Faculty of Pharmacy

Program Specification

Bachelor of Pharmacy

(Pharm D)

(2019/ 2020)

Specifications of Bachelor of Pharmacy Program (Pharm D)

A. Basic Information:

1. **Program Title:** Bachelor of Pharmacy (Pharm D).
2. **Program Type:** Single, credit hour system
3. **Faculty / University:** Faculty of Pharmacy, Zagazig University.
4. **Department (s):**

a) Departments affiliated to faculty of pharmacy

- Department of Pharmaceutical Analytical Chemistry
- Department of Biochemistry
- Department of Pharmaceutics
- Department of Medicinal Chemistry
- Department of Microbiology & Immunology
- Department of Pharmaceutical Organic Chemistry
- Department of Pharmacognosy
- Department of Pharmacology & Toxicology
- Department of Pharmacy Practice

b) Departments not affiliated to faculty of pharmacy:

- Histology and Anatomy departments (Faculty of Medicine)
- Mathematics department (Faculty of science)
- IT department (Faculty of Engineering)
- English Language department (Faculty of Education)
- Psychology department (Faculty of Education)

5. Coordinator:

-Prof.Amal ElGendi: Vice dean for education and students affairs

6. Date of Program specifications approval:

- Date of Program specifications approval: faculty council No 747 (13/4/2020)

N.B.: This program specification was articulated according to NARs for pharmacy education, 2017.

7. Internal & External Evaluator:

Internal evaluator: Prof. Asem ElShazly, Pharmacognosy department, Faculty of Pharmacy, Zagazig University (Reviewer in National Authority for Quality Assurance and Accreditation of Education, NAQAAE)

Internal evaluator: Prof.Sahar El.Swefey, Biochemistry department, Faculty of Pharmacy, Zagazig University (Reviewer in National Authority for Quality Assurance and Accreditation of Education, NAQAAE)

External evaluator: Prof. Evan Ibrahim Saad, Pharmacology department, Alexandria University (Reviewer in National Authority for Quality Assurance and Accreditation of Education, NAQAAE)

B. Professional Information:

1.Program Aim:

The program aims at preparing distinguished and qualified pharmacy graduates able to work in hospital and community pharmacies, pharmaceutical industries and companies, quality control laboratories and drug marketing as well as food analysis, promotion, research centers and universities.

2.Graduates Attributes:

a. Provide evidence-based information to patients, other health-care professionals and the public to promote public health and prevent disease.
b. Comply with pharmacy professional obligations, guidelines and legislations.
c. Demonstrate respect of patients rights.

d. Use appropriate evidence base relating to the safe, rational and cost-effective use of medicines.
e. Perform various qualitative and quantitative analytical methods to assure the quality of raw materials and pharmaceutical products.
f. Use evidence-based, unbiased and comprehensive information about therapeutics and medicines in assessing the appropriateness, effectiveness, and safety of medications.
g. Apply the principles of scientific research.
h. Collaborate with other healthcare professionals regarding decisions about the use of medicines.
i. Apply knowledge, principles and skills of communication, leadership, business administration, and entrepreneurial skills.
j. Develop good presentation, marketing, numeric, statistics and information technology skills.
k. Demonstrate continuing professional development to improve clinical knowledge, skills and performance.

3.Competencies of the Pharmacy Graduates:

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.C1.1. Illustrate the principles of basic sciences: Organic and analytical chemistry; Biophysics; Biology; English language; Information technology and mathematics.

1.C1.2. Outline the principles of pharmaceutical sciences: Pharmacy orientation; Medical terminology; Physical pharmacy; Pharmaceutics; Pharmaceutical technology; Biopharmaceutics and pharmacokinetics;

Medicinal chemistry; Pharmacognosy; Pharmaceutical microbiology; Biotechnology & Molecular biology; Quality Control of Pharmaceuticals; Instrumental analysis; Raw materials; Drug design and Good manufacturing practice.

1.C1.3.Explain the principles of medical sciences: Anatomy; Histology; Physiology and pathophysiology; Biochemistry; Clinical biochemistry; Pharmacology; Clinical pharmacology; Pathology, Medical microbiology; General microbiology and immunology; Parasitology and virology.

1.C1.4. State the basics of social and behavioral sciences: Human Rights and Fighting of Corruption; Psychology; Scientific writing and communication skills.

1.C1.5. Outline the fundamentals of administrative sciences: Principles of quality assurance; Entrepreneurship; Marketing and pharmacoeconomics; Pharmaceutical legislation and professional ethics.

1.C1.6. List the principles of health and environmental sciences: Public Health and Preventive Medicine; Biostatistics; Basic and clinical toxicology; First Aid and Basic Life Support.

1.C1.7. State the principles of pharmacy practice & clinical sciences : Clinical pharmacokinetics; Hospital pharmacy; Clinical pharmacy and pharmacotherapeutics; Drug information; Community pharmacy practice, Phytotherapy and aromatherapy; Drug interaction; Clinical Research methodology & Pharmacovigilance.

1.C1.8. Use the proper pharmaceutical and medical terms and abbreviations and symbols in pharmacy practice.

1.C1.9. Implement pharmaceutical knowledge in proper handling, identification, extraction, design, preparation, analysis and quality assurance of different pharmaceuticals.

1.C1.10. Retrieve information to explain pharmacological properties of drugs including mechanism of drug action, adverse reactions, contraindications and drug-drug interactions.

1.C1.11. Apply core knowledge to meet patients' drug related needs and to achieve positive patient outcomes

1.C1.12. Evaluate the appropriateness of medicines for a given disease based on aetiology, possible interactions and patient-related factors.

1.C1.13. Apply functional knowledge while solving problems and making decisions during completion of their professional responsibilities.

1.C1.14. Maintain access to an appropriate evidence base relating to the safe, rational and cost-effective use of medicines such as reference books, journals, national essential medicines lists and standard treatment guidelines.

1.C1.15. Critically evaluate medication related information that affects patient health outcomes.

1.C1.16. Identify newly emerging issues related to pharmaceutical industry.

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.C1.1. Carry out duties as a pharmacist in a professional manner that complies with the ethical guidelines governing the profession.

2.C1.2. Maintain appropriate inter-professional relationships required to provide quality pharmacy care to individual patients.

2.C1.3. Recognize legislation relevant to their practice setting including health and safety law, employment law, consumer law, equality law and intellectual property rights.

2.C1.4. Treat others with sensitivity, empathy, respect and dignity

2.C1.5. Maintain patient confidentiality and respect patients' rights.

2.C1.6. Recognize patient diversity according to age and health literacy levels.

2.C1.7. Work with patients and other health care professionals to determine which treatments will best meet the patient's therapeutic needs

2.C1.8. Identify when patients' problems are beyond the scope of pharmacy practice and refer them as appropriate to other health care providers.

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.C2.1. Practice design, identification, synthesis, purification, isolation, analysis and standardization of synthetic and natural pharmaceutical materials.

