | ربيع | PGD 302                              | Phytochemistry II                                  | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الثالث | ربيع | PMD 302                              | Medical Microbiology                               | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الثالث | ربيع | PLD 303                              | Pharmacology II                                    | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الرابع | خريف | PPD 401                              | Pharmaceutical Technology I                        | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الرابع | خريف | PGD 401                              | Applied and Forensic Pharmacognosy                 | اجباري  | كلية | 2 | 1 | 0 | 2 |
| الرابع | خريف | PMD 401                              | Public Health                                      | اجباري  | كلية | 2 | 2 | 1 | 0 |
| الرابع | خريف | PLD 401                              | Pharmacology III                                   | اجباري  | كلية | 2 | 2 | 1 | 0 |
| الرابع | خريف | PLD 402                              | Clinical Biochemistry                              | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الرابع | خريف | PND 401                              | Drug Information                                   | اجباري  | كلية | 2 | 1 | 0 | 2 |
| الرابع | خريف | PND 402                              | Pharmaceutical Legislations and Regulatory Affairs | اجباري  | كلية | 1 | 1 | 0 | 0 |
| الرابع | خريف | PMD 402                              | English (3)                                        | اجباري  | كلية | 2 | 0 | 2 | 2 |
| الرابع | خريف | Choose from Table 1 elective courses |                                                    | اختياري | كلية | 2 | 1 | 2 | 0 |
| الرابع | ربيع | PPD 402                              | Pharmaceutical Technology II                       | اجباري  | كلية | 2 | 2 | 1 | 0 |
| الرابع | ربيع | PCD 401                              | Drug Design                                        | اجباري  | كلية | 2 | 1 | 1 | 2 |



|        |      |                                      |                                                                                |         |      |   |   |   |   |
|--------|------|--------------------------------------|--------------------------------------------------------------------------------|---------|------|---|---|---|---|
| الرابع | ربيع | PLD 403                              | Toxicology and Forensic chemistry                                              | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الرابع | ربيع | PND 403                              | Clinical Pharmacokinetics                                                      | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الرابع | ربيع | PND 404                              | Hospital Pharmacy                                                              | اجباري  | كلية | 2 | 2 | 1 | 0 |
| الرابع | ربيع | PND 405                              | Community Pharmacy Practice                                                    | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الرابع | ربيع | PCD 402                              | Information Technology II                                                      | اجباري  | كلية | 2 | 1 | 0 | 2 |
| الرابع | ربيع | Choose from Table 1 elective courses |                                                                                | اختياري | □□□□ | 2 | 1 | 2 | 0 |
| الرابع | صيف  | Summer training                      |                                                                                | اجباري  | □□□□ |   |   |   |   |
| الخامس | خريف | PPD 501                              | Good Manufacturing Practice                                                    | اجباري  | كلية | 2 | 1 | 0 | 2 |
| الخامس | خريف | PCD 501                              | Analytical Quality Control of Pharmaceuticals<br>Phytotherapy and Aromatherapy | اجباري  | كلية | 3 | 2 | 1 | 2 |
| الخامس | خريف | PGD 501                              |                                                                                | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الخامس | خريف | PMD 501                              | Biotechnology                                                                  | اجباري  | كلية | 2 | 2 | 1 | 0 |
| الخامس | خريف | PMD 502                              | Clinical Research, Pharmacoeconomics and pharmacovigilance                     | اجباري  | كلية | 2 | 1 | 2 | 0 |
| الخامس | خريف | PND 501                              | Clinical pharmacy I                                                            | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الخامس | خريف | PPD 502                              | Communication Skills II                                                        | اجباري  | كلية | 1 | 1 | 1 | 0 |
| الخامس | خريف | Choose from Table 2 elective courses |                                                                                | اختياري | كلية | 2 | 1 | 2 | 0 |
| الخامس | ربيع | PPD 503                              | Advanced Drug Delivery Systems                                                 | اجباري  | كلية | 2 | 2 | 0 | 0 |
| الخامس | ربيع | PLD 501                              | Drug interaction                                                               | اجباري  | كلية | 2 | 2 | 1 | 0 |
| الخامس | ربيع | PLD 502                              | First Aid                                                                      | اجباري  | كلية | 1 | 1 | 1 | 0 |
| الخامس | ربيع | PND 502                              | Marketing and Pharmacoeconomics                                                | اجباري  | كلية | 2 | 2 | 0 | 0 |
| الخامس | ربيع | PND 503                              | Clinical Pharmacy II and pharmacotherapeutics<br>Professional Ethics           | اجباري  | كلية | 3 | 2 | 0 | 2 |
| الخامس | ربيع | PND 504                              |                                                                                | اجباري  | كلية | 1 | 1 | 0 | 0 |
| الخامس | ربيع | PND 505                              | Entrepreneurship                                                               | اجباري  | كلية | 1 | 1 | 1 | 0 |
| الخامس | ربيع | PND 506                              | Scientific Writing                                                             | اجباري  | كلية | 2 | 1 | 0 | 2 |
| الخامس | ربيع | Choose from Table 1 elective courses |                                                                                | اختياري | كلية | 2 | 1 | 2 | 0 |

