Program Report (2006)

2022/2023

إعتماد مجلس وحدة: ٨/٥ /٢٠٢٣
إعتماد مجلس كلية: ٢٠٢٣/٨/١٦

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- **University / Academy:** Pharos University in Alexandria
- **Faculty / Institute:** Faculty of Pharmacy

A- Basic Information

1	**Program Title**	Bachelor's Degree in Pharmacy	
2	**Program Type**	Single	
3	**No of Academic Years**	10 semesters for 5 years	
4	**No of Credit Hours/ No of Courses for Bylaw 2006**	Compulsory (64 courses)	163 Cr
		Elective (10 elective courses)	20 Cr
		Field training	12 Cr
		University requirements	8Cr
		Total	203
5	**Departments: 6 academic departments:**	a) Department of Drug Industries b) Department of Pharmaceutics c) Department of Analytical and Pharmaceutical Chemistry d) Department of Pharmacognosy and Medicinal Plants e) Department of Microbiology and Immunology f) Department of Pharmacology and Toxicology	
6	**Basics of External Examiner Committee Selection**	Examiner boards consist of: • Staff members sharing in teaching the course and external examiners who teach the course in other universities. • Any staff member that has a relative of the 4th degree in an academic year in the faculty is excluded from the examiner board of this year. • The construction of the examiners boards should be approved by the departments' council. • A questionnaire was filled by external oral examiners for each course; their feedback is documented in each course report	
7	**System of External Examiner:**	Available	

B- Specialized Information

8. Statistical Information

Students' distribution among the five years/ academic year 2022/2023:

Student academic level	Students number
Freshmen	-
Sophomore	2
Junior	11
Mid-Senior	23
Senior	29
Total	**65**

Total number of students registered for the academic year **2022/2023** is 65

- **No. of student completing the program and as a percentage of those who started:**

Academic year	Total no of students	No of graduate students	% of graduate students
2022/2023	65	8	12.31%
2021/2022	437	417	95.42 %
2020/2021	425	417	98.12 %
2019/2020	521	461	88.48 %
2018/2019	554	467	84.3 %

- **% of joining the faculty for the last three years: Increasing**

Student academic level	Students number
2022/2023	365
2021/2022	99
2020/2021	289

- **Grading of the academic year 2022/2023:**

Academic level	85-100		75-<85		65-<75		60-<65		50-<60		<50	
	Fall%	Spring %	Fall%	Spring %	Fall%	Spring %	Fall %	Spring %	Fall%	Spring %	Fall %	Spring%
Freshmen	25%	0%	25%	0%	0%	0%	25%	0%	0 %	0%	25 %	0%
Sophomore	0%	0 %	0 %	0 %	0%	0 %	0%	0%	0%	50%	0 %	50 %
Junior	0 %	4.45%	0%	8.3%	0%	19.45%	0%	10.56%	0 %	46.11 %	0 %	11.11 %
Mid-Senior	6.25%	6.25%	9.048%	6.775%	41.654%	26.175%	21.302 %	13.12%	22.646 %	31.64 %	0%	16.04 %
Senior	10.46%	0%	10.95%	0%	30.565%	0%	19.9%	0%	22.716 %	0%	4.68 9%	0%

9. Academic Standards

- **Reference Academic Standards:**
  - The Faculty adopts the Academic Standards of the National Authority for Quality Assurance and Accreditation of Education (NAQAAE) NARS 2009 in a faculty council on 12/3/2012.
  - NARS 2009 was previously discussed and adopted in all departments' councils.
  - Comparative study between graduate attributes and ILOs of pharmacy program (Bylaw 2006) versus NARS 2009 is available as attached extension.
  - In April 2017, NAQAAE accredited a new version for Competency-Based NARS, so the faculty started to take action towards NARS 2017.
  - Competency-Based NARS 2017 was discussed and adopted in all departments' councils and finally adopted in a faculty council on 7/10/2019
  - Gap Analysis between Pharmacy Program Bylaw 2006 & Competency-Based NARS 2017 was carried out by a committee in Quality Assurance Unit (QAU) composed of staff members from all departments.
  - The outcome of this meeting was an action plan which was accredited in a faculty council on 10/2/2020
  - The action plan included updating teaching and learning strategy and assessment methods, to be in line with Competency-Based NARS 2017.
  - QAU started to organize workshops to train and increase the awareness of staff members about Competency-Based NARS 2017 and the updated teaching and learning strategy and assessment methods.