2.C2.2. Apply proper methodologies for safe and effective formulation, compounding, production, packaging, labeling, storing, dispensing and distributing different pharmaceutical dosage forms with application of good manufacturing practice (GMP) principles.

2.C2.3. Solve problems concerning physical and chemical incompatibilities that may occur during drug manufacture and dispensing.

2.C2.4. Describe the principles of various instruments and analytical techniques.

2.C2.5. Select the appropriate methods for synthesis and analysis of different pharmaceuticals.

2.C2.6. Demonstrate the ability to perform biostatistical analysis and pharmaceutical calculations accurately.

2.C2.7.Apply principles of bio-informatics and computer-aided tools.

2.C2.8. Apply principles of pharmacokinetics and biopharmaceutics in dose calculation , selection of dosage regimen, bioequivalence studies as well as formulation of new, safe and effective drug delivery systems.

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.C3.1. Handle and dispose chemicals, solvents, biological specimens, natural wastes, biotechnology products, radiopharmaceuticals and other hazardous products in an appropriate way avoiding any environmental hazards.

2.C3.2. Apply GLP guidelines for safe handling and disposal of pharmaceutical materials and 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.C4.1. Advise patients and other health care professionals about the safe and effective use of medicines and poisons.

2.C4.2. Deal with First Aid emergencies.

2.C4.3. Identify and manage any drug related problems including adverse drug reactions, contraindications, allergies, drug-drug/drug-food interactions, medication errors, misuse or medicine abuse as well as defects in product quality.

2.C4.4. Assess the complete data profile about the toxic effects of several xenobiotic.

2.C4.5. Test for poisons in biological samples.

2-5- COMPETENCY

Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.

Key elements:

2.C5.1.Demonstrate an understanding of the requirements of the regulatory framework to authorise a medicinal product including the quality, safety and efficacy requirements.

2.C5.2. Gather information from a number of reliable sources needed to make well-founded decisions.

2.C5.3. Demonstrate the ability to make accurate, evidenced based and timely decisions in pharmacy profession.

2.C5.4. Demonstrate skills to initiate and practice research activities.

2.C5.5. Communicate research findings effectively.

2-6- COMPETENCY

Perform pharmacoeconomic analysis and develop promotion, sales, marketing, and business administration skills.

Key elements:

2.C6.1.Demonstrate an understanding of the principles of organisation and management.

2.C6.2.Identify human resources and staffing issues.

2.C6.3.Demonstrate the ability to effectively analyse and manage financial data and budgetary information.

2.C6.4. Recognize fundamentals of drug promotion, sales and marketing.

2.C6.5. Apply the principles of pharmacoeconomic assessment and medicines cost benefits 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.C1.1. Apply the principles of body function, basis of genomics and different biochemical pathways regarding their correlation with different diseases as well as their management.

3.C1.2. Suggest the appropriate methods for infection control & public health promotion.

3.C1.3.Perform microscopical, biochemical and serological laboratory tests to diagnose infectious and non infectious diseases.

3.C1.4. Select the appropriate medication therapy for a given disease based on its etiology, epidemiology, pathophysiology, laboratory diagnosis, and clinical features of infections/ diseases.

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.C2.1. Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions as well as possible interactions with other drugs or food.

3.C2.2.Apply the principles of clinical pharmacology and impact of drug interactions on pharmacotherapy of various diseases, and pharmacovigilance to achieve safe use of medicines and medical devices.

3.C2.3. Provide evidence – based, patient-centered recommendations for use of complementary medicines including phytotherapy, aromatherapy, and nutraceuticals in a professional pharmacy practice setting.

3.C2.4. Educate patients and community about toxic profiles of drugs and other toxic substances, e.g. metals, organic contaminants and pesticides including signs, symptoms and sources and how to use those for risk management.

3.C2.5. Improve public awareness on the proper use of over the counter (OTC) and prescribed drugs of natural or synthetic origin as well as medical devices.

3.C2.6. Advise health care professionals & patients concerning social health hazards of drug abuse and misuse.

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.C1.1. Recognise the value and structure of the pharmacy team and of a multiprofessional team.

4.C1.2. Collaborate with other healthcare professionals to manage the care of a patient.

4.C1.3. Manage time as evidenced by the ability to plan and implement efficient mode of working.

4.C1.4. Retrieve and evaluate information from different sources.

4.C1.5. Demonstrate critical thinking, problem-solving and decision-making abilities in a team.

4.C1.6. Demonstrate creativity and entrepreneurial skills.

4-2- COMPETENCY

Effectively communicate verbally, non-verbally and in writing with individuals and communities.

Key elements:

4.C2.1. Communicate effectively with patients and other health care professionals and communities, including both written and oral communication.

4.C2.2. Demonstrate good information technology skills as well as presentation skills.

4-3- COMPETENCY

Express self-awareness and be a life-long learner for continuous professional improvement.

Key elements:

4.C3.1. Demonstrate the ability to critically reflect on their own practice and skills, to identify learning and development needs.

4.C3.2. Implement continuing professional development strategies to improve current and future performance.

Matrix1: Comparisons of Graduates Attributes with the National Academic Reference Standard, 2017

Attributes of the graduates (NARS, 2017)	Program Graduates Attributes
1. Educate and counsel individuals and communities to participate in optimizing therapeutic outcomes and minimizing the incidence of illness of individuals and populations.	a. Provide evidence-based information to patients, other health-care professionals and the public to promote public health and prevent disease.
2. Practice and perform responsibilities and authorities legally, professionally, and ethically respecting patients' rights.	b. Comply with pharmacy professional obligations, guidelines and legislations. c. Demonstrate respect of patients rights.
3. Utilize evidence-based data to deliver contemporary pharmaceutical products and pharmacy services.	d. Use appropriate evidence base relating to the safe, rational and cost-effective use of medicines.
4. Assure the quality of pharmaceutical materials and products.	e. Perform various qualitative and quantitative analytical methods to

	assure the quality of raw materials and pharmaceutical products.
5. Apply integrated evidence-based pharmaceutical and clinical information in assessing the appropriateness, effectiveness, and safety of medications.	f. Use evidence-based, unbiased and comprehensive information about therapeutics and medicines in assessing the appropriateness, effectiveness, and safety of medications.
6. Contribute effectively in planning and conducting research using appropriate methodologies.	g. Apply the principles of scientific research.
7. Work collaboratively and share therapeutic decision-making as a member of an interprofessional health care team.	h. Collaborate with other healthcare professionals regarding decisions about the use of medicines.
8. Demonstrate effective communication, leadership, business administration, and entrepreneurial skills.	i. Apply knowledge, principles and skills of communication, leadership, business administration, and entrepreneurial skills. j. Develop good presentation, marketing, numeric, statistics and information technology skills.
9. Work as a life-long learner for continuous professional improvement and demonstrate capabilities of performance appraisal and self-assessment.	k. Demonstrate continuing professional development to improve clinical knowledge, skills and performance.