**Elective Courses Table 1**

| No.    | Course Code | Course Title                           | Course Type<br>(Compulsory / Elective) | Requirement Category/<br>Type | CrH | Lecture | Tutorial | Lab |
|--------|-------------|----------------------------------------|----------------------------------------|-------------------------------|-----|---------|----------|-----|
| الرابع | PCD E01     | Chromatography and Separation          | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PPD E01     | Cosmetics Preparations                 | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PMD E01     | Environment and sustainability         | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PMD E03     | Clinical immunology                    | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PMD E04     | Mycology                               | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PPD E02     | Pharmaceutical Nanotechnology          | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PLD E05     | Complementary and Alternative Medicine | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PMD E02     | Gene Regulation and Epigenetics.       | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PMD E07     | Infection control                      | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PLD E03     | Sustainability in Therapeutics         | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الرابع | PGD E02     | Herbal medicine.                       | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |

**Elective Courses Table 2**

| No.    | Course Code | Course Title                                | Course Type<br>(Compulsory / Elective) | Requirement Category/<br>Type | CrH | Lecture | Tutorial | Lab |
|--------|-------------|---------------------------------------------|----------------------------------------|-------------------------------|-----|---------|----------|-----|
| الخامس | PMD E06     | Advanced microbiological techniques         | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PLD E01     | Pharmacotherapeutics for Special Population | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PLD E04     | Molecular Therapeutics                      | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PND E02     | Management of Critical Care Patients        | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PND E01     | Management of chronic illness               | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PCD E02     | Analysis of food and flavours.              | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PCD E03     | Forensic analysis                           | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PPD E03     | Supply Chain Management                     | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PLD E02     | Addiction and Drug Abuse                    | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PMD E05     | Bioinformatics.                             | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |
| الخامس | PGD E01     | Natural Cosmetics                           | اختياري                                | كلية                          | 2   | 1       | 2        | 0   |

## 4. Academic Standards

- **Adopted Academic Standards (NARS/ARS): NARS**

- The Faculty adopts the Academic Standards of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE), Competency-Based NARS 2017, in a faculty council on 7/10/2019.
- Competency-Based NARS 2017 was previously discussed and adopted in all departments' councils.
- **Date of Adoption of Standards in the governing Council:** Click or tap to enter a date.  
7/10\2019 . \* **Decision/Minutes of the governing Council to be attached**

### **National Academic Reference Standards (NARS) 2017:**

By completion of the program, students should achieve the following 12 competencies that cover 4 competency domains. These domains cover all essentials for practicing pharmacy profession including both drug-oriented and patient-oriented disciplines. A number of Key Elements are included in each competency, with a total of 42 key elements for all competencies. These key elements will reflect each competency in practice.

