Program Specification

(2025)

1. Basic Information

Program Title (according to what is stated in the bylaw):	**Bachelor of Pharmacy (PharmD) (Clinical Pharmacy)**
Total number of credit hours/points of the program:	**176**
Number of academic years/levels (expected program duration):	**5 years + one academic year of internship.**
Department (s) Participating (if any) in teaching the program:	**- Department of Medicinal Chemistry (PC)** **- Department of Analytical Chemistry (PA)** **- Department of Biochemistry (PB)** **- Department of Pharmaceutics (PT)** **- Department of Pharmacognosy (PG)** **- Department of Microbiology and Immunology (PM)** **- Department of Pharmacology and Toxicology (PO)** **- Department of Clinical Pharmacy (PP)**
Faculty/Institute:	**Faculty of Pharmacy**
University/Academy:	**Minia University**
Program majors/divisions/tracks/specialties in the final year (if any):	
Partnerships with other parties and the nature of each (if any):	**Minia University Hospitals during the academic year of internship.**
Name of the program coordinator (attach the assignment decision):	**Prof. Fatma Mohamed Mady**
Program Specification Approval Date:	**10/15/2019** **Updated 07/17/2025**
Council responsible for Program Specification Approval (Attach the Decision / Minutes):	**The Council of the Faculty of Pharmacy, Minia University** **Annex-1 (the Decision)**

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

1. Focus on the role of the role of pharmacist in providing appropriate health care to the patient inside and outside hospitals by following up his individualized drug system for him after studying the principles of clinical drug kinetics and their applications in treatment in various disease cases and finding appropriate treatment regimens in cooperation with the physician, with resultant improvement in the health care services offered for the patients and a paralleled reduced risks of drug interactions.
2. Graduate a distinguished pharmacist who is qualified to work in public and private pharmacies, pharmaceutical companies, drug control laboratories, food analysis, and work in the field of media, marketing, research and universities.
3. Increase the competitiveness of program's graduates at the regional level through study and training programs.
4. Participate in community service, developing the environment, and providing a tangible economic return through rationalizing the use of medicines in hospitals.
5. Commit to achieving quality standards in pharmacy education through interactive education and interest in self-learning

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**	**4**	**2.27**
Faculty/College Requirements (if applicable)				
Program Requirements		**69**	**172**	**97.73**
Requirements of the majors/ divisions/ tracks/ specializations in the final year (if any)				
Other requirements	**Field Training**		**100**	
	Graduation Project			

	Mandatory training year		**1 year**	
	Other (to be mentioned)			
Total Compulsory Courses		**68**	**168**	**95.45**
Elective Courses		**4**	**8**	**4.55**
Total		**72**	**176**	**100**

- **Program courses according to the expected study plan**

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Practical training	Other
الاول	خريف	PA 101	**Pharmaceutical Analytical Chemistry I**	اجباري	تخصص	3	2	2	-
الاول	خريف	PC 101	**Pharmaceutical Organic Chemistry I**	اجباري	تخصص	3	2	2	-
الاول	خريف	PG 101	**Medicinal Plants**	اجباري	تخصص	3	2	2	-
الاول	خريف	PT 101	**Pharmacy Orientation**	اجباري	تخصص	1	1	-	-
الاول	خريف	PO 101	**Medical Terminology**	اجباري	تخصص	1	1	-	-
الاول	خريف	MS 101	**Mathematics**	اجباري	تخصص	1	1	-	-
الاول	خريف	UR 101	**Information Technology**	اجباري	جامعة	2	1	2	-
الاول	خريف	UR 102	**Human Rights and Fighting Corruption**	اجباري	جامعة	1	1	-	-
الاول	ربيع	PA 202	**Pharmaceutical Analytical Chemistry II**	اجباري	تخصص	3	2	2	-
الاول	ربيع	PC 202	**Pharmaceutical Organic Chemistry II**	اجباري	تخصص	3	2	2	-
الاول	ربيع	PG 202	**Pharmacognosy I**	اجباري	تخصص	3	2	2	-
الاول	ربيع	PB 201	**Cell Biology**	اجباري	تخصص	2	2	2	-
الاول	ربيع	MD 201	**Anatomy and Histology**	اجباري	تخصص	3	2	2	-
الاول	ربيع	PT 202	**Physical Pharmacy**	اجباري	تخصص	3	2	2	-
الاول	ربيع	UR 203	**Psychology**	اجباري	جامعة	1	1	-	-
الثاني	خريف	PA 303	**Instrumental Analysis**	اجباري	تخصص	2	1	2	-
الثاني	خريف	PC 303	**Pharmaceutical Organic Chemistry III**	اجباري	تخصص	3	2	2	-
الثاني	خريف	PG 303	**Pharmacognosy II**	اجباري	تخصص	3	2	2	-
الثاني	خريف	PB 302	**Biochemistry I**	اجباري	تخصص	3	2	2	-
الثاني	خريف	PT 303	**Pharmaceutical Dosage Forms I**	اجباري	تخصص	3	2	2	-
الثاني	خريف	MD 302	**Physiology and Pathophysiology**	اجباري	تخصص	2	2	-	-

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Practical training	Other
الثاني	خريف	NP 301	**Scientific Writing and Communication Skills**	اجباري	تخصص	2	1	2	-
الثاني	ربيع	PO 402	**Pharmacology I**	اجباري	تخصص	3	2	2	-
الثاني	ربيع	PG 404	**Phytochemistry I**	اجباري	تخصص	3	2	2	-
الثاني	ربيع	PM 401	**General Microbiology and Immunology**	اجباري	تخصص	3	2	2	-
الثاني	ربيع	MD 403	**Pathology**	اجباري	تخصص	2	2	-	-
الثاني	ربيع	PT 404	**Pharmaceutical Dosage Forms II**	اجباري	تخصص	3	2	2	-
الثاني	ربيع	PB 403	**Biochemistry II**	اجباري	تخصص	3	2	2	-
الثاني	ربيع	PT 405	**Pharmaceutical Legislations and Practice Ethics**	اجباري	تخصص	1	1	-	-
الثالث	خريف	PO 503	**Pharmacology II**	اجباري	تخصص	3	2	2	-
الثالث	خريف	PM 502	**Pharmaceutical Microbiology and Antimicrobials**	اجباري	تخصص	3	2	2	-
الثالث	خريف	PT 506	**Pharmaceutical Dosage Forms III**	اجباري	تخصص	3	2	2	-
الثالث	خريف	PG 505	**Phytochemistry II**	اجباري	تخصص	3	2	2	-
الثالث	خريف	PP 501	**Community Pharmacy Practice**	اجباري	تخصص	3	2	2	-
الثالث	خريف	PT 507	**Pharmaceutical Technology**	اجباري	تخصص	2	2	2	-
الثالث	ربيع	PC 604	**Medicinal Chemistry I**	اجباري	تخصص	3	2	2	-
الثالث	ربيع	PO 604	**Pharmacology III**	اجباري	تخصص	3	2	2	-
الثالث	ربيع	PT 608	**Advanced Drug Delivery Systems**	اجباري	تخصص	1	1	-	-
الثالث	ربيع	PM 603	**Medical Microbiology**	اجباري	تخصص	3	2	2	-
الثالث	ربيع	PP 602	**Hospital Pharmacy**	اجباري	تخصص	3	2	2	-
الثالث	ربيع	PP 603	**Clinical Pharmacy Practice**	اجباري	تخصص	3	2	2	-
الثالث	ربيع	PM 604	**Parasitology and Virology**	اجباري	تخصص	3	2	2	-
الرابع	خريف	PC 705	**Medicinal Chemistry II**	اجباري	تخصص	3	2	2	-
الرابع	خريف	PM 705	**Public Health and Preventive Medicine**	اجباري	تخصص	2	2	-	-
الرابع	خريف	PT 709	**Biopharmaceutics and Pharmacokinetics**	اجباري	تخصص	3	2	2	-
الرابع	خريف	PB 704	**Clinical Biochemistry**	اجباري	تخصص	3	2	2	-

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Practical training	Other
الرابع	خريف	PA 704	**Quality Control of Pharmaceuticals**	اجباري	تخصص	3	2	2	-
الرابع	خريف	PO 705	**First Aid and Basic Life Support (BLS)**	اجباري	تخصص	2	1	2	-
الرابع	خريف	EC 701	**Elective Course I**	اختياري	تخصص	2	1	2	-
الرابع	ربيع	PC 806	**Medicinal Chemistry III**	اجباري	تخصص	3	2	2	-
الرابع	ربيع	PB 805	**Clinical Nutrition**	اجباري	تخصص	2	2	2	-
الرابع	ربيع	PG 806	**Phytotherapy**	اجباري	تخصص	3	2	2	-
الرابع	ربيع	PP 804	**Clinical Pharmacokinetics**	اجباري	تخصص	3	2	2	-
الرابع	ربيع	PO 806	**Drug Interaction**	اجباري	تخصص	2	2	-	-
الرابع	ربيع	PM 806	**Pharmaceutical Biotechnology**	اجباري	تخصص	3	2	2	-
الرابع	ربيع	EC 802	**Elective Course II**	اختياري	تخصص	2	1	2	-
الخامس	خريف	PO 907	**Basic and Clinical Toxicology**	اجباري	تخصص	3	2	2	-
الخامس	خريف	PP 905	**Management of Neuropsychiatric Diseases**	اجباري	تخصص	2	1	2	-
الخامس	خريف	PP 906	**Management of Respiratory Diseases**	اجباري	تخصص	2	1	2	-
الخامس	خريف	PP 907	**Management of Oncological Diseases and Radiopharmacy**	اجباري	تخصص	3	2	2	-
الخامس	خريف	PP 908	**Management of Endocrine and Renal Diseases**	اجباري	تخصص	3	2	2	-
الخامس	خريف	NP 902	**Entrepreneurship**	اجباري	تخصص	1	1	-	-
الخامس	خريف	NP 903	**Marketing and Pharmacoeconomics**	اجباري	تخصص	1	1	-	-
الخامس	خريف	EC 903	**Elective Course III**	اختياري	تخصص	2	1	2	-
الخامس	ربيع	PP 009	**Management of Dermatological, Reproductive and Musculoskeletal Diseases**	اجباري	تخصص	3	2	2	-
الخامس	ربيع	PP 010	**Management of Critical Care Patients**	اجباري	تخصص	2	1	2	-
الخامس	ربيع	PP 011	**Management of Pediatric Diseases**	اجباري	تخصص	3	2	2	-
الخامس	ربيع	PP 012	**Management of Cardiovascular Diseases**	اجباري	تخصص	3	2	2	-
الخامس	ربيع	PP 013	**Management of Gastrointestinal Diseases**	اجباري	تخصص	3	2	2	-