Matrix2: Comparison between the Program key elements and the National Academic Reference Standards, NARS 2017 key elements.

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, NARs 2017	*Program key elements*
1-1-1- Demonstrate understanding of knowledge of pharmaceutical, biomedical, social, behavioral, administrative, and clinical sciences.	1.C1.1. Illustrate the principles of basic sciences: Organic and analytical chemistry; Biophysics; Biology; English language; Information technology and mathematics. 1.C1.2. Outline the principles of pharmaceutical sciences: Pharmacy orientation; Medical terminology; Physical pharmacy; Pharmaceutics; Pharmaceutical technology; Biopharmaceutics and pharmacokinetics; Medicinal chemistry; Pharmacognosy; Pharmaceutical microbiology; Biotechnology & Molecular biology; Quality Control of Pharmaceuticals; Instrumental analysis; Raw materials; Drug design and Good manufacturing practice. 1.C1.3.Explain the principles of medical sciences: Anatomy; Histology; Physiology and pathophysiology; Biochemistry; Clinical biochemistry; Pharmacology; Pathology; Clinical pharmacology; Medical microbiology; General microbiology and immunology; Parasitology and

	virology. 1.C1.4. State the basics of social and behavioral sciences: Human Rights and Fighting of Corruption; Psychology; Scientific writing and communication skills. 1.C1.5. Outline the fundamentals of administrative sciences: Principles of quality assurance; Entrepreneurship; Marketing and pharmacoeconomics; Pharmaceutical legislation and professional ethics. 1.C1.6. List the principles of health and environmental sciences: Public Health and Preventive Medicine; Biostatistics; Basic and clinical toxicology; First Aid and Basic Life Support. 1.C1.7. State the principles of pharmacy practice & clinical sciences : Clinical pharmacokinetics; Hospital pharmacy; Clinical pharmacy and pharmacotherapeutics; Drug information; Community pharmacy practice, Phytotherapy and aromatherapy; Drug interaction; Clinical Research methodology & Pharmacovigilance.
1-1-2- Utilize the proper pharmaceutical and medical terms, abbreviations and symbols in pharmacy practice	1.C1.8. Use the proper pharmaceutical and medical terms and 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.C1.9. Implement pharmaceutical knowledge in proper handling, identification, extraction, design, preparation, analysis and quality assurance of different pharmaceuticals.
1-1-4- Articulate knowledge from fundamental sciences to explain drugs' actions and evaluate their appropriateness, effectiveness, and safety in individuals and populations.	1.C1.10. Retrieve information to explain pharmacological properties of drugs including mechanism of drug action, adverse reactions, contraindications and drug-drug interactions. 1.C1.11. Apply core knowledge to meet patients' drug related needs and to achieve positive patient outcomes 1.C1.12. Evaluate the appropriateness of medicines for a given disease based on aetiology, possible interactions and patient-related factors.
1-1-5- Retrieve information from fundamental sciences to solve therapeutic problems.	1.C1.13. Apply functional knowledge while solving problems and making decisions during completion of their professional responsibilities.
1-1-6- Utilize scientific literature, and collect and interpret information to enhance professional decision	1.C1.14. Maintain access to an appropriate evidence base relating to the safe, rational and cost-effective use of medicines such as reference books, journals, national essential medicines lists and standard treatment guidelines.
1-1-7- Identify and critically analyze newly emerging issues	1.C1.15. Critically evaluate medication related

influencing pharmaceutical industry and patient health care.	information that affects patient health outcomes. 1.C1.16. Identify newly emerging issues related to pharmaceutical industry.

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.

2-1-1 Perform responsibilities and authorities in compliance with the legal and professional structure and role of all members of the health care professional team.	2.C1.1. Carry out duties as a pharmacist in a professional manner that complies with the ethical guidelines governing the profession. 2.C1.2. Maintain appropriate inter-professional relationships required to provide quality pharmacy care to individual patients. 2.C1.3. Recognize legislation relevant to their practice setting including health and safety law, employment law, consumer law, equality law and intellectual property rights.
2-1-2 Adopt ethics of health care and pharmacy profession respecting patients' rights and valuing people diversity.	2.C1.4. Treat others with sensitivity, empathy, respect and dignity. 2.C1.5. Maintain patient confidentiality and respect patients' rights. 2.C1.6. Recognize patient diversity according to age and health literacy levels.
2-1-3 Recognize own personal and professional limitations and accept the conditions of referral to or guidance from other	2.C1.7.Work with patients and other health care professionals to determine which treatments will best meet the patient's therapeutic needs 2.C1.8. Identify when patients' problems are

members of the health care team.	beyond the scope of pharmacy practice and refer them as appropriate to other health care providers.

2-2- COMPETENCY

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

2-2-1 Isolate, design, identify, synthesize, purify, analyze, and standardize synthetic/ natural pharmaceutical materials.	2.C2.1. Practice design, identification, synthesis, purification, isolation, analysis and standardization of synthetic and 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.C2.2. Apply proper methodologies for safe and effective formulation, compounding, production, packaging, labeling, storing, dispensing and distributing different pharmaceutical dosage forms with application of good manufacturing practice (GMP) principles. 2.C2.3. Solve problems concerning physical and chemical incompatibilities that may occur during drug manufacture and dispensing.
2-2-3 Recognize the principles of various tools and instruments, and select the proper techniques for synthesis and analysis of different materials and production of pharmaceuticals.	2.C2.4. Describe the principles of various instruments and analytical techniques. 2.C2.5. Select the appropriate methods for synthesis and analysis of different 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,	2.C2.6. Demonstrate the ability to perform biostatistical analysis and pharmaceutical calculations accurately. 2.C2.7. Apply principles of bio-informatics and computer-aided tools.

bioequivalence studies, and pharmacy practice.	2.C2.8. Apply principles of pharmacokinetics and biopharmaceutics in dose calculation , selection of dosage regimen, bioequivalence studies as well as formulation of new, safe and effective drug delivery systems.

2-3- COMPETENCY

Handle and dispose biologicals and synthetic/natural pharmaceutical materials /products effectively and safely with respect to relevant laws and legislations.

2-3-1 Handle, identify, and dispose biologicals, synthetic/natural materials, biotechnology-based and radio-labeled products, and other materials/products used in pharmaceutical field.	2.C3.1. Handle and dispose chemicals, solvents, biological specimens, natural wastes, biotechnology products, radiopharmaceuticals and other hazardous products in an appropriate way avoiding any environmental hazards.
2-3-2 Recognize and adopt ethical, legal, and safety guidelines for handling and disposal of biologicals, and pharmaceutical materials/products.	2.C3.2. Apply GLP guidelines for safe handling and disposal of pharmaceutical materials and 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.