#### **The competency domains are the followings:**

Domain 1: Fundamental Knowledge

Domain 2: Professional and Ethical Practice

Domain 3: Pharmaceutical Care

Domain 4: Personal Practice

### **DOMAIN 1- FUNDAMENTAL KNOWLEDGE**

**1-1- COMPETENCY** Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care.

#### **KEY ELEMENTS**

**1-1-1-** Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.

**1-1-2-** Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice.

**1-1-3-** Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/natural pharmaceutical materials/products.

**1-1-4-** Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.

**1-1-5-** Retrieve information from fundamental sciences to solve therapeutic problems.

**1-1-6-** Utilize scientific literature, and collect and interpret information to enhance professional decision.

**1-1-7-** Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.

## **DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE**

**2-1- COMPETENCY** Work collaboratively as a member of an inter-professional health care team to improve the quality of life of individuals and communities, and respect patients' rights.

**KEY ELEMENTS:**

**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.

**2-1-2.** Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.

**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.

**2-2- COMPETENCY** Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.

**KEY ELEMENTS:**

**2-2-1.** Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/natural pharmaceutical materials.

**2-2-2.** Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities.

**2-2-3.** Recognize the principles of various tools and instruments, and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.

**2-2-4.** Adopt the principles of pharmaceutical calculations, biostatistical analysis, bioinformatics, pharmacokinetics, and bio-pharmaceutics and their applications in new drug delivery systems, dose modification, bioequivalence studies, and pharmacy practice.

**2-3- COMPETENCY** Handle and dispose biologicals and synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations.

**KEY ELEMENTS:**

**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.

**2-3-2.** Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.

**2-4- COMPETENCY** Actively share professional decisions and proper actions to save patient's life in emergency situations including poisoning with various xenobiotics, and effectively work in forensic fields.

**KEY ELEMENTS:**

**2-4-1-** Ensure safe handling/use of poisons to avoid their harm to individuals and communities.

**2-4-2-** Demonstrate understanding of the first aid measures needed to save patient's life.

**2-4-3-** Take actions to solve any identified medicine-related and pharmaceutical care problems.

**2-4-4-** Assess toxicity profiles of different xenobiotics and detect poisons in biological specimens.

**2-5- COMPETENCY** Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.

**KEY ELEMENTS:**

**2-5-1-** Fulfill the requirements of the regulatory framework to authorize a medicinal product including quality, safety, and efficacy requirements.

**2-5-2-** Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession.

**2-5-3-** Contribute in planning and conducting research studies using appropriate methodologies.

**2-6- COMPETENCY** Perform pharmacoeconomic analysis and develop promotion, sales, marketing, and business administration skills.

**KEY ELEMENTS:**

**2-6-1-** Apply the principles of business administration and management to ensure rational use of financial and human resources.

**2-6-2-** Utilize the principles of drug promotion, sales, marketing, accounting, and pharmacoeconomic analysis.

### **DOMAIN 3: PHARMACEUTICAL CARE**

**3-1- COMPETENCY** Apply the principles of body functions to participate in improving health care services using evidence-based data.

**KEY ELEMENTS:**

**3-1-1-** Apply the principles of body function and basis of genomics in health and disease states to manage different diseases.

**3-1-2-** Apply the principles of public health and pharmaceutical microbiology to select and assess proper methods of infection control.

**3-1-3-** Monitor and control microbial growth and carry out laboratory tests for identification of infections/diseases.

**3-1-4-** Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches.

**3-2- COMPETENCY** Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.

**KEY ELEMENTS:**

**3-2-1-** Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.

**3-2-2-** Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.

**3-2-3-** Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals.

**3-2-4-** Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.

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.

3-2-6- Maintain public awareness on social health hazards of drug misuse and abuse.

## **DOMAIN 4: PERSONAL PRACTICE**

4-1- **COMPETENCY**: Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.

### **KEY ELEMENTS:**

4-1-1- Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.

4-1-2- Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.

4-1-3- Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.

4-2- **COMPETENCY** Effectively communicate verbally, non-verbally and in writing with individuals and communities.

### **KEY ELEMENTS:**

4-2-1- Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.

4-2-2- Use contemporary technologies and media to demonstrate effective presentation skills.

4-3- **COMPETENCY** Express self-awareness and be a life-long learner for continuous professional improvement.