Academic Level	Semester	Course Code	Course Title	Course Type (Compulsory / Elective)	Requirement Category/ Type	Number of Credit Hours/ Points	Number of Weekly Hours		
							Theoretical teaching	Practical training	Other
الخامس	ربيع	PP 014	**Drug Information**	اجباري	تخصص	1	1	-	-
الخامس	ربيع	PP 015	**Clinical Research and Pharmacovigilance**	اجباري	تخصص	1	1	-	-
الخامس	ربيع	EC 004	**Elective Course IV**	اختياري	تخصص	2	1	2	-

Elective Courses

Course Title	Course Code	Credit Hours		
		L	P	T
PT E10	**Quality Assurances and GMP**	**1**	**1**	**2**
PT E11	**Applied Industrial Pharmacy**	**1**	**1**	**2**
PT E12	**Cosmetic Preparations**	**1**	**1**	**2**
PT E13	**Drug Stability**	**1**	**1**	**2**
PT E14	**Design of Dosage Forms Formulation**	**1**	**1**	**2**
PG E07	**Complementary and Alternative Medicine**	**1**	**1**	**2**
PG E08	**Production and Manufacture of Medicinal Plants**	**1**	**1**	**2**
PG E09	**Chromatography and Separation Techniques**	**1**	**1**	**2**
PG E10	**Marine Natural Products**	**1**	**1**	**2**
PG E11	**Plant Tissue Culture**	**1**	**1**	**2**
PC E07	**Drug Design**	**1**	**1**	**2**
PO E08	**Biological Standardization**	**1**	**1**	**2**
PO E09	**Veterinary Pharmacology**	**1**	**1**	**2**
PA E05	**Advanced Analytical Separation Techniques**	**1**	**1**	**2**
PM E07	**Antibiotic Stewardship**	**1**	**1**	**2**
PM E08	**Infection Control**	**1**	**1**	**2**
PM E09	**Bioinformatics**	**1**	**1**	**2**
PB E06	**Cancer and Genomic Disorders**	**1**	**1**	**2**
PP E16	**Geriatric Pharmacotherapy**	**1**	**1**	**2**
PP E17	**Professional Pharmacy Ethics**	**1**	**1**	**2**

L: Lecture, P: Practical, T: Total

4. Academic Standards

- **Adopted Academic Standards (NARS/ARS): ARS**
  *** When adopting ARS: <u>The matrix of the academic reference standards (ARS) with the national academic reference standards (NARS) must be attached</u> (attachment 7)**

- **Date of Adoption of Standards in the governing Council: 8/15/2023**
  *** Decision/Minutes of the governing Council to be attached**

Four **Competency Domains** are included in the competency-based National Academic Reference Standards for Pharmacy Education. These domains are designed to cover all essentials for practicing

pharmacy profession including both drug-oriented and patient oriented disciplines. Each domain should be achieved through a number of **Competencies** which are overall broad statements that cover various areas of the graduate performance. A number of **Key Elements** are included in each competency. These key elements demonstrate how pharmacy graduate 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.

Academic Reference Standards of Bachelor of Pharmacy (PharmD) strongly matched with the second edition of the National Academic Reference Standards for Pharmacy education, published by the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) in April 2017

After successfully completing the program, graduates will be proficient in the following key domains:

Domain 1- Fundamental Knowledge:

1-1- Competency: Integrate core knowledge and skills from biomedical, pharmaceutical, clinical, social-behavioral, and administrative sciences to evaluate and manufacture effective healthcare products, solve therapeutic problems and improve patient outcomes, advance human health through research and innovation and deliver patient-centered care.

This competency will be developed via the following key elements:

- **Key Elements:**

1-1-1. Possess a deep and broad understanding of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.

1-1-2. Communicate effectively in pharmacy practice by accurately using pharmaceutical and medical terminology, abbreviations, and symbols, including the recall of scientific drug names.

1-1-3. Integrate fundamental scientific principles to effectively handle, identify, extract, design, prepare, analyze, ensure the quality and safety pharmaceutical raw materials and final products (both synthetic and natural).

1-1-4. Apply knowledge from fundamental sciences to explain drug mechanisms of action, predict therapeutic effects, and evaluate their appropriateness, effectiveness, and safety in individuals and populations.

1-1-5. Integrate the principles and practices of fundamental sciences, with a critical understanding, to improve human health and the healthcare system.

1-1-6. Demonstrate strong information literacy skills by accessing, retrieving, critically evaluating, and applying relevant scientific resources to make informed professional decisions.

1-1-7. Gather and critically appraise new information, including evidence-based research, and apply it to improve pharmaceutical practices and patient outcomes.

1-1-8. Utilize health informatics to achieve improved patient safety, enhanced quality of care, and optimized resource allocation.

1-1-9. Perform a range of pharmaceutical calculations, encompassing compounding, patient-specific dosing, pharmacokinetic principles, and other relevant therapeutic calculations.

1-1-10. Describe the therapeutic applications of various pharmacological agents in the management of gastrointestinal, cardiovascular, respiratory, dermatological, pediatric, oncology, and critical care conditions.

Domain 2: Professional and Ethical Practice

2-1- Competency: Collaborate professionally with patients and inter-professional teams to achieve safe, effective, and efficient healthcare outcomes that meet the needs of the community and society.

This competency will be developed via the following key elements:

● **Key Elements:**

2-1-1. Ensure compliance with all relevant legal and professional requirements, including legislation, policies, by-laws, and standards, for both individual practitioners and the healthcare team.

2-1-2. Demonstrate ethical conduct in all professional activities, prioritizing patient privacy, confidentiality, and respect for population diversity.

2-1-3. Maintain appropriate professional boundaries and demonstrate responsibility and accountability within the healthcare team.

2-1-4. Affirm that ethical pharmaceutical practice prioritizes the provision of high-quality patient care above maximizing profits, demonstrating a commitment to ethical business practices.

2-2- Competency: Ensure the standardization of pharmaceutical raw materials to facilitate the production of high-quality pharmaceutical products. Contribute to the efficient management of pharmaceutical resources, promoting sustainability and responsible stewardship.

This competency will be developed via the following key elements:

● **Key Elements:**

2-2-1. Characterize pharmaceutical materials from diverse sources through identification, design, preparation, purification, standardization, and quantification.

2-2-2. Adhere to GMP guidelines, including principles of quality control, inventory management, distribution, and legal responsibility, to ensure compliance with regulatory requirements for pharmaceutical materials and products of various origins, while considering potential incompatibilities.

2-2-3- Demonstrate proficiency in utilizing a range of instruments and simulation software, coupled with in-depth knowledge, to design synthetic and analytical processes for raw materials and finished pharmaceutical products.
2-2-4- Integrate quality control and assurance principles, statistical analysis, bioinformatics, and thorough assessment procedures into the development of pharmaceutical formulations, including novel drug delivery systems. This approach should prioritize innovation and prepare for future advancements in pharmacy practice.
2-2-5. Demonstrate professional competency in the preparation and compounding of non-sterile and sterile products, including other extemporaneous preparations, following recognized guidelines and standards of practice.

2-3- Competency: Integrate approved policies, procedures, and activities into quality assurance systems to support the safe handling, transfer, and disposal of biological and synthetic/natural pharmaceutical materials/products.

This competency will be developed via the following key Elements:
●**Key Elements**:
2-3-1. Implement appropriate methods, procedures, and resource utilization for the safe handling and disposal of synthetic/natural materials, biological, radioactive, and biotechnology-based items used in pharmacy.
2-3-2. Ensure adherence to high ethical, legal, and safety standards while implementing best practices for the management of biological and pharmaceutical materials/products.
2-3-3. Establish comprehensive procedures to ensure the safe and compliant return or disposal of recalled, expired, and unusable pharmaceutical products in accordance with all relevant regulations.

2-4- Competency: Demonstrate effective inter-professional collaboration by actively participating in decision-making within the healthcare team to assess and manage patients in emergency situations, including xenobiotic poisoning. Further, cooperate effectively in forensic investigations.
This competency will be developed via the following key elements:
● **Key Elements**:
2-4-1. Select and implement proper procedures for handling and applying poisons to minimize the risk of harm to the public.
2-4-2. Be prepared to provide basic first aid assistance in the event of a medical emergency in the pharmacy.
2-4-3. Develop individualized pharmaceutical care plans for patients with various disorders, considering their unique health problems and specific needs.
2-4-4. Contribute to public health by evaluating the toxicity profiles of chemicals and other xenobiotics and conducting investigations into the presence of poisons in biological samples.

2-4-5- Prioritize patient safety by identifying situations that require the expertise of other healthcare professionals and taking appropriate action, such as referring patients for further evaluation or treatment.
2-4-6. Possess the knowledge and ability to apply essential principles of physical assessment in life-threatening situations to save patients' lives.
2-4-7. Assess the effectiveness of both pharmacological and non- pharmacological systemic approaches in managing disorders affecting various body organs, with a focus on individualized patient care that considers specific health concerns.

2-5- Competency: Play an active role in advancing pharmaceutical research and contributing to the successful completion of clinical trial phases necessary for the approval of novel medicinal agents.

This competency will be developed via the following key elements:
● **Key Elements**:
2-5-1. Apply sound regulatory science principles to integrate regulatory strategies into the development of emerging medicinal products to ensure successful authorization in accordance with national and international specifications.
2-5-2. Gather, analyze, and evaluate relevant, evidence-based information to comprehensively understand a patient's healthcare needs.
2-5-3. Integrate scientific principles and scholarly investigation with critical thinking skills to systematically search for and evaluate the best available evidence.
2-5-4. Apply sound research methodology to plan and design various types of clinical studies that optimize the procedures for conducting experimental drug research in hospitals and diverse healthcare settings.

2-6- Competency: Enhance professional development by conducting pharmacoeconomic studies and developing innovative skills in promotion, sales, marketing, and business administration.