2-4-1 Ensure safe handling/ use of poisons to avoid their harm to individuals and communities.	2.C4.1.Advise patients and other health care professionals about the safe and effective use of medicines and poisons.
2-4-2Demonstrate understanding of the first aid measures needed to save patient's life.	2.C4.2.Deal with First Aid emergencies
2-4-3 Take actions to solve any	2.C4.3. Identify and manage any drug related

identified medicine-related and pharmaceutical care problems.	problems including adverse drug reactions, contraindications, allergies, drug-drug/drug-food interactions, medication errors, misuse or medicine abuse as well as defects in product quality.
2-4-4 Assess toxicity profiles of different xenobiotics and detect poisons in biological specimens.	2.C4.4. Assess the complete data profile about the toxic effects of several xenobiotic. 2.C4.5. Test for poisons in biological samples.
2-5- COMPETENCY Contribute in pharmaceutical research studies and clinical trials needed to authorize medicinal products.	
2-5-1 Fulfill the requirements of the regulatory framework to authorize a medicinal product including quality, safety, and efficacy requirements.	2.C5.1.Demonstrate an understanding of the requirements of the regulatory framework to authorise a medicinal product including the quality, safety and efficacy requirements.
2-5-2 Retrieve, interpret, and critically evaluate evidence-based information needed in pharmacy profession.	2.C5.2. Gather information from a number of reliable sources needed to make well-founded decisions. 2.C5.3. Demonstrate the ability to make accurate, evidenced based and timely decisions in pharmacy profession for the management of patients.
2-5-3 Contribute in planning and conducting research studies using appropriate methodologies.	2.C5.4. Demonstrate skills to initiate and practice research activities. 2.C5.5. Communicate research findings.
2-6- COMPETENCY Perform pharmacoeconomic analysis and develop promotion, sales, marketing, and business administration skills.	
2-6-1 Apply the principles of business administration and management to ensure rational	2.C6.1. Demonstrate an understanding of the principles of organisation and management.

use of financial and human resources.	2.C6.2. Identify human resources and staffing issues. 2.C6.3. Demonstrate the ability to effectively analyse and manage financial data and budgetary information.
2-6-2 Utilize the principles of drug promotion, sales, marketing, accounting, and pharmacoeconomic analysis.	2.C6.4. Recognize fundamentals of drug promotion, sales and marketing. 2.C6.5. Apply the principles of pharmacoeconomic assessment and medicines cost benefits 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.	
3-1-1 Apply the principles of body function and basis of genomics in health and disease states to manage different diseases.	3.C1.1.Apply the principles of body function, basis of genomics and different biochemical pathways regarding their correlation with different diseases as well as their management.
3-1-2 Apply the principles of public health and pharmaceutical microbiology to select and assess proper methods of infection control.	3.C1.2. Suggest the appropriate methods for infection control & public health promotion.
3-1-3 Monitor and control microbial growth and carry out laboratory tests for identification of infections/ diseases.	3.C1.3. Perform microscopical, biochemical and serological laboratory tests to diagnose infectious and non infectious diseases.
3-1-4 Relate etiology, epidemiology, pathophysiology,	3.C1.4. Select the appropriate medication therapy for a given disease based on its etiology, epidemiology, pathophysiology, laboratory

laboratory diagnosis, and clinical features of infections/diseases and their pharmacotherapeutic approaches.	diagnosis, and clinical features of infections/ diseases.
3-2- COMPETENCY Provide counseling and education services to patients and communities about safe and rational use of medicines and medical devices.	
3-2-1 Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions and drug interactions.	3.C2.1. Integrate the pharmacological properties of drugs including mechanisms of action, therapeutic uses, dosage, contra-indications, adverse drug reactions as well as possible interactions with other drugs or food.
3-2-2 Apply the principles of clinical pharmacology and pharmacovigilance for the rational use of medicines and medical devices.	3.C2.2. Apply the principles of clinical pharmacology and impact of drug interactions on pharmacotherapy of various diseases, and pharmacovigilance to achieve safe use of medicines and medical devices.
3-2-3 Provide evidence-based information about safe use of complementary medicine including phytotherapy, aromatherapy, and nutraceuticals.	3.C2.3. Provide evidence – based, patient-centered recommendations for use of complementary medicines including phytotherapy, aromatherapy, and nutraceuticals in a professional pharmacy practice setting.
3-2-4 Provide information about toxic profiles of drugs and other xenobiotics including sources, identification, symptoms, and management control.	3.C2.4. Educate patients and community about toxic profiles of drugs and other toxic substances, e.g. metals, organic contaminants and pesticides including signs, symptoms and sources and how to use those for risk management.
3-2-5 Educate and counsel	3.C2.5. Improve public awareness on the proper use

patients, other health care professionals, and communities about safe and proper use of medicines including OTC preparations and medical devices.	of over the counter (OTC) and prescribed drugs of natural or synthetic origin as well as medical devices.
3-2-6 Maintain public awareness on social health hazards of drug misuse and abuse.	3.C2.6. Advise health care professionals & patients concerning social health hazards of drug abuse and misuse.
DOMAIN 4: PERSONAL PRACTICE	
4-1- COMPETENCY Express leadership, time management, critical thinking, problem solving, independent and team working, creativity and entrepreneurial skills.	
4-1-1 Demonstrate responsibility for team performance and peer evaluation of other team members, and express time management skills.	4.C1.1. Recognise the value and structure of the pharmacy team and of a multiprofessional team. 4.C1.2. Collaborate with other healthcare professionals to manage the care of a patient. 4.C1.3. Manage time as evidenced by the ability to plan and implement efficient mode of working.
4-1-2 Retrieve and critically analyze information, identify and solve problems, and work autonomously and effectively in a team.	4.C1.4. Retrieve and evaluate information from different sources. 4.C1.5. Demonstrate critical thinking, problem-solving and decision-making abilities in a team.
4-1-3 Demonstrate creativity and apply entrepreneurial skills within a simulated entrepreneurial activity.	4.C1.6. Demonstrate creativity and entrepreneurial skills.
4-2- COMPETENCY Effectively communicate verbally, non-verbally and in writing with individuals and communities.	
4-2-1 Demonstrate effective	4.C2.1. Communicate effectively with patients and

communication skills verbally, non-verbally, and in writing with professional health care team, patients, and communities.	other health care professionals and communities, including both written and oral communication.
4-2-2 Use contemporary technologies and media to demonstrate effective presentation skills.	4.C2.2.Demonstrate good information technology skills as well as presentation skills.
4-3- COMPETENCY Express self-awareness and be a life-long learner for continuous professional improvement.	
4-3-1 Perform self-assessment to enhance professional and personal competencies.	4.C3.1. Demonstrate the ability to critically reflect on their own practice and skills, to identify learning and development needs.
4-3-2 Practice independent learning needed for continuous professional development.	4.C3.2. Implement continuing professional development strategies to improve current and future performance.

2. Program Structure and Contents:

a- Program duration: (5+1) 5 years in ten semesters each term made up of 15 weeks in addition to 1 year professional training in different career fields.

b- Program structure:

✓ **Number of credit hours = 172 CH + 6 CH university requirments**

✓ The faculty of pharmacy implements the credit hour system. A credit hour represents an hour of lecture (L) or two hours of practical.