### **KEY ELEMENTS:**

4-3-1- Perform self-assessment to enhance professional and personal competencies.

4-3-2- Practice independent learning needed for continuous professional development.

## **5. Matrix of Academic Standards (Program Outcomes POs) with Courses**

| Compulsory Courses<br>(Name and code) |         | Academic Standards (Mention code only) |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------------------|---------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                       |         | 1.1                                    | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 3.1 | 3.2 | 4.1 | 4.2 | 4.3 |
| Pharmacy Orientation                  | PPD 101 | 1                                      |     |     |     |     |     |     |     |     |     |     |     |
| Medical Terminology                   | PPD 102 | 1                                      |     |     |     |     |     |     |     |     |     |     |     |
| Pharmaceutical Analytical Chemistry I | PCD 101 | 1                                      |     | 1   | 1   |     |     |     |     |     |     |     |     |
| Pharmaceutical Organic Chemistry I    | PCD 102 | 1                                      |     |     | 1   |     |     |     |     |     |     |     |     |
| Mathematics                           | PCD 103 | 1                                      |     |     |     |     |     |     |     |     |     |     |     |
| Information Technology I              | PCD 104 |                                        |     |     |     |     |     | 1   |     |     | 1   | 1   |     |



|                                         |         |   |   |   |   |   |   |   |   |   |   |   |   |
|-----------------------------------------|---------|---|---|---|---|---|---|---|---|---|---|---|---|
| Human Rights and Fighting Corruption    | PGD 101 |   | 1 |   |   |   |   |   |   |   |   |   |   |
| Cell Biology                            | PLD 101 | 1 |   |   |   |   |   |   |   |   |   |   |   |
| Arabic Language Skills                  | UGA 03  |   |   |   |   |   | 1 |   |   |   | 1 |   |   |
| English (1)                             | UGE 01  |   |   |   |   | 1 | 1 |   |   |   | 1 |   |   |
| Physical Pharmacy                       | PPD 103 | 1 |   |   |   |   |   |   |   |   |   |   |   |
| Pharmaceutical Analytical Chemistry II  | PCD 105 | 1 |   | 1 |   |   |   |   |   |   |   |   |   |
| Pharmaceutical Organic Chemistry II     | PCD 106 | 1 |   |   | 1 | 1 |   |   |   |   |   |   |   |
| Medicinal Plants                        | PGD 102 | 1 |   |   |   |   |   |   |   |   | 1 | 1 |   |
| Anatomy and Histology                   | PLD 102 | 1 |   |   |   |   |   |   |   |   |   |   |   |
| Psychology                              | PLD 103 | 1 | 1 |   |   |   |   |   |   |   | 1 | 1 |   |
| English 2                               | UGE 02  |   |   |   |   |   | 1 | 1 |   |   |   | 1 |   |
| Pharmaceutics I                         | PPD 201 | 1 |   | 1 |   |   |   |   |   |   |   |   |   |
| Communication Skills                    | PPD 203 |   |   |   |   |   |   | 1 |   |   | 1 | 1 |   |
| Pharmaceutical Organic Chemistry III    | PCD 202 | 1 |   | 1 |   |   |   |   |   |   |   |   |   |
| Pharmaceutical Analytical Chemistry III | PCD 201 | 1 |   |   |   |   |   |   |   |   |   | 1 |   |
| Pharmacognosy I                         | PGD 201 | 1 |   |   |   |   |   |   |   |   |   | 1 |   |
| General Microbiology and Immunology     | PMD 201 | 1 |   |   |   |   |   |   | 1 |   |   |   | 1 |
| Physiology and pathophysiology          | PLD 201 | 1 |   |   |   |   |   |   | 1 |   |   | 1 |   |
| Pharmaceutics II                        | PPD 202 | 1 |   | 1 | 1 |   |   |   |   |   |   |   |   |
| Pharmacognosy II                        | PGD 202 | 1 |   |   |   |   |   |   |   |   | 1 |   |   |
| Instrumental Analysis                   | PCD 203 | 1 |   | 1 |   |   |   |   |   |   |   | 1 |   |
| Electroanalytical Methods               | PCD 204 | 1 |   | 1 |   |   |   |   |   |   | 1 | 1 |   |
| Parasitology and Virology               | PMD 202 | 1 |   |   |   |   |   |   | 1 |   |   | 1 | 1 |
| Pathology                               | PLD 202 | 1 |   |   |   |   |   |   | 1 |   |   |   | 1 |
| Biochemistry I                          | PLD 203 | 1 |   | 1 | 1 |   |   |   |   |   |   |   |   |
| Biostatistics                           | PND 201 |   |   | 1 |   |   | 1 |   |   |   |   |   | 1 |
| Pharmaceutics III                       | PPD 301 |   |   | 1 | 1 |   |   |   |   |   | 1 |   |   |
| Phytochemistry I                        | PGD 301 |   |   | 1 |   |   |   |   |   |   | 1 |   | 1 |
| Medicinal Chemistry I                   | PCD 301 |   |   | 1 |   |   |   |   | 1 |   | 1 |   |   |
| Pharmaceutical Microbiology             | PMD 301 | 1 |   |   |   |   |   |   | 1 | 1 |   |   | 1 |
| Biochemistry II                         | PLD 301 |   |   |   | 1 |   |   |   | 1 |   | 1 |   |   |
| Pharmacology I                          | PLD 302 | 1 |   |   | 1 |   |   |   |   | 1 |   | 1 |   |