This competency will be developed via the following key elements:
● **Key Elements**:
2-6-1. Integrate principles of financial management, human resource management, and business administration to ensure the successful operation and growth of a pharmacy.
2-6-2. Develop and implement effective strategies in drug promotion, sales, and marketing, while effectively utilizing the outcomes of pharmacoeconomic analyses in business decision-making.
2-6-3. Utilize pharmacoeconomic principles to optimize drug utilization and ensure the achievement of desired therapeutic outcomes, promoting value-based healthcare.

Domain 3: Pharmaceutical Care
3-1- Competency: Utilize patient and population health records to gather evidence-based information that supports the advancement of population health and the overall healthcare system.

This competency will be developed via the following key elements:

● **Key Elements**:

3-1-1. Adjust medication dosages for individual patients based on physiological, genetic, biochemical, and immunological changes resulting from disease or concomitant drug therapy.

3-1-2. Integrate principles of public health and microbiology to identify and mitigate risks associated with microbial contamination.

3-1-3. Perform laboratory tests to identify infections and diseases, monitor microbial growth, and maintain detailed records of all diagnostic procedures.

3-1-4. Employ a public health approach by utilizing knowledge of etiology, epidemiology, pathogenesis, laboratory diagnosis, and clinical features to suggest effective preventive strategies for various infections and diseases.

3-2. Competency: Empower patients and the community by providing education and counseling to support informed healthcare decision-making.

This competency will be developed via the following key elements:

●**Key Elements**:

3-2-1. Integrate principles of medicinal chemistry and pharmacology, such as drug mechanisms of action, therapeutic uses, appropriate dosing, adverse effects, and drug-drug interactions, to enhance clinical decision-making.

3-2-2. Utilize principles of clinical pharmacology and pharmacovigilance, along with necessary technical skills, to optimize medication use and ensure the safe and effective use of medical devices.

3-2-3. Consider the best available evidence when advising patients on the use of non-conventional therapies, ensuring patient-centered care.

3-2-4. Provide patients with appropriate information about the potential adverse effects and toxicity of medicinal agents and other xenobiotics, including their sources, signs, symptoms, and available treatment options, to enhance patient safety.

3-2-5. Promote safe and cost-effective medication use by providing education and counseling to patients, healthcare professionals, and communities.

3-2-6. Engage the public in efforts to promote the rational use of drugs, increase vaccination rates, prevent drug abuse and misuse, and ensure the safe handling of hazardous products to minimize personal exposure and reduce environmental contamination.

3-2-7. Identify and accurately document medication incidents and adverse drug events. Respond effectively to mitigate harm and utilize this information to improve medication safety systems and prevent future occurrences.

Domain 4: Personal Practice

4-1. Competency: Develop and effectively utilize leadership, time management, self-directed learning, self-reflection, teamwork, problem-solving, creativity, and entrepreneurial skills to achieve success in their professional career.

This competency will be developed via the following key elements:

●Key Elements:

4-1-1. Promote inter-professional collaboration by sharing decision- making responsibilities with other pharmacy team members and colleagues from other departments, while effectively managing time and resources.

4-1-2. Drive innovation in pharmacy practice by contributing to the creation of new knowledge and practices, while effectively participating in both independent and collaborative healthcare service delivery.

4-1-3. Enhance professional growth by participating in the development of entrepreneurial, creative, and marketing skills.

4-1-4. Develop strategic solutions to address pharmaceutical needs within the workplace.

4-2. Competency: Maintain professional communication standards by demonstrating appropriate verbal and non-verbal communication skills, including active listening and proficiency in written communication, when interacting with individuals and communities.

This competency will be developed via the following key elements:

●Key Elements:

4-2-1. Communicate effectively with patients, other healthcare professionals, and community members by utilizing clear language, appropriate pacing and tone, effective non-verbal communication, and strong writing skills.

4-2-2. Utilize artificial intelligence technologies to enhance efficiency and innovation in the presentation of relevant information.

4-3. Competency: Demonstrate self-awareness and commit to lifelong learning and continuous professional development to adapt to the ever-evolving healthcare landscape.

This competency will be developed via the following key elements:

●Key Elements:

4-3-1. Develop and implement effective strategies for continuous improvement in personal pharmacy practice.

4-3-2. Embrace lifelong learning by assessing personal learning needs and developing a plan to meet these needs through continuous professional development activities.

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

1. Lecture.
2. Self-learning.
3. Computer aided learning.
4. Problem-based learning.

5. Case study.
6. Presentation.
7. Practical work and tutorials.
8. Hybrid learning.
9. Collaborative learning.
10. Assignments and activities.
11. Research projects.
12. Simulation based learning.

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

The program uses a range of summative and formative assessment methods.

1- Formative assessments:

Formative assessments help identify students' strengths and weaknesses, allowing instructors to focus on areas needing improvement. These assessments are used across all courses and training sessions and are typically low stakes, meaning they don't usually count towards a student's grade.

Examples on formative assessments:

- Case Study.
- Quiz.
- Problem solving.

Formative assessments are used to recognize student's areas of strength and weakness and focus on those that require improvement. Formative assessments are implemented in all courses and training sessions and usually have no point value.

2- Summative assessment

a. Written examinations
b. Practical assessments
c. Oral presentation.
d. Periodical exam.

● The final grade of the course consists of the sum of the semester work + practical (if present) + written + oral (if present) examination as shown in the study plan tables.

● The minimum pass rate in any course is 60% of the total grades of this course except university requirements the minimum pass rate is 50%.

- The student will not be successful in any course unless he or she get 30% of the final written exam score.
- Periodical exam. is held by the end of the 7th week of the semester.
- Practical exams are held by the end of the 13th week.
- Final written and oral exams are held by the end of the 14th and 15th week of the semester.
- Each course is assigned a total of 100 marks.
- Performance of a student is measured by the **Grade Point Average (GPA)** value he/she scores in an individual course.

Matrix of the summative assessment methods with the program key-elements is included (Attachment # 10)

The percentage of final scores and estimates is as shown in the following table.

Evaluation System

Percentage	Number of Points	Symbol	Grade
95 and above	4.00	A^+	Excellent
90 for less than 95	3.85	A	
85 for less than 90	3.70	A^-	
82.5 for less than 85	3.30	B^+	Very good
77.5 for less than 82.5	3.00	B	
75 for less than 77.5	2.70	B^-	
72.5 for less than 75	2.30	C^+	Good
67.5 for less than 72.5	2.00	C	
65 for less than 67.5	1.70	C^-	
62.5 for less than 65	1.30	D^+	Acceptable
60 for less than 62.5	1.00	D	
50	1.00	D	Acceptable for University requirements
Less than 60 or (50 for University requirements)	0.00	F	Fail
Withdrawal	-	W	Withdrawal
Incomplete	-	I*	Incomplete
Absent with excuse	-	Abs E**	Absent with excuse
Absent	٠,٠٠	Abs ***	Fail

New Evaluation System (started 2024/2025)

Percentage	Number of Points	Symbol	Grade
95 and above	**4.00**	**A^+**	**Excellent**
90 for less than 95	**3.80**	**A**	
85 for less than 90	**3.60**	**A^-**	
82.5 for less than 85	**3.40**	**B^+**	**Very good**
77.5 for less than 82.5	**3.20**	**B**	
75 for less than 77.5	**3.00**	**B^-**	
72.5 for less than 75	**2.80**	**C^+**	**Good**
67.5 for less than 72.5	**2.60**	**C**	
65 for less than 67.5	**2.40**	**C^-**	
62.5 for less than 65	**2.20**	**D^+**	**Acceptable**
60 for less than 62.5	**2.00**	**D**	
50	**2.00**	**D**	**Acceptable for University requirements**
Less than 60	**0.00**	**F**	**Fail**
Withdrawal	**-**	**W**	**Withdrawal**
Incomplete	**-**	**I***	**Incomplete**
Absent with excuse	**-**	**Abs E****	**Absent with excuse**
Absent	**0.00**	**Abs *****	**Fail**

I* :The student receives this symbol if the attendance percentage is satisfactory, and he or she is unable to take the final written and oral exam (if any) for one or more courses in the same semester for compelling reasons accepted by the faculty council. He or she must take the final written and oral exam (if any) only no later than the second week of the following semester while maintaining the grade.

Abs E:** The student receives this symbol if he or she is unable to take the final written and oral exam (if any) on the date mentioned in the previous paragraph (I) due to the compelling reason not disappearing. The student must register for this course when it is offered again and study it in full while maintaining the grade.

Abs*: If the student is absent from taking the exam without an excuse, it is accepted by the College Council, and the student must register for this course when it is offered again and study it in full.

- There are other evaluation symbols that are not equivalent to points - which are used in some graduation requirements, which are:

S: Satisfactory **U**: Unsatisfactory

T: Grades obtained by a student transferred from another college of pharmacy.

The student's GPA and cGPA are calculated as follows:

A - The value of points for each course is multiplied by the number of credit hours for this course to get the number of points for each course in the semester.

B - Points are collected for all the courses in which the student scored in one semester.

C- The total points of all courses are divided by the total credit hours registered for the student per semester for the purpose of obtaining the semester rate as follows:

Semester rate (GPA) = Total points of all courses per semester / Total credit hours registered per semester.

The cumulative GPA is calculated as follows:

Cumulative Grade Point Average (cGPA) = The sum of points for all courses for all semesters / Total credit hours registered for all semesters.

Several Annexes (attachments) are involved:

Attachment Title	Attachment #
College council's approval of program specification	**1**
College council's approval of NARS as references for program's Academic Refences Standards	**2**
Logbook Compulsory Training Program (Internship) for Pharmacists (hyperlink)	**3**
Coherence between Clinical Pharmacy's Program's Graduates Attributes and mission and aims of Clinical Pharmacy's Program.	**4**
Coherence between competences and mission and aims of Clinical Pharmacy's.	**5**
Coherence between Clinical Pharmacy's Program's Graduates Attributes to NARS's Graduate Attributes.	**6**
Matrix of Comparison of Clinical Pharmacy-Minia University's Program key elements with NARS's key elements.	**7**
Matrix of Academic References Standards (Program key elements) with Courses.	**8**
Matrix of the coherence between learning and teaching methods, and the Program key-elements.	**9**
Matrix of the coherence between assessment methods and the Program key-elements.	**10**

Attachment-1 (college council's approval of program specification)

السيد الاستاذ الدكتور / عميد كلية الصيدلة

تحية طيبة وبعد ...