Learning activity	Lectures	Practical	Total
No. of hours/week	118	60	178

- ✓ In addition to preliminary 100 hours of field training in which the student should pass after completion of third level. The training may be in community/hospital pharmacy.
- ✓ The sixth year is advanced training & research project
- ✓ **Number of courses = 76**

Courses Number	Faculty requirements			University requirements	Total
	Compulsory courses		Elective courses		
	Non professional	Professional	4	6	76
	5	61			

c- Study Plan:

item	No. of hours
University requirements	6 CH: English Language I & II, Human Rights and Fighting Corruption, Psychology, Principles of Quality Assurance, Entrepreneurship
Faculty compulsory courses	164 CH including 7 CH dedicated to **Non professional Courses (NP) (Supervised by faculty departments)**: Information Technology, Mathematics, Scientific Writing and Communication Skills , Pharmaceutical Legislations and Professional Ethics, Marketing & Pharmacoeconomics
Faculty elective courses	8 CH comprising 4 courses to be selected in the 4th and 5th levels from 13 courses (Gene Regulation and Epigenetic, Infection Control, Chromatography and Separation Techniques, Analysis of Food and Flavor, Advanced Pharmaceutical Analysis – Spectroscopy, Veterinary Pharmacology, Biological Standardization, Bioinformatics, Oncology, Pediatrics & Geriatric, Cosmetic Preparations, Applied Industrial Pharmacy, Clinical Nutrition
Practical field training	1. Preliminary training: 100 contact hours after 3rd level 2. Advanced training: the sixth year of the

	program (one academic year)
Program level	5 years / ten terms + 1 year of advanced training including research project

d- Field training:

-Field training is divided into 2 phases:

1. Preliminary training : consists of 100 contact hours in which each student will conduct and pass after completion of 3rd level. Training in community or hospital pharmacies.

2. Advanced training & research project: involves one academic year, at the sixth year.

After completion of 5 years study, student should complete one year training in:

- Pharmaceutical and veterinary companies and industries, Companies and factories of medical supplies, devices, cosmetics, complementary medicine, medicinal plants, herbs, disinfectants, fertilizers, medication distribution offices and stores and international and local quality control centers of drugs.
- Other pharmaceutical institutions are available including: MOH, CAPA, NODCAR, WHO, FDA, EMA, Pharmaceutical research centers, Bioavailability and bioequivalence studies centers, drug marketing and promotion, etc……
- Hospital and community pharmacies, either private or governmental
- Academic teaching & research through faculties of pharmacies and research centers
- It is worthy to note that the student should pass 6 rotations, at least one of them is dedicated to clinical training.

f. Program Key Elements Mapping With Courses Matrix

Semester 1:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEY ELEMENTS COVERED
			Lec	Lab	Total	
PA101	Pharmaceutical Analytical Chemistry I	15	2	1	3	1.C1.1,1.C1.9, 2.C2.1, 2.C2.5, 2.C3.1, 4.C1.3,
PR 101	Pharmaceutical Organic chemistry I	15	2	1	3	1.C1.1,1.C1.9, 2.C2.1 ,2.C3.1, 4.C1.1
PT 101	Pharmacy Orientation	15	1	0	1	1.C1.2, 1.C1.8, 2.C1.1, 4.C2.1
PG 101	Medicinal plants	15	2	1	3	1.C1.2,1.C1.9, 2.C2.1,4.C1.1,4.C1.3, 4.C2.2
MD 101	Medical Terminology	15	1	0	1	1.C1.2, 1.C1.8, 4.C2.1
NP 101	Information Technology	15	1	1	2	1.C1.1, 4.C1.3, 4.C2.2
NP 102	Mathematics	15	1	--	1	1.C1.1, 4.C1.5
UR 101	English language I	15	1	--	1	1.C1.1, 4.C2.1
UR 102	Human Rights and Fighting of Corruption	15	1	-	1	1.C1.4
Total			**12**	**4**	**16**	

Semester 2:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PR 202	Pharmaceutical Organic chemistry II	15	2	1	3	1.C1.1, 2.C2.1, 2.C3.1, 2.C3.2, 4.C1.1, 4.C1.5
PA 202	Pharmaceutical Analytical chemistry II	15	2	1	3	1.C1.1, 1.C1.9, 2.C2.1, 2.C2.5, 2.C2.8, 2.C3.1, 4.C1.1, 4.C1.5
PG 202	PhannacognosyI	15	2	1	3	1.C1.2, 1.C1.9, 2.C2.1, 4.C1.1, 4.C1.3, 4.C2.2
MD 202	Anatomy & Histology	15	2	1	3	1.C1.3, 3.C1.1, 3.C1.3, 4.C1.1, 4.C2.1
PT 202	Physical pharmacy	15	2	1	3	1.C1.2, 2.C2.1, 4.C1.1, 2.C3.2
UR 203	Psychology	15	1	--	1	1.C1.4, 2.C1.4, 2.C1.6, 4.C1.5
PB 201	Cell Biology	15	1	1	2	1.C1.1, 3.C1.1, 4.C2.2
UR 204	Principles of Quality Assurance	15	1	-	1	1.C1.5, 2.C6.1, 4.C1.1, 4.C1.5
UR 205	English language II	15	1	-	1	1.C1.1, 4.C2.1, 4.C2.2
Total			**14**	**6**	**20**	

Semester 3:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PR 303	Pharmaceutical Organic ChemistryIII	15	2	1	3	1.C1.1 , 2.C2.1, 2.C3.1, 2.C3.2, 2.C2.5, 4.C1.1, 4.C1.5, 4.C2.1,
PA 303	Pharmaceutical Analytical ChemistryIII	15	1	1	2	1.C1.1, 1.C1.9, 2.C2.1, 2.C2.5, 2.C3.1, 4.C1.1, 4.C1.3, 4.C1.5
PG 303	Pharmacognosy II	15	2	1	3	1.C1.2, 1.C1.9, 2.C2.1, 4.C1.1, 4.C1.3, 4.C2.1
MD 303	Biophysics	15	1	1	2	1.C1.1, 1.C1.8, 3.C1.1, 4.C1.1
MD304	**Physiology and Pathophysiology**	15	2	1	3	1.C1.3,1.C1.8, 3.C1.1, 4.C1.1
PM 301	**General Microbiology and Immunology**	15	2	1	3	1.C1.2, 1.C1.3, 1.C1.8, 2.C3.1, 2.C3.2, 3.C1.3, 4.C1.3, 4.C1.4
PT 303	Pharmaceutics I	15	2	1	2	1.C1.2, 2.C2.2, 2.C2.3, 2.C3.1, 4.C1.1
Total			**12**	**7**	**19**	