|                                                               |         |   |   |   |   |   |   |   |   |   |   |   |
|---------------------------------------------------------------|---------|---|---|---|---|---|---|---|---|---|---|---|
| Biopharmaceutics and Pharmacokinetics                         | PPD 302 |   |   | 1 |   |   |   |   | 1 | 1 |   |   |
| Pharmaceutics IV                                              | PPD 303 |   |   | 1 | 1 |   |   |   | 1 | 1 |   |   |
| Medicinal Chemistry II                                        | PCD 302 |   |   | 1 |   |   |   | 1 |   |   |   | 1 |
| Phytochemistry II                                             | PGD 302 |   |   | 1 |   |   |   |   |   | 1 |   | 1 |
| Medical Microbiology                                          | PMD 302 |   |   |   |   |   |   | 1 |   |   | 1 | 1 |
| Pharmacology II                                               | PLD 303 |   |   |   |   | 1 | 1 |   | 1 | 1 |   |   |
| Pharmaceutical Technology I                                   | PPD 401 |   |   | 1 |   |   | 1 |   |   | 1 |   |   |
| Applied and Forensic Pharmacognosy                            | PGD 401 |   |   | 1 | 1 |   |   |   | 1 | 1 |   |   |
| Public Health                                                 | PMD 401 |   | 1 |   |   |   |   |   | 1 |   |   | 1 |
| Pharmacology III                                              | PLD 401 |   |   |   |   | 1 |   |   | 1 | 1 | 1 |   |
| Clinical Biochemistry                                         | PLD 402 |   |   |   | 1 | 1 | 1 |   | 1 |   |   |   |
| Drug Information                                              | PND 401 | 1 |   |   |   | 1 | 1 |   |   |   |   | 1 |
| Pharmaceutical Legislations and Regulatory Affairs            | PND 402 |   | 1 |   |   |   |   | 1 |   | 1 | 1 |   |
| English 3                                                     | PMD 402 |   |   |   |   |   | 1 | 1 |   |   | 1 | 1 |
| Pharmaceutical Technology II                                  | PPD 402 |   |   | 1 |   |   | 1 |   |   |   | 1 |   |
| Drug Design                                                   | PCD 401 |   |   | 1 |   |   |   |   |   | 1 |   | 1 |
| Toxicology and Forensic chemistry                             | PLD 403 |   |   |   | 1 | 1 |   |   |   | 1 | 1 |   |
| Clinical Pharmacokinetics                                     | PND 403 |   | 1 | 1 |   | 1 | 1 |   |   |   |   | 1 |
| Hospital Pharmacy                                             | PND 404 |   | 1 | 1 | 1 | 1 |   |   |   |   | 1 |   |
| Community Pharmacy Practice                                   | PND 405 |   | 1 |   |   | 1 | 1 | 1 |   | 1 |   |   |
| Information Technology II                                     | PCD 402 |   |   |   |   |   | 1 | 1 |   |   | 1 | 1 |
| Summer training                                               |         |   | 1 | 1 |   |   |   |   |   | 1 | 1 | 1 |
| Good Manufacturing Practice                                   | PPD 501 | 1 |   | 1 | 1 |   |   | 1 |   |   | 1 |   |
| Analytical Quality Control of Pharmaceuticals                 | PCD 501 |   | 1 | 1 |   |   | 1 |   |   |   |   | 1 |
| Phytotherapy and Aromatherapy                                 | PGD 501 |   |   |   |   |   |   |   |   | 1 |   | 1 |
| Biotechnology                                                 | PMD 501 |   |   | 1 | 1 |   |   |   |   |   |   | 1 |
| Clinical Research, Pharmacoepidemiology and pharmacovigilance | PMD 502 |   |   |   |   |   | 1 |   |   | 1 | 1 |   |
| Clinical pharmacy I                                           | PND 501 |   | 1 |   |   | 1 | 1 |   |   | 1 | 1 |   |
| Communication Skills II                                       | PPD 502 |   |   |   |   |   |   | 1 |   |   | 1 | 1 |
| Advanced Drug Delivery Systems                                | PPD 503 | 1 |   | 1 |   |   |   |   |   |   |   | 1 |