الرجاء من سيادتكم التكرم بالموافقة على اعتماد توصيف برنامج بكالوريوس الصيدله

(فارم دي- Pharm D) (صيدله اكلينيكيه) طبقا لنظام الساعات المعتمده في مجلس الكليه

ولسيادتكم جزيل الشكر ووافر الاحترام .....

مقدمه لسيادتكم

وكيل الكليه لشؤون التعليم والطلاب

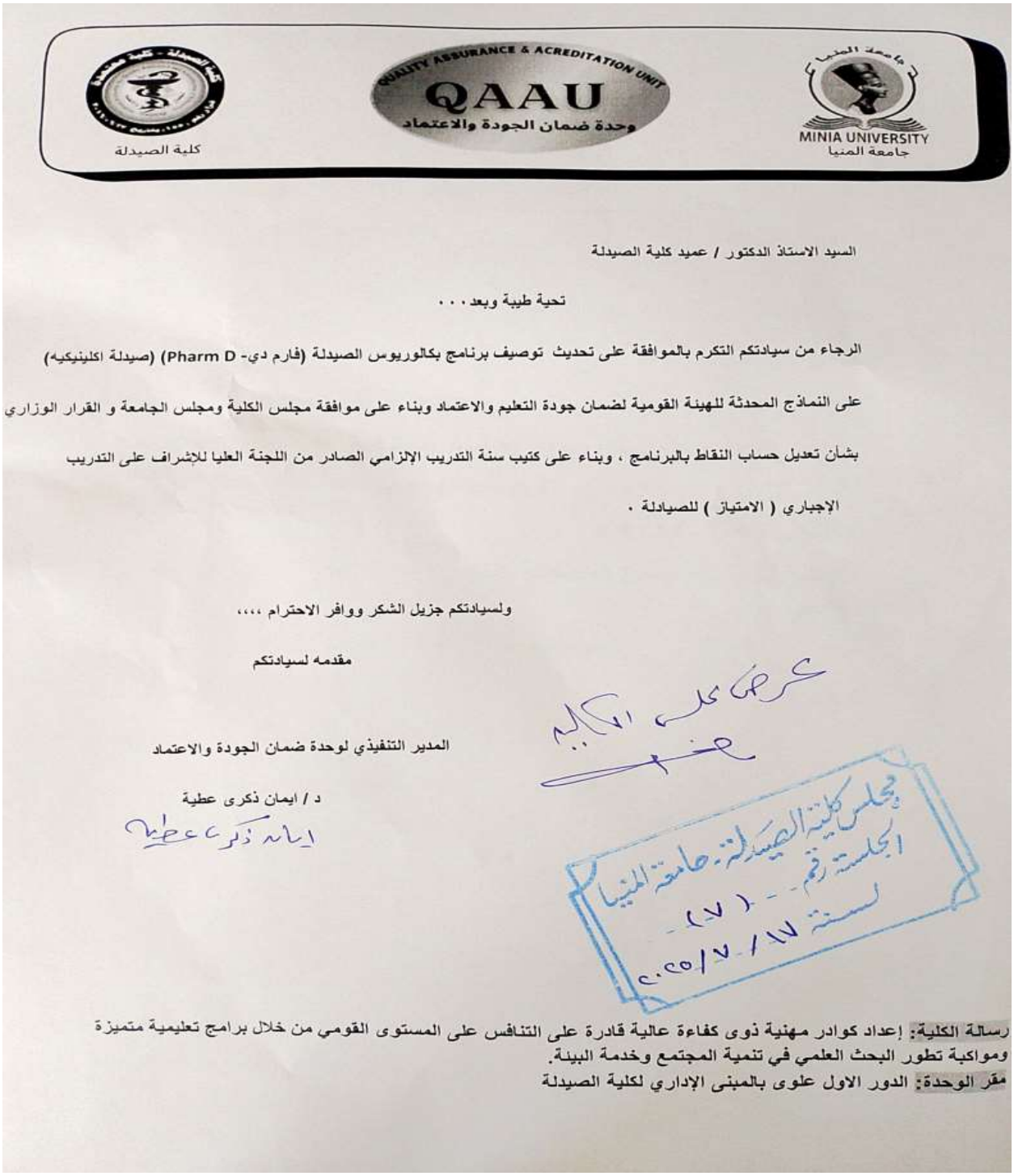
ا. د / مصطفي احمد فؤاد

مجلس كلية الصيدلة - جامعة المنيا
الجلسة رقم (١٠)
لسنة ٢٠١٩/١٠/١٥

رسالة الكلية: إعداد كوادر مهنية ذوى كفاءة عالية قادرة على التنافس على المستوى القومي من خلال برامج تعليمية متميزة ومواكبة تطور البحث العلمي في تنمية المجتمع وخدمة البيئة.

مقر الوحدة: الدور الاول علوى بالمبنى الإداري لكلية الصيدلة

Follow Attachment-1 (college council's approval of program specification updates)



كلية الصيدلة

QUALITY ASSURANCE & ACREDITATION UNIT
QAAU
وحدة ضمان الجودة والاعتماد

MINIA UNIVERSITY
جامعة المنيا

السيد الاستاذ الدكتور / عميد كلية الصيدلة

تحية طيبة وبعد . . .

الرجاء من سيادتكم التكرم بالموافقة على تحديث توصيف برنامج بكالوريوس الصيدلة (فارم دي- Pharm D) (صيدلة اكلينيكيه) على النماذج المحدثة للهيئة القومية لضمان جودة التعليم والاعتماد وبناء على موافقة مجلس الكلية ومجلس الجامعة و القرار الوزاري بشأن تعديل حساب النقاط بالبرنامج ، وبناء على كتيب سنة التدريب الإلزامي الصادر من اللجنة العليا للإشراف على التدريب الإجباري (الامتياز) للصيادلة .

ولسيادتكم جزيل الشكر ووافر الاحترام ،،،،

مقدمه لسيادتكم

المدير التنفيذي لوحدة ضمان الجودة والاعتماد

د / ايمان ذكرى عطية

عرض مجلس الكلية

مجلس كلية الصيدلة - جامعة المنيا
الجلسة رقم (٧)
لسنة ٢٠١٧ / ٧ / ٢٥

رسالة الكلية: إعداد كوادر مهنية ذوى كفاءة عالية قادرة على التنافس على المستوى القومي من خلال برامج تعليمية متميزة ومواكبة تطور البحث العلمي في تنمية المجتمع وخدمة البيئة.
مقر الوحدة: الدور الاول علوى بالمبنى الإداري لكلية الصيدلة

Attachment-2: College council's approval of NARS as references for program's Academic Refences Standards

السيد الأستاذ الدكتور / عميد الكلية
تحية طيبة ... وبعد

الرجاء التكرم بالموافقة على اعتماد المعايير الأكاديمية القومية (NARS) الخاصة بقطاع الصيدلة من مجلس الكلية كمعايير أكاديمية مرجعية للكلية.

(مرفق المعايير) .

وتفضلوا بقبول وافر التحية ،
مقدمة لسيادتكم

المدير التنفيذي لوحدة ضمان الجودة والاعتماد
أ.د/ أحمد عبد العظيم مهدي

القرار: الموافقة

رسالة الكلية: إعداد كوادر مهنية ذوى كفاءة عالية قادرة على التنافس على المستوى القومي من خلال برامج تعليمية متميزة ومواكبة تطور البحث العلمي في تنمية المجتمع وخدمة البيئة.
مقر الوحدة: الدور الاول علوى بالمبنى الإداري لكلية الصيدلة

Attachment-3: Logbook Compulsory Training Program (Internship) for Pharmacists (hyperlink)

Updated Final Log Book_Higher Committe 22-8-2024.pdf

Attachment 4

Coherence between Clinical Pharmacy's Program's Graduates Attributes and mission and aims of Clinical Pharmacy's Program

Clinical Pharmacy's Program's Graduates Attributes	Program Mission			Program aims				
	Preparing qualified pharmacists with the latest pharmaceutical and medical concepts who can contribute to the therapeutic efficiency system at the local and regional levels through dealing with the health team in hospitals.	Providing pharmaceutical services at a professional level of skill in public and private pharmacies, pharmaceutical companies, and drug control and food analysis laboratories.	Working in the field of media and pharmaceutical marketing and actively participating in scientific research through research centers and universities to serve the community.	Focusing on the role of the pharmacist in providing appropriate health care to the patient inside and outside hospitals by following up on his medication regimen, studying the principles of clinical pharmacokinetics and their applications in treatment in various pathological conditions, and finding appropriate therapeutic systems in cooperation with the treating physician, which results in improving health care for patients and reducing risks and drug interactions.	Graduating a distinguished pharmacist qualified to work in public and private pharmacies, pharmaceutical companies, drug control and food analysis laboratories, and to work in the field of media, marketing, research.	Increasing the competitiveness of program graduates at the regional level through study and training programs.	Participating in community service, developing the environment, and providing a tangible economic return by rationalizing the use of medicines in hospitals.	Commitment to achieving quality standards in pharmaceutical education through interactive education, development of self-learning and lifelong learning.
2-1. Maintain a strong and well-defined scientific structure that encompasses fundamental, pharmaceutical, and clinical sciences.	●			●	●	●		
2-2. Possess the skills to conduct experiments, perform pharmaceutical calculations, and prepare pharmaceutical formulations.	●	●		●	●	●		●
2-3. Develop the entrepreneurial acumen to establish and manage successful private pharmaceutical projects, including the creation and operation of private pharmacies, drug stores, and the construction and management of pharmaceutical manufacturing facilities that meet international quality and safety standards.	●	●		●	●		●	
2-4. Possess the skills to analyze raw materials and supervise quality control processes within public and private laboratories.	●	●	●		●	●		