Semester 4:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PB 402	BiochemistryI	15	2	1	3	1.C1.3, 2.C3.1, 2.C3.2, 3.C1.1, 3.C1.3, 4.C1.3
MD 405	**Pathology**	15	1	1	2	1.C1.3, 1.C1.8, 3.C1.1, 3.C1.3
PA 404	Instrumental Analysis	15	2	1	3	1.C1.2, 2.C2.1, 2.C2.4, 2.C3.1, 4.C1.5, 4.C2.2
PT 404	**Pharmaceutics II**	15	2	1	3	1.C1.2, 2.C2.2, 2.C3.1, 2.C3.2, 4.C1.1,
PO 401	**Pharmacology I**	15	2	1	3	1.C1.3, 1.C1.8, 1.C1.10, 2.C3.2, 3.C2.1, 2.C3.1, 3.C1.1
PR 404	**Raw materials**	15	1	1	2	1.C1.2, 2.C2.1, 2.C2.5
NP 403	**Scientific Writing and Communication skills**	15	1	1	2	1.C1.4, 2.C1.4, 2.C1.6, 2.C5.5, 4.C1.1, 4.C2.1, 4.C2.2
NP 404	**Pharmaceutical Legislations and Professional ethics**	15	1	-	1	1.C1.5, 2.C1.1, 2.C1.2, 2.C1.3, 2.C1.5, 2.C5.1
Total			**12**	**7**	**19**	

Semester 5:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PO 502	PharmacologyII	15	2	1	3	1.C1.3, 1.C1.8, 1.C1.10, 2.C3.2, 3.C2.1, 4.C1.3
PM 502	Pharmaceutical microbiology	15	2	1	3	1.C1.2, 1.C1.8, 1.C1.12, 2.C3.1,2.C3.2, 3.C1.2, 3.C1.3, 4.C1.3
PT 505	Pharmaceutics III	15	2	1	3	1.C1.2, 1.C1.8, 2.C2.2, 2.C2.3, 2.C2.8, 2.C3.1, 2.C3.2, 4.C1.3
PB 503	BiochemistryII	15	2	1	3	1.C1.3, 1.C1.8, 2.C3.1, 2.C3.2, 3.C1.1, 3.C1.3, 4.C1.3
PG 504	PhytochemistryI	15	2	1	3	1.C1.2, 1.C1.9, 2.C2.1, 2.C2.5, 2.C3.1, 2.C3.2, 4.C1.3
PC 501	Medicinal Chemistry I	15	2	1	3	1.C1.2, 1.C1.8, 1.C1.9, 2.C2.1, 2.C2.5, 2.C3.1, 2.C3.2, 4.C1.3
Total			**12**	**6**	**18**	

Semester 6:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PO 603	PharmacologyIII	15	2	1	3	1.C1.3, 1.C1.8, 1.C1.10, 2.C3.1, 2.C3.2, 3.C2.1
PT 606	**Pharmaceutics IV**	15	2	1	3	1.C1.2, 1.C1.8, 2.C2.2, 2.C2.3, 2.C2.8, 2.C3.1, 2.C3.2, 2.C2.5
PM 603	**Parasitology and Virology**	15	2	1	3	1.C1.3, 1.C1.8, 3.C1.3, 4.C1.3, 4.C2.1
PC 602	**Medicinal Chemistry II**	15	2	1	3	1.C1.2, 1.C1.9, 2.C2.1, 4.C2.2
PG 605	**Phytochemistry II**	15	2	1	3	1.C1.2, 1.C1.9,1.C1.10, 2.C2.1, 2.C2.5, 4.C1.5
PT 607	**Biopharmaceutics and Pharmacokinetics**	15	2	1	3	1.C1.2, 1.C1.8, 2.C2.6, 2.C2.8
Total			**12**	**6**	**18**	

Semester 7:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PO 704	PharmacologyIV	15	1	1	2	1.C1.3, 1.C1.8, 1.C1.10, 3.C2.1, 4.C1.5
PB 704	**Clinical Biochemistry**	15	2	1	3	1.C1.3, 1.C1.8, 2.C1.1, 2.C2.4, 2.C3.2, 3.C1.3
PG 706	**Applied & Forensic Pharmacognosy**	15	1	1	2	1.C1.2, 1.C1.8, 1.C1.9, 2.C2.1, 2.C2.5, 2.C3.2, 2.C4.3, 3.C2.3, 3.C2.4
PC 703	Medicinal chemistryIII	15	2	1	3	1.C1.2, 1.C1.8, 1.C1.9, 2.C2.1, 2.C3.1, 2.C3.2
PT 708	**Pharmaceutical Technology I**	15	2	1	3	1.C1.2, 1.C1.16, 2.C2.2, 2.C2.4 , 2.C2.5,
PM 704	Medical microbiology	15	2	1	3	1.C1.3, 1.C1.8, 2.C3.2, 3.C1.3, 3.C1.4, 3.C3.1,
PE	**Elective**	15	1	1	2	
Total			**11**	**7**	**18**	

Semester 8:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PP 801	**Clinical Pharmacokinetics**	15	2	1	3	1.C1.7, 1.C1.11, 2.C2.6, 2.C2.8, 4.C1.5
PC 804	**Drug Design**	15	1	1	2	1.C1.2, 2.C2.7, 4.C2.2
PO 805	**Basic & Clinical Toxicology**	15	2	1	3	1.C1.6, 1.C1.8, 2.C4.1, 2.C4.2, 2.C4.3, 2.C4.4, 2.C4.5, 3.C2.4
PM 805	**Biotechnology & Molecular biology**	15	2	1	3	1.C1.2, 1.C1.8, 2.C3.1, 4.C3.1
PP 802	**Hospital Pharmacy**	15	1	1	2	1.C1.7, 2.C1.1, 2.C1.5, 2.C3.1, 2.C3.2, 2.C4.3

PT 809	**Pharmaceutical Technology II**	15	1	1	2	1.C1.2, 1.C1.16, 2.C2.2, 2.C2.4, 2.C2.5
PE	Elective course	15	1	1	2	
Total			**10**	**7**	**17**	

Semester 9:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PP 903	**Clinical Pharmacy & Pharmacotherapeutics I**	15	2	1	3	1.C1.7, 1.C1.8, 1.C1.11, 1.C1.13, 2.C4.1, 2.C4.3, 2.C1.7, 2.C5.3, 3.C2.1, 4.C1.2
PO 906	**Drug Information**	15	1	0	1	1.C1.7, 1.C1.14, 1.C1.15, 2.C4.1, 2.C5.2, 2.C5.3, 4.C1.4
PP 904	**Community Pharmacy Practice**	15	2	1	3	1.C1.7, 2.C1.3, 2.C1.7, 2.C1.8, 2.C4.1, 3.C2.5, 4.C2.1
PG 907	**Phytotherapy and Aromatherapy**	15	2	1	3	1.C1.7, 1.C1.8, 1.C1.10, 1.C1.14, 3.C2.3, 3.C2.5, 3.C2.6, 4.C3.1
PT 910	**Good Manufacturing Practice**	15	1	1	2	1.C1.2, 1.C1.16, 2.C2.2, 2.C3.1, 4.C1.1
NP 905	**Marketing & Pharmacoeconomis**	15	1	--	1	1.C1.5, 2.C6.1, 2.C6.4, 2.C6.5, 4.C2.2
MD 906	**First Aid and Basic Life Support**	15	1	--	1	1.C1.6, 2.C1.8, 2.C4.2, 4.C1.3
PE	Elective course	15	1	1	2	
Total			**11**	**5**	**16**	