|                                               |         |    |    |    |    |    |    |    |    |    |    |    |    |
|-----------------------------------------------|---------|----|----|----|----|----|----|----|----|----|----|----|----|
| Drug interaction                              | PLD 501 |    |    |    |    | 1  |    |    |    | 1  | 1  |    | 1  |
| First Aid                                     | PLD 502 |    | 1  |    |    | 1  |    |    |    |    |    | 1  | 1  |
| Marketing and Pharmacoeconomics               | PND 502 |    | 1  |    |    |    |    | 1  |    |    | 1  | 1  |    |
| Clinical Pharmacy II and pharmacotherapeutics | PND 503 |    |    |    |    | 1  |    |    | 1  | 1  |    |    | 1  |
| Professional Ethics                           | PND 504 |    | 1  |    |    |    |    |    |    |    | 1  | 1  | 1  |
| Entrepreneurship                              | PND 505 |    | 1  |    |    |    |    | 1  |    |    | 1  | 1  |    |
| Scientific Writing                            | PND 506 | 1  |    |    |    |    | 1  |    |    |    |    | 1  | 1  |
| Total competencies                            |         | 32 | 14 | 26 | 15 | 13 | 16 | 13 | 15 | 17 | 29 | 29 | 19 |

• Separate matrix of elective courses (Mid Senior)

| Compulsory Courses<br>(Name and code)  |         | Academic Standards (Mention code only) |     |     |     |     |     |     |     |     |     |     |     |
|----------------------------------------|---------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                        |         | 1.1                                    | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 3.1 | 3.2 | 4.1 | 4.2 | 4.3 |
| Chromatography and separation          | PCD E01 |                                        |     | 1   |     |     |     |     |     |     | 1   | 1   |     |
| Cosmetics Preparations                 | PPD E01 | 1                                      | 1   |     |     |     |     |     |     |     | 1   |     |     |
| Environment and sustainability         | PMD E01 | 1                                      |     |     | 1   | 1   |     |     | 1   |     | 1   |     |     |
| Clinical Immunology                    | PMD E03 | 1                                      |     |     |     |     |     |     | 1   |     | 1   |     |     |
| Mycology                               | PMD E04 | 1                                      |     |     |     | 1   |     |     | 1   | 1   | 1   |     |     |
| Complementary and Alternative Medicine | PLD E05 | 1                                      |     |     |     |     |     |     | 1   | 1   |     | 1   |     |
| Pharmaceutical Nanotechnology          | PPD E02 |                                        |     | 1   | 1   |     |     |     |     |     | 1   |     |     |
| Infection control                      | PMD E07 |                                        | 1   |     |     |     |     |     | 1   |     |     | 1   |     |
| Natural Cosmetics                      | PGD E01 | 1                                      | 1   |     | 1   |     |     |     |     |     | 1   |     |     |
| Herbal medicine.                       | PGD E02 |                                        |     |     | 1   |     |     |     |     | 1   |     | 1   |     |
| Sustainability in Therapeutics         | PLD E03 | 1                                      |     |     |     |     |     |     | 1   | 1   | 1   | 1   |     |
| Total competencies                     |         | 7                                      | 3   | 2   | 4   | 2   | 0   | 0   | 6   | 4   | 8   | 5   | 0   |