2-5. Possesses extensive scientific, practical, and research experience, making them well-suited for roles within the pharmaceutical industry, including positions in drug design, detection, and analysis laboratories.	●	●	●	●	●	●	●	
2-6. Be capable of providing patient-centered medication therapy, including appropriate drug selection and dosage determination, this includes advising patients on the proper use of medications, potential side effects, and any necessary precautions, taking into consideration the ethical and professional standards of the pharmacy profession and in collaboration with other healthcare providers.	●	●		●	●	●	●	
2-7. Be able to accurately interpret and dispense prescriptions, providing patients with clear and concise information on medication use, including dosages, side effects, and how the medication works, communicate effectively and professionally with patients, demonstrating a high level of empathy and building strong patient-pharmacist relationships.	●	●		●	●	●	●	
2-8. Have the scientific knowledge and practical experience necessary to pursue further education in any chosen specialization at top international universities.	●	●	●		●	●		●
2-9. Be qualified to work in various government sectors, including hospitals, health centers, drug control agencies, and medical inspection departments.	●	●	●	●	●		●	
2-10. Be proficient in utilizing books, references, electronic resources, and technology to conduct research and draw conclusions in their chosen field of specialization within the pharmaceutical, medical, and drug sciences.	●	●	●		●			●
2-11. Possess the medical and pharmaceutical knowledge, strong personal attributes, and dedication to academic excellence necessary to excel as an educator and researcher within various educational institutions.	●	●				●		●

Attachment 5

Coherence between competences and mission and aims of Clinical Pharmacy's

Competencies	Program Mission			Program aims				
	Preparing qualified pharmacists with the latest pharmaceutical and medical concepts who can contribute to the therapeutic efficiency system at the local and regional levels through dealing with the health team in	Providing pharmaceutical services at a professional level of skill in public and private pharmacies, pharmaceutical companies, and drug control and food analysis laboratories.	Working in the field of media and pharmaceutical marketing and actively participating in scientific research through research centers and universities to serve the community.	Focusing on the role of the pharmacist in providing appropriate health care to the patient inside and outside hospitals by following up on his medication regimen, studying the principles of clinical pharmacokinetics and their applications in treatment in various pathological conditions, and finding appropriate therapeutic systems in cooperation with the treating physician, which results in improving health care for patients and reducing	Graduating a distinguished pharmacist qualified to work in public and private pharmacies, pharmaceutical companies, drug control and food analysis laboratories, and to work in the field of media, marketing, research.	Increasing the competitiveness of program graduates at the regional level through study and training programs.	Participating in community service, developing the environment, and providing a tangible economic return by rationalizing the use of medicines in hospitals.	Commitment to achieving quality standards in pharmaceutical education through interactive education , development of self-learning and lifelong learning.
1-1. Integrate core knowledge and skills from biomedical, pharmaceutical, clinical, social-behavioral, and administrative sciences to: evaluate and manufacture effective healthcare products, solve therapeutic problems and improve patient outcomes, advance human health through research and innovation and deliver patient-centered care.	●	●	●	●	●	●		
2-1. Collaborate professionally with patients and inter-professional teams to achieve safe, effective, and efficient healthcare outcomes that meet the needs of the community and society.	●	●	●	●	●		●	
2-2. Ensure the standardization of pharmaceutical raw materials to facilitate the production of high-quality pharmaceutical products. Contribute to the efficient management of pharmaceutical resources, promoting	●	●	●	●	●	●	●	●

sustainability and responsible stewardship. **2-3. Integrate approved policies, procedures, and activities into quality assurance systems to support the safe handling, transfer, and disposal of biological and synthetic/natural pharmaceutical materials/products.**								
2-4. Demonstrate effective inter-professional collaboration by actively participating in decision-making within the healthcare team to assess and manage patients in emergency situations, including xenobiotic poisoning. Further, cooperate effectively in forensic investigations.	●	●	●	●	●	●	●	
2-5. Play an active role in advancing pharmaceutical research and contributing to the successful completion of clinical trial phases necessary for the approval of novel medicinal agents.	●	●	●	●	●		●	
2-6. Enhance professional development by conducting pharmacoeconomic studies and developing innovative skills in promotion, sales, marketing, and business administration.	●	●	●		●	●	●	●
3-1. Utilize patient and population health records to gather evidence-based information that supports the advancement of population health and the overall healthcare system.	●	●	●	●	●	●	●	●
3-2. Empower patients and the community by providing education and counseling to support informed healthcare decision-making.	●	●		●	●		●	
4-1. Develop and effectively utilize leadership, time management, self-directed learning, self-reflection, teamwork, problem-solving, creativity, and entrepreneurial skills to achieve success in their professional career.	●	●	●	●	●		●	●

4-2. Maintain professional communication standards by demonstrating appropriate verbal and non-verbal communication skills, including active listening and proficiency in written communication, when interacting with individuals and communities.	●	●	●	●	●	●	●	●
4-3. Demonstrate self-awareness and commit to lifelong learning and continuous professional development to adapt to the ever-evolving healthcare landscape.	●	●	●	●	●	●	●	●

Attachment 6

Coherence between Clinical Pharmacy's Program's Graduates Attributes to NARS's Graduate Attributes

NARS Graduate Attributes	Clinical Pharmacy's Program's Graduates Attributes											
	Maintain a strong and well-defined scientific structure that encompasses fundamental, pharmaceutical, and clinical sciences.	Possess the skills to conduct experiments, perform pharmaceutical calculations, and prepare pharmaceutical formulations.	Develop the entrepreneurial acumen to establish and manage successful private pharmaceutical projects, including the creation and operation of private pharmacies, drug stores, and the construction and management of pharmaceutical manufacturing facilities that meet international	Possess the skills to analyze raw materials and supervise quality control processes within public and private laboratories.	Possesses extensive scientific, practical, and research experience, making them well-suited for roles within the pharmaceutical industry, including positions in drug design, detection, and analysis laboratories.	Be capable of providing patient-centered medication therapy, including appropriate drug selection and dosage determination, this includes advising patients on the proper use of medications, potential side effects, and any necessary precautions, taking into consideration the ethical and professional standards of the pharmacy profession and in	Be able to accurately interpret and dispense prescriptions, providing patients with clear and concise information on medication use, including dosages, side effects, and how the medication works, communicate effectively and professionally with patients, demonstrating a high level of empathy and building strong patient-pharmacist relationships.	Have the scientific knowledge and practical experience necessary to pursue further education in any chosen specialization at top international universities	Be qualified to work in various government sectors, including hospitals, health centers, drug control agencies, and medical inspection departments	Be proficient in utilizing books, references, electronic resources, and technology to conduct research and draw conclusions in their chosen field of specialization within the pharmaceutical, medical, and drug sciences.	Possess the medical and pharmaceutical knowledge, strong personal attributes, and dedication to academic excellence necessary to excel as an educator and researcher within various educational institutions.
1. Educate and counsel individuals and communities to participate in optimizing therapeutic outcomes and minimizing the incidence of illness of individuals and populations			●			●	●	●	●		
2. Practice and perform responsibilities and authorities legally, professionally, and ethically respecting patients8' rights.			●	●	●	●	●	●	●		●
3. Utilize evidence-based data to deliver contemporary pharmaceutical products and pharmacy services.	●	●	●	●		●		●	●		
4. Assure the quality of pharmaceutical materials and products.		●		●							

5. Apply integrated evidence-based pharmaceutical and clinical information in assessing the appropriateness, effectiveness, and safety of medications	●	●	●	●		●	●	●	●	●	
6. Contribute effectively in planning and conducting research using appropriate Methodologies.		●		●				●		●	●
7. Work collaboratively and share therapeutic decision making as a member of an interprofessional health care team.	●	●	●	●	●	●		●	●		
8. Demonstrate effective communication, leadership, business administration, and entrepreneurial skills		●	●	●	●	●	●	●			●
9. Work as a life-long learner for continuous professional Improvement and demonstrate capabilities of performance appraisal and self-assessment.	●				●					●	●

Attachment 7

Matrix of Comparison of Clinical Pharmacy-Minia University's Program key elements with NARS's key elements

NARS's key elements	Clinical Pharmacy Program's key elements
DOMAIN 1- FUNDAMENTAL KNOWLEDGE	
1. COMPETENCY	**1. COMPETENCY**
1-1. Integrate knowledge from basic and applied pharmaceutical and clinical sciences to standardize materials, formulate and manufacture products, and deliver population and patient-centered care	**1-1. Integrate core knowledge and skills from biomedical, pharmaceutical, clinical, social-behavioral, and administrative sciences to: evaluate and manufacture effective healthcare products, solve therapeutic problems and improve patient outcomes, advance human health through research and innovation and deliver patient-centered care.**
KEY ELEMENTS	**KEY ELEMENTS**
1-1-1. Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	**1-1-1. Possess a deep and broad understanding 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.	**1-1-2. Communicate effectively in pharmacy practice by accurately using pharmaceutical and medical terminology, abbreviations, and symbols, including the recall of scientific drug names.**
1-1-3. Integrate knowledge from fundamental sciences to handle, identify, extract, design, prepare, analyze, and assure quality of synthetic/natural pharmaceutical materials/products.	**1-1-3. Integrate fundamental scientific principles to effectively handle, identify, extract, design, prepare, analyze, ensure the quality and safety pharmaceutical raw materials and final products (both synthetic and natural).**
1-1-4. Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	**1-1-4. Apply knowledge from fundamental sciences to explain drug mechanisms of action, predict therapeutic effects, and evaluate their appropriateness, effectiveness, and safety in individuals and populations.**