Semester 10:

COURSE CODE	COURSE TITLE	NO. OF UNITS	CREDIT HOURS/ WEEK			PROGRAM KEYELEMENTS COVERED
			Lec	Lab	Total	
PA 005	**Quality Control of Pharmaceuticals**	15	2	1	3	1.C1.2, 1.C1.9, 2.C2.1, 2.C2.5, 2.C5.1
PT 011	**Advanced Drug Delivery Systems**	15	2	-	2	1.C1.2, 1.C1.16, 2.C2.6
PM 006	**Public Health and Preventive Medicine**	15	2	-	2	1.C1.6, 1.C1.8, 3.C1.2, 3.C2.6, 4.C2.1
PP 005	**Clinical pharmacy & Pharmacotherapeutics II**	15	1	1	2	1.C1.7, 1.C1.8, 1.C1.11, 1.C1.12, 1.C1.13, 2.C1.7, 2.C4.1, 2.C5.3, 3.C1.4, 3.C2.6, 4.C1.2
PP 006	**Drug Interaction**	15	1	1	2	1.C1.7, 1.C1.13, 2.C4.3 3.C2.1, 3.C2.2
PP 007	**Clinical Research methodology & Pharmacovigilance**	15	1	1	2	1.C1.7, 2.C5.3, 2.C5.4, 2.C5.5, 3.C2.2, 4.C1.3
PO 007	**Biostatistics**	15	1	--	1	1.C1.6, 2.C2.8, 4.C1.5
UR 006	**Entrepreneurship**	15	1	-	1	1.C1.5, 2.C6.1, 2.C6.2, 2.C6.3, 4.C1.3, 4.C1.6
PE	Elective course	15	1	1	2	
Total			**12**	**5**	**17**	

Elective courses:

Course Code	Course Title	PROGRAM KEYELEMENTS COVERED
PM E 07	Gene Regulation and Epigenetic	1.C1.3, 1.C1.2, 3.C1.1
PM E 08	Infection Control	1.C1.3, 1.C1.2, 3.C1.2
PG E 08	Chromatography and Separation Techniques	1.C1.2, 1.C1.9, 2.C2.4, 2.C2.5
PG E 09	Analysis of Food and Flavor	1.C1.2, 1.C1.3,1.C1.9, 2.C2.1
PA E 06	Advanced Pharmaceutical Analysis – Spectroscopy	1.C1.2, 1.C1.3, 1.C1.9, 2.C2.4
PO E 08	Veterinary Pharmacology	1.C1.3, 1.C1.12,
PO E 09	Biological Standardization	1.C1.3, 2.C2.1, 4.C2.2
MD E 07	Bioinformatics	1.C1.3, 2.C2.7, 3.C1.1
PP E 08	Oncology	1.C1.7, 1.C1.11, 1.C1.12, 1.C1.13, 2.C4.1,3.C1.4
PP E 09	Pediatrics & Geriatric	1.C1.7, 1.C1.11, 1.C1.12, 1.C1.13, 2.C4.1, 3.C1.4
PT E 012	Cosmetic Preparations	1.C1.2, 2.C2.2, 2.C2.3, 2.C3.1, 2.C3.2
PT E 013	Applied Industrial Pharmacy	1.C1.2, 1.C1.16, 2.C6.4
PB E 05	Clinical Nutrition	1.C1.7, 1.C1.13,2.C4.3, 3.C1.1, 4.C1.2, 4.C1.3

Field training:

Training	Total contact hours	PROGRAM KEYELEMENTS COVERED
1. Preliminary training	100 hr	1.C1.2, 1.C1.4, 1.C1.5, 2.C1.1, 2.C1.2, 2.C1.3, 2.C1.C4, 2.C1.5, 2.C1.6, 2.C1.7, 2.C1.8, 2.C2.1, 2.C4.1, 2.C5.2, 2.C5.3, 3.C1.4, 3.C2.1, 3.C2.3, 3.C2.4, 3.C2.5, 3.C2.6, 4.C1.1, 4.C1.2, 4.C1.3, 4.C1.5, 4.C2.1, 4.C3.1, 4.C3.2
2. Advanced training	6 rotations within one academic year	

Research project:

Total contact hours	PROGRAM KEYELEMENTS COVERED
within the 6th academic year	1.C1.16, 2.C5.4, 2.C5.5, 4.C1.3, 4.C1.4, 4.C1.5, 4.C1.3, 4.C2.2, 4.C3.1, 4.C3.2

3. Program admission requirements:

Candidate should have the general certificate of secondary education (scientific section) or an equivalent certificate from a foreign institute recognized by the university. Courses completed at another faculty are evaluated for equivalency to the Faculty of Pharmacy, Zagazig University courses.

Courses Registration:

Faculty assigns one staff member as an academic advisor for each group of students (20-30 students) who will be responsible for student

support regarding academic and social issues. He will follow up students' attendance and progress in different courses as well. In addition, academic advisors will be available to help students select the required and suitable courses from the list of the offered courses. Selection of the courses for any given level is conditional on the successful completion of the prerequisite course of the preceding level.

Courses registration should be done within the allowed time frame for registration according to the academic calendar. Late registration should be done according to a written excuse and not exceed 2 weeks after the allowed time.

Courses Load:

The course load is the number of registered credit hours per student each semester.

- The academic load in each semester ranges from 12-22 credit hours.
- The academic load in the summer semester ranges from 4 to 10 credit hours.
- The academic load can be increased in the 9 & 10 th level by three hours more than the allowed load (only once) after approval of the faculty council.
- Credits acquired by the student are those of passed courses from the registered academic load.

4. Admission policy:

The faculty complies with the admission regulations and requirements of the Egyptian Supreme Council of Universities (ESCU).

5. Admission of Graduate from other facilities:

Courses complete at another faculty are evaluated for equivalency to the faculty of pharmacy courses. A course waiver remains in effect for five years from the date the course waiver form was signed.