• **separate matrix of elective courses (Senior)**

| Compulsory Courses<br>(Name and code)       |         | Academic Standards (Mention code only) |     |     |     |     |     |     |     |     |     |     |     |
|---------------------------------------------|---------|----------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                                             |         | 1.1                                    | 2.1 | 2.2 | 2.3 | 2.4 | 2.5 | 2.6 | 3.1 | 3.2 | 4.1 | 4.2 | 4.3 |
| Advanced Microbiological Techniques         | PMD E06 |                                        |     |     | 1   |     | 1   |     | 1   |     | 1   |     |     |
| Pharmacotherapeutics for Special Population | PLD E01 |                                        |     |     |     |     |     |     | 1   | 1   | 1   |     | 1   |
| Molecular therapeutics                      | PLD E04 |                                        |     |     |     |     | 1   |     | 1   |     |     |     |     |
| Management of chronic illness               | PND E01 | 1                                      | 1   |     |     |     | 1   |     | 1   |     | 1   | 1   |     |
| Management of critical care patient         | PND E02 | 1                                      | 1   |     |     |     | 1   |     | 1   |     | 1   | 1   |     |
| Analysis of food and flavours.              | PCD E02 |                                        |     | 1   |     |     |     |     |     |     | 1   |     |     |
| Forensic analysis                           | PCD E03 |                                        |     | 1   |     | 1   |     |     |     |     | 1   |     |     |
| Supply Chain Management                     | PPD E03 |                                        |     | 1   |     |     |     |     |     |     |     | 1   |     |
| Addiction and Drug Abuse                    | PLD E02 |                                        |     |     |     | 1   |     |     |     | 1   | 1   | 1   |     |
| Gene Regulation and Epigenetics.            | PMD E02 |                                        |     | 1   | 1   |     |     |     |     |     |     | 1   | 1   |
| Bioinformatics                              | PMD E05 |                                        |     | 1   | 1   |     |     |     |     |     |     | 1   | 1   |
| Total competencies                          |         | 2                                      | 2   | 5   | 3   | 2   | 4   | 0   | 5   | 2   | 7   | 6   | 3   |

## 6. Teaching and Learning strategies/methods to achieve Program Outcomes:

1. Lectures
2. Tutorials
3. Laboratory Sessions
4. Cooperative Learning (Group Presentations/ Discussions)
5. Brain Storming
6. Think, Pair and Share
7. Peer Teaching
8. Simulation
9. Assignments
10. Case Studies
11. Site Visits
12. Field Projects
13. Graduation Projects
14. Simulation
15. Videos
16. Game based learning
17. Role play
18. Flipped Classrooms
19. Self-Learning
20. Problem Solving
21. Formative exam

## 7. Student Assessment strategies/methods to verify and ensure students' acquisition of Program Outcomes:

1. Course work (Practical exam, assignments, presentations, quizzes, projects, tutorial, discussion forms)
2. Mid Term exams
3. Final Written exams
4. Final Oral exams (Rubrics)
5. Booklet assessment
6. Video Call assessment

## 8. Program Key Performance Indicators (if any)

N.A

**Name & Signature**  
**Program Coordinator**

**Ass. Professor. Marwa Ahmed Atef Yakout**  
**Marwa**

**Name & Signature**  
**Vice Dean for Education and Student Affairs**

**Ass. Prof. Sherihan Salah Eldein**  
**Sherihan**