1-1-5. Retrieve information from fundamental sciences to solve therapeutic problems.	**1-1-5. Integrate the principles and practices of fundamental sciences, with a critical understanding, to improve human health and the healthcare system.**
1-1-6. Utilize scientific literature, and collect and interpret information to enhance professional decision.	**1-1-6. Demonstrate strong information literacy skills by accessing, retrieving, critically evaluating, and applying relevant scientific resources to make informed professional decisions.**
1-1-7. Identify and critically analyze newly emerging issues influencing pharmaceutical industry and patient health care.	**1-1-7. Gather and critically appraise new information, including evidence-based research, and apply it to improve pharmaceutical practices and patient outcomes.**
	1-1-8. Utilize health informatics to achieve improved patient safety, enhanced quality of care, and optimized resource allocation.
	1-1-9. Perform a range of pharmaceutical calculations, encompassing compounding, patient-specific dosing, pharmacokinetic principles, and other relevant therapeutic calculations.
	1-1-10. Describe the therapeutic applications of various pharmacological agents in the management of gastrointestinal, cardiovascular, respiratory, dermatological, pediatric, oncology, and critical care conditions.
DOMAIN 2: PROFESSIONAL AND ETHICAL PRACTICE	
2-1- COMPETENCY	**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.	**Collaborate professionally with patients and inter-professional teams to achieve safe, effective, and efficient healthcare outcomes that meet the needs of the community and society.**
KEY ELEMENTS	**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.	**2-1-1. Ensure compliance with all relevant legal and professional requirements, including legislation, policies, by-laws, and standards, for both individual practitioners and the healthcare team.**
2-1-2. Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	**2-1-2. Demonstrate ethical conduct in all professional activities, prioritizing patient privacy, confidentiality, and respect for population 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.	**2-1-3. Maintain appropriate professional boundaries and demonstrate responsibility and accountability within the healthcare team.**
	2-1-4- Affirm that ethical pharmaceutical practice prioritizes the provision of high-quality patient care above maximizing profits, demonstrating a commitment to ethical business practices.
2-2- COMPETENCY	**2-2- COMPETENCY**
Standardize pharmaceutical materials, formulate and manufacture pharmaceutical products, and participate in systems for dispensing, storage, and distribution of medicines.	**Ensure the standardization of pharmaceutical raw materials to facilitate the production of high-quality pharmaceutical products. Contribute to the efficient management of pharmaceutical resources, promoting sustainability and responsible stewardship.**
KEY ELEMENTS	**KEY ELEMENTS**
2-2-1. Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/natural pharmaceutical materials.	**2-2-1. Characterize pharmaceutical materials from diverse sources through identification, design, preparation, purification, standardization, and quantification.**
2-2-2. Apply the basic requirements of quality management system in developing, manufacturing, analyzing, storing, and distributing pharmaceutical materials/ products considering various incompatibilities.	**2-2-2. Adhere to GMP guidelines, including principles of quality control, inventory management, distribution, and legal responsibility, to ensure compliance with regulatory requirements for pharmaceutical materials and products of various origins, while considering potential 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.	**2-2-3. Demonstrate proficiency in utilizing a range of instruments and simulation software, coupled with in-depth knowledge, to design synthetic and analytical processes for raw materials and finished pharmaceutical products.**
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.	**2-2-4. Integrate quality control and assurance principles, statistical analysis, bioinformatics, and thorough assessment procedures into the development of pharmaceutical formulations, including novel drug delivery systems. This approach should prioritize innovation and prepare for future advancements in pharmacy practice.**
	2-2-5. Demonstrate professional competency in the preparation and compounding of non-sterile and sterile products, including other extemporaneous preparations, following recognized guidelines and standards of practice.
2-3- COMPETENCY	**2-3- COMPETENCY**
Handle and dispose biological and synthetic/natural pharmaceutical materials/products effectively and safely with respect to relevant laws and legislations.	**Integrate approved policies, procedures, and activities into quality assurance systems to support the safe handling, transfer, and disposal of biological and synthetic/natural pharmaceutical materials/products.**
KEY ELEMENTS	**KEY ELEMENTS**
2-3-1. Handle, identify, and dispose biological, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field.	**2-3-1. Implement appropriate methods, procedures, and resource utilization for the safe handling and disposal of synthetic/natural materials, biological, radioactive, and biotechnology-based items used in pharmacy.**
2-3-2. Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biological, and pharmaceutical materials/products.	**2-3-2. Ensure adherence to high ethical, legal, and safety standards while implementing best practices for the management of biological and pharmaceutical materials/ products.**
	2-3-3. Establish comprehensive procedures to ensure the safe and compliant return or disposal of recalled, expired, and

	unusable pharmaceutical products in accordance with all relevant regulations.
2-4- COMPETENCY	**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.	**Demonstrate effective inter-professional collaboration by actively participating in decision-making within the healthcare team to assess and manage patients in emergency situations, including xenobiotic poisoning. Further, cooperate effectively in forensic investigations.**
KEY ELEMENTS	**KEY ELEMENTS**
2-4-1. Ensure safe handling/use of poisons to avoid their harm to individuals and communities.	**2-4-1. Select and implement proper procedures for handling and applying poisons to minimize the risk of harm to the public.**
2-4-2. Demonstrate understanding of the first aid measures needed to save patient's life.	**2-4-2. Be prepared to provide basic first aid assistance in the event of a medical emergency in the pharmacy.**
2-4-3. Take actions to solve any identified medicine related and pharmaceutical care problems.	**2-4-3. Develop individualized pharmaceutical care plans for patients with various disorders, considering their unique health problems and specific needs.**
2-4-4. Assess toxicity profiles of different xenobiotics and detect poisons in biological specimens.	**2-4-4. Contribute to public health by evaluating the toxicity profiles of chemicals and other xenobiotics, and conducting investigations into the presence of poisons in biological samples.**
	2-4-5. Prioritize patient safety by identifying situations that require the expertise of other healthcare professionals and taking appropriate action, such as referring patients for further evaluation or treatment.
	2-4-6. Possess the knowledge and ability to apply essential principles of physical assessment in life-threatening situations to save patients' lives.
	2-4-7. Assess the effectiveness of both pharmacological and non-pharmacological systemic approaches in managing

	disorders affecting various body organs, with a focus on individualized patient care that considers specific health concerns.
2-5- COMPETENCY	**2-5- COMPETENCY**
Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.	**Play an active role in advancing pharmaceutical research and contributing to the successful completion of clinical trial phases necessary for the approval of novel medicinal agents.**
KEY ELEMENTS	**KEY ELEMENTS**
2-5-1. Fulfill the requirements of the regulatory framework to authorize a medicinal product including quality, safety, and efficacy requirements.	**2-5-1. Apply sound regulatory science principles to integrate regulatory strategies into the development of emerging medicinal products to ensure successful authorization in accordance with national and international specifications.**
2-5-2. Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession.	**2-5-2. Gather, analyze, and evaluate relevant, evidence-based information to comprehensively understand a patient's healthcare needs.**
2-5-3. Contribute in planning and conducting research studies using appropriate methodologies.	**2-5-3. Integrate scientific principles and scholarly investigation with critical thinking skills to systematically search for and evaluate the best available evidence.**
	2-5-4. Apply sound research methodology to plan and design various types of clinical studies that optimize the procedures for conducting experimental drug research in hospitals and diverse healthcare settings.
2-6- COMPETENCY	**2-6- COMPETENCY**
Perform pharmacoeconomic analysis and develop promotion, sales, marketing, and business administration skills.	**Enhance professional development by conducting pharmacoeconomic studies and developing innovative skills in promotion, sales, marketing, and business administration.**
KEY ELEMENTS	**KEY ELEMENTS**

2-6-1. Apply the principles of business administration and management to ensure rational use of financial and human resources.	**2-6-1. Integrate principles of financial management, human resource management, and business administration to ensure the successful operation and growth of a pharmacy.**
2-6-2. Utilize the principles of drug promotion, sales, marketing, accounting, and pharmacoeconomic analysis.	**2-6-2. Develop and implement effective strategies in drug promotion, sales, and marketing, while effectively utilizing the outcomes of pharmacoeconomic analyses in business decision-making.**
	2-6-3. Utilize pharmacoeconomic principles to optimize drug utilization and ensure the achievement of desired therapeutic outcomes, promoting value-based healthcare.
DOMAIN 3: PHARMACEUTICAL CARE	
3-1- COMPETENCY	**3-1- COMPETENCY**
Apply the principles of body functions to participate in improving health care services using evidence-based data.	**Utilize patient and population health records to gather evidence-based information that supports the advancement of population health and the overall healthcare system.**
KEY ELEMENTS	**KEY ELEMENTS**
3-1-1. Apply the principles of body function and basis of genomics in health and disease states to manage different diseases.	**3-1-1. Adjust medication dosages for individual patients based on physiological, genetic, biochemical, and immunological changes resulting from disease or concomitant drug therapy.**
3-1-2. Apply the principles of public health and pharmaceutical microbiology to select and assess proper methods of infection control.	**3-1-2. Integrate principles of public health and microbiology to identify and mitigate risks associated with microbial contamination.**
3-1-3. Monitor and control microbial growth and carry out laboratory tests for identification of infections/diseases.	**3-1-3. Perform laboratory tests to identify infections and diseases, monitor microbial growth, and maintain detailed records of all diagnostic procedures.**
3-1-4. Relate etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of	**3-1-4. Employ a public health approach by utilizing knowledge of etiology, epidemiology, pathogenesis,**

infections/diseases and their pharmacotherapeutic approaches.	**laboratory diagnosis, and clinical features to suggest effective preventive strategies for various infections and diseases.**
3-2- COMPETENCY	**3-2- COMPETENCY**
Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	**Empower patients and the community by providing education and counseling to support informed healthcare decision-making.**
KEY ELEMENTS	**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.	**3-2-1. Integrate principles of medicinal chemistry and pharmacology, such as drug mechanisms of action, therapeutic uses, appropriate dosing, adverse effects, and drug-drug interactions, to enhance clinical decision-making.**
3-2-2. Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	**3-2-2. Utilize principles of clinical pharmacology and pharmacovigilance, along with necessary technical skills, to optimize medication use and ensure the safe and effective use of medical devices.**
3-2-3. Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals.	**3-2-3. Consider the best available evidence when advising patients on the use of non-conventional therapies, ensuring patient-centered care.**
3-2-4. Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	**3-2-4. Provide patients with appropriate information about the potential adverse effects and toxicity of medicinal agents and other xenobiotics, including their sources, signs, symptoms, and available treatment options, to enhance patient safety.**
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.	**3-2-5. Promote safe and cost-effective medication use by providing education and counseling to patients, healthcare professionals, and communities.**
3-2-6. Maintain public awareness on social health hazards of drug misuse and abuse.	**3-2-6. Engage the public in efforts to promote the rational use of drugs, increase vaccination rates, prevent drug abuse and misuse, and ensure the safe handling of hazardous products**