6.Teaching:

Teaching methods used to achieve the predetermined program ILOs include:

- Lectures
- Laboratory sessions
- Case study
- Role play
- Field experience
- Research project
- Demonstrative videos
- Assignment
- Critical thinking strategies
- Problem solving
- Blended learning

5. Assessment:

a. Assessment methods

- Students' performance is assessed by both course work and examination at the end of each course.
- Methods of assessment include written, oral, and practical examination, research papers, course assignments, presentations and reports.
- Grades are measure of the performance of a student in an individual course.
- Correlation between teaching and assessment methods as follows:

Method of assessment	Teaching method
Written examination	• Lectures • Case study • Critical thinking strategies • Problem solving
Practical examination	• Demonstrative videos

	• Problem solving • Laboratory sessions • Role play
Oral examination	• Lectures • Problem solving
Others (posters, field visit, presentation, projects ..etc.	• Research project • Assignment • Field experience

b. Marks Distribution

- The total grade is out of 100%.
- In order to pass a course the student must obtain a minimum of 60% of the total grade and a minimum of 30% of the final written exam.
- The grades of the Faculty courses are distributed according to the following table:

Type of course	Course	Period./Actv.	Pract.	Wr.	Oral	Total
Course includes a practical and oral exam	• Pharmaceutical Analytical Chemistry I • Pharmaceutical Analytical Chemistry II • Pharmaceutical Analytical Chemistry III • Instrumental Analysis • Pharmaceutical Organic Chemistry I • Pharmaceutical Organic Chemistry II • Pharmaceutical Organic Chemistry III • Raw material • Medicinal Chemistry I • Medicinal Chemistry II • Medicinal Chemistry	15 (10 midterm + 5 course activity)	25	50	10	100

	III • Drug Design • Medicinal Plants • Pharmacognosy I • Pharmacognosy II • Phytochemistry I • Phytochemistry II • Applied & Forensic Pharmacognosy • Physical Pharmacy • Pharmaceutics I • Pharmaceutics II • Pharmaceutics III • Pharmaceutics IV • Biopharmaceutics and Pharmacokinetics • Pharmaceutical Technology I • Pharmaceutical Technology II • Cell Biology • Biophysics • Biochemistry I • Biochemistry II • Clinical Biochemistry • Physiology and Pathophysiology • Pathology • Pharmacology-1 • Pharmacology II • Pharmacology III • Pharmacology IV • Basic & Clinical Toxicology • General Microbiology and Immunology • Pharmaceutical Microbiology • Parasitology and					

	Virology • Medical Microbiology • Biotechnology & Molecular biology • Clinical Pharmacokinetics • Hospital Pharmacy • Clinical Pharmacy & Pharmacotherapeutics I • Community Pharmacy Practice • Phytotherapy and Aromatherapy • Good Manufacturing Practice • Quality Control of Pharmaceuticals • Clinical pharmacy & Pharmacotherapeutics II • Drug Interaction • Elective					
Course includes a practical and no oral exam.	• Information Technology • Scientific Writing and Communication skills • Drug Information • First Aid and Basic Life Support • Clinical Research methodology & Pharmacovigilance	15 (10 midterm + 5 course activity)	25	60	-	100
Course has no practical or oral exams	• Pharmacy Orientation • Medical Terminology • Mathematics • English language-I • English language-II • Human Rights and	25 (15 midterm + 10 course activity)	-	75	-	100

	Fighting of Corruption • Anatomy& Histology • Psychology • Principle of Quality • Pharmaceutical Legislations and Professional ethics • Marketing & Pharmacoeconomics • Advanced Drug Delivery Systems • Public Health and Preventive Medicine • Biostatistics • Entrepreneurship					

c. Grading System:

The following Table illustrates the grading system adopted in the Faculty:

Grade expression	Grade scale	Grade point average value (GPA)	Numerical scale marks
EXCELLENT	A+	4	≥ 95%
	A	3.85	90 – < 95%
	A -	3.7	85 - < 90%
VERY GOOD	B +	3.3	82.5 - < 85%
	B	3	77.5 - < 82.5%
	B -	2.7	75 - < 77.5%
GOOD	C +	2.3	72.5 - < 75%
	C	2	67.5 - < 72.5%
	C -	1.7	65 - < 67.5%
SATISFACTORY	D +	1.3	62.5 - < 65%
	D	1	60 - < 62.5%
FAIL	F	0	< 60%
Withdraw	W	-	-
Incomplete	I*	-	-

Absent	**Abs E****	**-**	**-**

- **Grade point average (GPA):**

❖ The university calculates for each student, both at the end of each grading period and cumulatively.

❖ A grade point average (GPA) based on the ratio of grade points earned divided by the number of credits earned with grades of A-F (including pluses and minuses).

❖ Both the periodic and cumulative GPA appears on each student's record.

❖ The semester GPA of the student is the weighted average of the grade points acquired in the courses passed in that particular semester.

❖ Registration symbols that do not carry grade points or credit:

S: represents achievement that is satisfactory

U: represents achievement that is unsatisfactory

T: Transfer, indicates credit transferred from another institution.

W: withdrawal prior to deadline indicates a student has officially withdrawn from a course.

I*: Students who have satisfactory attendance in the courses but can not attend the final written/oral exams due to an accepted excuse by the faculty council, they can enter the final written/oral exams of the courses in the next semester and their full grade is calculated.

Abs E:** If the student in the above case can not enter the final written/oral exams in the next semester, he should reregister in the course and his full grade is calculated.

7- Failure in courses:

❖ Student who fails to attend the final written exam.

❖ Student who fails to achieve 30% of the marks in the final written exam.

❖ Student who fails to achieve 60% of the total course marks.

8- Regulation for progression and program completion:

- Livery student is required to attend 75% of lectures and laboratory periods continuously.
- Selection of courses for any given years is conditional on the successful completion of the prerequisite courses of the proceeding academic year.
- Student who fails to pass a required course will be allowed to repeat this course
- Student who fails to pass an elective course will be allowed to repeat this course or register for another elective course.

9- Academic difficulty:

- A student who fails to maintain a minimum cumulative GPA of "1" for six consecutive semesters or four a total of ten semesters will be dismissed from the faculty.
- Students are allowed to repeat courses with a grade "d" under supervision of an academic advisor in order to improve their cumulative GPA.
- The higher grade of any repeated course is used in GPA calculations.

10- Graduation:

Students receive Bachelor of Pharmacy (Pharm D) on completion of:

1. The requisite number of credit hours (172 credit hours + 6 credit hours of university requirments) with a cumulative GPA equivalent to 2 or above
2. Preliminary training: At least 100 hrs. of summer training after 3rd level in any pharmacy setting.
3. Advanced training: one academic year (9 months)
4. Research project in 6th year

11-Evaluation of achievement of program keyelemnts:

Evaluator	**Tool**
1-Senior students	• Questionnaires • Meetings with bachelor students
2-Alumni	• Questionnaires • Meetings with graduates
3-Stakeholders	• Questionnaires for staff members • Questionnaires for Labor market organizations members & Heads and managers of the business sector • Meetings with Labor market organizations members
4-Internal Evaluator	Reviewing
5-External Evaluators	Reviewing
6- Statistics	Students grades Rate of program completion/ graduation Rate of pass/failure
Sample size of questioners = 20% of population	