	to minimize personal exposure and reduce environmental contamination.
	3-2-7. Identify and accurately document medication incidents and adverse drug events. Respond effectively to mitigate harm and utilize this information to improve medication safety systems and prevent future occurrences.
DOMAIN 4: PERSONAL PRACTICE	
4-1- COMPETENCY	**4-1- COMPETENCY**
Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	**Develop and effectively utilize leadership, time management, self-directed learning, self-reflection, teamwork, problem-solving, creativity, and entrepreneurial skills to achieve success in their professional career.**
KEY ELEMENTS	**KEY ELEMENTS**
4-1-1. Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	**4-1-1. Promote inter-professional collaboration by sharing decision-making responsibilities with other pharmacy team members and colleagues from other departments, while effectively managing time and resources.**
4-1-2. Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	**4-1-2. Drive innovation in pharmacy practice by contributing to the creation of new knowledge and practices, while effectively participating in both independent and collaborative healthcare service delivery.**
4-1-3. Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	**4-1-3. Enhance professional growth by participating in the development of entrepreneurial, creative, and marketing skills.**
	4-1-4. Develop strategic solutions to address pharmaceutical needs within the workplace.
4-2- COMPETENCY	**4-2- COMPETENCY**
Effectively communicate verbally, non-verbally and in writing with individuals and communities.	**Maintain professional communication standards by demonstrating appropriate verbal and non-verbal communication skills, including active listening and**

	proficiency in written communication, when interacting with individuals and communities.
KEY ELEMENTS	**KEY ELEMENTS**
4-2-1. Demonstrate effective communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	**4-2-1. Communicate effectively with patients, other healthcare professionals, and community members by utilizing clear language, appropriate pacing and tone, effective non-verbal communication, and strong writing skills.**
4-2-2. Use contemporary technologies and media to demonstrate effective presentation skills.	**4-2-2. Utilize artificial intelligence technologies to enhance efficiency and innovation in the presentation of relevant information.**
4-3- COMPETENCY	**4-3- COMPETENCY**
Express self-awareness and be a life-long learner for continuous profession improvement.	**Demonstrate self-awareness and commit to lifelong learning and continuous professional development to adapt to the ever-evolving healthcare landscape.**
KEY ELEMENTS	**KEY ELEMENTS**
4-3-1. Perform self-assessment to enhance professional and personal competencies.	**4-3-1. Develop and implement effective strategies for continuous improvement in personal pharmacy practice.**
4-3-2. Practice independent learning needed for continuous professional development.	**4-3-2. Embrace lifelong learning by assessing personal learning needs and developing a plan to meet these needs through continuous professional development activities.**

Attachment 8

Matrix of Academic References Standards (Program key elements) with Courses

Course name	Course code	DOMAIN 1- FUNDMENTAL KNOWLEDGE										DOMAIN 2- PROFESSIONAL AND ETHICAL PRACTICE																		
		(1-1)										(2-1)				(2-2)					(2-3)			(2-4)						
		1-1-1.	1-1-2.	1-1-3.	1-1-4.	1-1-5.	1-1-6.	1-1-7.	1-1-8.	1-1-9.	1-1-10.	2-1-1.	2-1-2.	2-1-3.	2-1-4.	2-2-1.	2-2-2.	2-2-3.	2-2-4.	2-2-5.	2-3-1.	2-3-2.	2-3-3.	2-4-1.	2-4-2.	2-4-3.	2-4-4.	2-4-5.	2-4-6.	2-4-7.
Pharmaceutical Analytical Chemistry I	PA 101	●	●	●												●					●									
Pharmaceutical Organic Chemistry I	PC 101	●	●	●														●			●									
Medicinal Plants	PG 101			●												●					●									
Pharmacy Orientation	PT 101	●																		●										
Medical Terminology	PO 101		●										●	●																
Mathematics	MS 101	●																												
Information Technology	UR 101					●												●												
Human Rights and Fighting Corruption	UR 102	●											●																	
Pharmaceutical Analytical Chemistry II	PA 202	●	●	●												●		●												
Pharmaceutical Organic Chemistry II	PC 202	●	●	●														●			●									
Pharmacognosy I	PG 202	●		●												●		●												
Cell Biology	PB 201	●									●											●	●							

Anatomy and Histology	**MD201**	●																												
Physical Pharmacy	**PT 202**	●	●																											
Psychology	**UR 203**	●																												
Instrumental Analysis	**PA 303**	●		●												●					●									
Pharmaceutical Organic Chemistry III	**PC 303**	●	●					●								●					●									
Pharmacognosy II	**PG 303**	●		●												●		●												
Biochemistry I	**PB 302**	●														●														
Pharmaceutical Dosage Forms I	**PT 303**									●										●										
Physiology and Pathophysiology	**MD302**	●																												
Scientific Writing and Communication Skills	**NP 301**		●																											
Pharmacology I	**PO 402**				●	●							●	●																
Phytochemistry I	**PG 404**			●												●					●									
General Microbiology and Immunology	**PM 401**	●				●																								
Pathology	**MD403**	●																												
Pharmaceutical Dosage Forms II	**PT 404**	●																												
Biochemistry II	**PB 403**	●														●		●												
Pharmaceutical Legislations and Practice Ethics	**PT 405**	●																												
Pharmacology II	**PO 503**				●		●																							●

Pharmaceutical Microbiology and Antimicrobials	**PM 502**	●																								●					
Pharmaceutical Dosage Forms III	**PT 506**	●																		●											
Phytochemistry II	**PG 505**			●																	●										
Community Pharmacy Practice	**PP 501**		●											●											●			●			
Pharmaceutical Technology	**PT 507**	●															●														
Medicinal Chemistry I	**PC 604**	●	●									●	●													●					
Pharmacology III	**PO 604**				●	●																						●		●	
Advanced Drug Delivery Systems	**PT 608**					●														●											
Medical Microbiology	**PM 603**	●																			●										
Hospital Pharmacy	**PP 602**	●																●				●									
Clinical Pharmacy Practice	**PP 603**	●																								●					
Parasitology and Virology	**PM 604**	●																													
Medicinal Chemistry II	**PC 705**	●	●								●															●					
Public Health and Preventive Medicine	**PM 705**	●			●											●															
Biopharmaceutics and Pharmacokinetics	**PT 709**					●												●													
Clinical Biochemistry	**PB 704**	●				●							●								●										
Quality Control of Pharmaceuticals	**PA 704**	●		●												●	●														
First Aid and Basic Life Support (BLS)	**PO 705**					●			●																	●			●		

Medicinal Chemistry III	**PC 806**	●						●																	●				
Clinical Nutrition	**PB 805**	●																							●				
Phytotherapy	**PG 806**	●													●	●													
Clinical Pharmacokinetics	**PP 804**	●			●					●															●				
Drug Interaction	**PO 806**				●																					●			
Pharmaceutical Biotechnology	**PM 806**	●		●														●											
Basic and Clinical Toxicology	**PO 907**				●	●							●	●															
Management of Neuropsychiatric Diseases	**PP 905**	●																							●		●		
Management of Respiratory Diseases	**PP 906**	●																											
Management of Oncological Diseases and Radiopharmacy	**PP 907**	●																							●		●		
Management of Endocrine and Renal Diseases	**PP 908**	●																											
Entrepreneurship	**NP 902**	●												●															
Marketing and Pharmacoeconomics	**NP 903**																												
Management of Dermatological, Reproductive and Musculoskeletal Diseases	**PP 009**	●									●														●		●		
Management of Critical Care Patients	**PP 010**				●										●														

Management of Pediatric Diseases	**PP 011**	●																													
Management of Cardiovascular Diseases	**PP 012**				●						●	●																●				
Management of Gastrointestinal Diseases	**PP 013**	●									●																	●				
Drug Information	**PP 014**						●		●																							
Clinical Research and Pharmacovigilance	**PP 015**	●						●																								
Quality Assurances and GMP	**PT E10**	●														●	●															
Applied Industrial Pharmacy	**PT E11**	●															●															
Cosmetic Preparations	**PT E12**								●											●												
Drug Stability	**PT E13**	●																														
Design of Dosage Forms Formulation	**PT E14**	●																														
Complementary and Alternative Medicine	**PG E07**	●																														
Production and Manufacture of Medicinal Plants	**PG E08**	●		●													●															
Chromatography and Separation Techniques	**PG E09**			●												●					●											
Marine Natural Products	**PG E10**			●												●					●											
Plant Tissue Culture	**PG E11**	●																														
Drug Design	**PC E07**	●	●									●																●				
Biological Standardization	**PO E08**			●																●												
Veterinary Pharmacology	**PO E09**	●			●		●									●				●												

Advanced Analytical Separation Techniques	**PA E05**		●	●																		●					●			
Antibiotic Stewardship	**PM E07**	●																												
Infection Control	**PM E08**	●																												
Bioinformatics	**PM E09**	●																												
Cancer and Genomic Disorders	**PB E06**	●																												
Geriatric Pharmacotherapy	**PP 013**							●				●							●											
Professional Pharmacy Ethics	**PP 014**	●										●	●		●															

Follow: Attachment 8

Matrix of Academic References Standards (Program key elements) with Courses

Course name	Course code	DOMAIN 2- PROFESSIONAL AND ETHICAL PRACTICE							DOMAIN 3: PHARMACEUTICAL CARE											DOMAIN 4: PERSONAL PRACTICE							
		(2-5)				(2-6)			(3-1)				(3-2)							(4-1)				(4-2)		(4-3)	
		2-5-1.	2-5-2.	2-5-3.	2-5-4.	2-6-1.	2-6-2.	2-6-3.	3-1-1.	3-1-2.	3-1-3.	3-1-4.	3-2-1.	3-2-2.	3-2-3.	3-2-4.	3-2-5.	3-2-6.	3-2-7.	4-1-1.	4-1-2.	4-1-3.	4-1-4.	4-2-1.	4-2-2.	4-3-1.	4-3-2.
Pharmaceutical Analytical Chemistry I	PA 101																			●	●						
Pharmaceutical Organic Chemistry I	PC 101			●																●							●
Medicinal Plants	PG 101														●										●		
Pharmacy Orientation	PT 101																●		●				●	●			
Medical Terminology	PO 101											●												●			
Mathematics	MS 101		●																								●
Information Technology	UR 101																								●		
Human Rights and Fighting Corruption	UR 102																					●					
Pharmaceutical Analytical Chemistry II	PA 202																			●	●						
Pharmaceutical Organic Chemistry II	PC 202			●																●							●
Pharmacognosy I	PG 202												●			●								●			
Cell Biology	PB 201									●						●										●	
Anatomy and Histology	MD201		●									●									●						

Physical Pharmacy	**PT 202**								●													●	●				
Psychology	**UR 203**		●																		●						
Instrumental Analysis	**PA 303**																		●						●		
Pharmaceutical Organic Chemistry III	**PC 303**			●															●								●
Pharmacognosy II	**PG 303**												●			●								●			
Biochemistry I	**PB 302**			●							●																●
Pharmaceutical Dosage Forms I	**PT 303**																●		●				●	●			
Physiology and Pathophysiology	**MD302**	●							●		●													●			
Scientific Writing and Communication Skills	**NP 301**	●									●							●		●	●						
Pharmacology I	**PO 402**								●				●											●		●	
Phytochemistry I	**PG 404**												●							●				●			
General Microbiology and Immunology	**PM 401**		●							●	●	●												●			
Pathology	**MD403**		●									●								●							
Pharmaceutical Dosage Forms II	**PT 404**		●														●		●				●	●			
Biochemistry II	**PB 403**		●								●								●								●
Pharmaceutical Legislations and Practice Ethics	**PT 405**	●															●		●				●	●			
Pharmacology II	**PO 503**												●						●	●			●	●			
Pharmaceutical Microbiology and Antimicrobials	**PM 502**									●								●			●				●		

Pharmaceutical Dosage Forms III	**PT 506**																●		●				●	●				
Phytochemistry II	**PG 505**												●			●				●								
Community Pharmacy Practice	**PP 501**																●	●		●				●				
Pharmaceutical Technology	**PT 507**																●		●				●					
Medicinal Chemistry I	**PC 604**								●	●										●	●							
Pharmacology III	**PO 604**												●	●						●				●				
Advanced Drug Delivery Systems	**PT 608**																●		●				●	●				
Medical Microbiology	**PM 603**									●	●														●			
Hospital Pharmacy	**PP 602**														●		●			●								
Clinical Pharmacy Practice	**PP 603**								●						●									●				
Parasitology and Virology	**PM 604**		●							●	●	●												●				
Medicinal Chemistry II	**PC 705**												●				●			●	●							
Public Health and Preventive Medicine	**PM 705**								●	●															●			
Biopharmaceutics and Pharmacokinetics	**PT 709**												●						●				●	●				
Clinical Biochemistry	**PB 704**									●	●													●		●		
Quality Control of Pharmaceuticals	**PA 704**																			●						●		
First Aid and Basic Life Support (BLS)	**PO 705**														●	●				●				●				
Medicinal Chemistry III	**PC 806**												●				●	●		●								●
Clinical Nutrition	**PB 805**									●						●								●				

Phytotherapy	**PG 806**								●							●					●						
Clinical Pharmacokinetics	**PP 804**								●														●				●
Drug Interaction	**PO 806**		●										●						●		●			●			
Pharmaceutical Biotechnology	**PM 806**				●						●													●			
Basic and Clinical Toxicology	**PO 907**															●			●					●		●	
Management of Neuropsychiatric Diseases	**PP 905**												●			●				●				●			
Management of Respiratory Diseases	**PP 906**		●							●	●	●												●			
Management of Oncological Diseases and Radiopharmacy	**PP 907**												●			●				●				●			
Management of Endocrine and Renal Diseases	**PP 908**		●							●	●	●												●			
Entrepreneurship	**NP 902**																●	●				●		●			
Marketing and Pharmacoeconomics	**NP 903**					●	●	●														●					
Management of Dermatological, Reproductive and Musculoskeletal Diseases	**PP 009**												●			●				●				●			
Management of Critical Care Patients	**PP 010**								●			●		●										●			
Management of Pediatric Diseases	**PP 011**		●							●	●	●												●			
Management of Cardiovascular Diseases	**PP 012**												●	●						●							●
Management of Gastrointestinal Diseases	**PP 013**		●														●			●				●			

Drug Information	**PP 014**		●	●												●			●					●			●
Clinical Research and Pharmacovigilance	**PP 015**			●	●									●					●		●				●		
Quality Assurances and GMP	**PT E10**																			●							
Applied Industrial Pharmacy	**PT E11**																●		●				●		●		
Cosmetic Preparations	**PT E12**																●		●		●					●	
Drug Stability	**PT E13**		●														●		●	●				●			
Design of Dosage Forms Formulation	**PT E14**		●														●		●				●	●			
Complementary and Alternative Medicine	**PG E07**		●							●														●			
Production and Manufacture of Medicinal Plants	**PG E08**															●	●			●	●						
Chromatography and Separation Techniques	**PG E09**												●							●				●			
Marine Natural Products	**PG E10**												●						●					●			
Plant Tissue Culture	**PG E11**			●																	●						
Drug Design	**PC E07**			●																●					●		
Biological Standardization	**PO E08**		●										●								●						●
Veterinary Pharmacology	**PO E09**		●							●			●											●			
Advanced Analytical Separation Techniques	**PA E05**																					●					●
Antibiotic Stewardship	**PM E07**		●													●		●			●				●		
Infection Control	**PM E08**		●							●		●									●				●		
Bioinformatics	**PM E09**		●							●		●													●		
Cancer and Genomic Disorders	**PB E06**		●							●	●				●									●			

Geriatric Pharmacotherapy	**PP 013**								●										●							
Professional Pharmacy Ethics	**PP 014**																●		●	●						

Attachment 9

Matrix of the coherence between learning and teaching methods, and the Program key-elements

Teaching and learning methods	DOMAIN 1- FUNDMENTAL KNOWLEDGE										DOMAIN 2- PROFESSIONAL AND ETHICAL PRACTICE																		
	(1-1)										(2-1)				(2-2)					(2-3)			(2-4)						
	1-1-1.	1-1-2.	1-1-3.	1-1-4.	1-1-5.	1-1-6.	1-1-7.	1-1-8.	1-1-9.	1-1-10.	2-1-1.	2-1-2.	2-1-3.	2-1-4.	2-2-1.	2-2-2.	2-2-3.	2-2-4.	2-2-5.	2-3-1.	2-3-2.	2-3-3.	2-4-1.	2-4-2.	2-4-3.	2-4-4.	2-4-5.	2-4-6.	2-4-7.
Lecture.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Self-learning.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Computer aided learning.			●	●													●												
Problem-based learning.									●									●	●										
Case study					●	●				●															●		●		●
Presentation.																													
Practical work and tutorials.			●	●	●			●	●						●	●	●	●	●	●	●		●	●	●	●	●	●	●
Hybrid learning.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Collaborative learning.		●																											
Simulation based learning.			●																										
Assignments and activities.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Research projects.																													

Follow: Attachment 9

Matrix of the coherence between learning and teaching methods, and the Program key-elements

Teaching and learning methods	DOMAIN 2- PROFESSIONAL AND ETHICAL PRACTICE							DOMAIN 3: PHARMACEUTICAL CARE											DOMAIN 4: PERSONAL PRACTICE							
	(2-5)				(2-6)			(3-1)				(3-2)							(4-1)				(4-2)		(4-3)	
	2-5-1.	2-5-2.	2-5-3.	2-5-4.	2-6-1.	2-6-2.	2-6-3.	3-1-1.	3-1-2.	3-1-3.	3-1-4.	3-2-1.	3-2-2.	3-2-3.	3-2-4.	3-2-5.	3-2-6.	3-2-7.	4-1-1.	4-1-2.	4-1-3.	4-1-4.	4-2-1.	4-2-2.	4-3-1.	4-3-2.
Lecture.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
Self-learning.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		●						●
Computer aided learning.		●	●																					●		
Problem-based learning.								●												●	●					
Case study								●	●		●				●	●	●	●	●								
Presentation.					●	●													●	●	●	●	●	●	●	●
Practical work and tutorials.	●	●	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●	●	
Hybrid learning.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
Collaborative learning.																			●	●		●				
Simulation based learning.				●																				●		
Assignments and activities.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●								
Research projects.																			●	●	●	●	●	●	●	●

Attachment 10

Matrix of the coherence between assessment methods and the Program key-elements

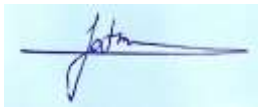
Assessment methods	DOMAIN 1- FUNDMENTAL KNOWLEDGE										DOMAIN 2- PROFESSIONAL AND ETHICAL PRACTICE																		
	(1-1)										(2-1)				(2-2)					(2-3)			(2-4)						
	1-1-1.	1-1-2.	1-1-3.	1-1-4.	1-1-5.	1-1-6.	1-1-7.	1-1-8.	1-1-9.	1-1-10.	2-1-1.	2-1-2.	2-1-3.	2-1-4.	2-2-1.	2-2-2.	2-2-3.	2-2-4.	2-2-5.	2-3-1.	2-3-2.	2-3-3.	2-4-1.	2-4-2.	2-4-3.	2-4-4.	2-4-5.	2-4-6.	2-4-7.
Practical Exam	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Practical Exam			●	●	●			●	●						●	●	●	●	●	●	●		●	●	●	●	●	●	●
Written (Final) exam	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Oral exam	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Follow: Attachment 10

Matrix of the coherence between assessment methods and the Program key-elements

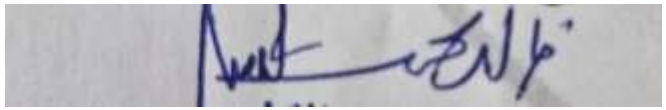
Assessment methods	DOMAIN 2- PROFESSIONAL AND ETHICAL PRACTICE							DOMAIN 3: PHARMACEUTICAL CARE											DOMAIN 4: PERSONAL PRACTICE							
	(2-5)				(2-6)			(3-1)				(3-2)							(4-1)				(4-2)		(4-3)	
	2-5-1.	2-5-2.	2-5-3.	2-5-4.	2-6-1.	2-6-2.	2-6-3.	3-1-1.	3-1-2.	3-1-3.	3-1-4.	3-2-1.	3-2-2.	3-2-3.	3-2-4.	3-2-5.	3-2-6.	3-2-7.	4-1-1.	4-1-2.	4-1-3.	4-1-4.	4-2-1.	4-2-2.	4-3-1.	4-3-2.
Practical Exam	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Practical Exam	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Written (Final) exam	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•								
Oral exam	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

Fatma Mohamed Mady



Program Coordinator

Khalid Mohammed Badr Eldeen



Vice Dean for Education and Student Affairs