- As a major procedure done by the committee of programs development was establishing a new bylaw aligned with NARS 2017 and it was approved by the committee of the Pharmaceutical Sector in September 2019.
- All previous documents are available as external extensions.

Graduate Attributes

Faculty of Pharmacy and Drug Manufacturing, Pharos University in Alexandria strives to ensure that graduates of the program acquire and demonstrate the following attributes:

1. Perform efficiently, professionally, legally and ethically in different areas of pharmacy practice.
2. Demonstrate prudence in handling chemicals and pharmaceutical, natural products as well as microbes by applying basic of aseptic techniques.
3. Deliver pharmaceutical care to patients in community pharmacies and in hospital settings.
4. Adhere to good laboratory practice in performing chemical, analytical, microbiological and biological procedures and techniques.
5. Adhere to good manufacturing practices in formulating, preparing and storing pharmaceutical and natural products.
6. Participate in delivering education services to the public with other health care professionals aiming to promote health, control infection and prevent disease.
7. Demonstrate good understanding of the etiology, pathophysiology and management of different diseases in accordance with evidence-based medicine.
8. Propose good judgment in resolving drug-related problems and promoting rational use of medicines, as well as Planning, designing, and conducting research using appropriate methodologies.
9. Develop competence in assuring quality of raw material and pharmaceutical as well as natural products including physical, chemical, microbiological and biological quality control.
10. Be committed to life-long learning, and strive continuously to update their knowledge in profession-related areas.
11. Demonstrate good communication and computation skills, time management, problem solving, critical thinking, decision-making proper documentation and drug filling system and team-working spirit.
12. Be committed to further develop presentation, documentation, promotion, marketing and business administration skills.

2. Intended Learning Outcomes (ILOs):

2.1. Knowledge and Understanding:

By completion of the program, students should be able to:

A1: Explain fundamentals of basic physicochemical behavior of compounds and drugs, pharmacy practice, pharmaceutical management as well as pharmaceutical, medical, social, behavioral, health and environmental sciences.

A2: Identify qualitative and quantitative principles of different chemical compounds and various analytical techniques applying GLP guidelines including aseptic technique and different validation procedures.
A3: Recognize techniques used for isolation, identification, purification, synthesis and standardization of active substances derived from different origins.
A4: Outline characteristics of different drug dosage forms, cosmetic preparations and biotechnology derived pharmaceuticals, their troubleshooting (delivery systems) causes and remedies.
A5: Recall quality assurance of pharmaceutical processes and products including physical, chemical, microbiological and biological quality control as well as quality control of herbal products.
A6: Explain factors affecting drug pharmacokinetics, bioavailability and bioequivalence aspects.
A7: Identify the principles of pharmaceutical technology such as pre-formulation and powder characterization.
A8: Describe basics of appropriate documentation, methodology and approval process of newly introduced pharmaceutical products.
A9: Define legal background for national drug policy and regulations of pharmacy practice based on national code of ethics.
A10: Recognize the basic idea behind GMP and its requirements for both quality management and personnel, including principles of various instruments and techniques including all processes in pharmaceutical industry.
A11: Identify the principles of engineering and pharmaceutical science in drug innovation, design, development, construction and operation of plans based on physicochemical characteristics of drug entity and drug receptor interactions.
A12: Describe administrative and technical services at the hospital setting; IV admixtures, parenteral nutrition, drug dispensing, distribution, preparation and administration.
A13: Identify causes and control of microbial contamination as well as sanitation, disinfection, sterilization processes and microbiological quality control of pharmaceutical products for maintaining public health.
A14: Describe fundamentals of anatomy, physiology of human body, pathophysiology and manifestations of diseases in addition to general principles of nutrition and its relation to health and disease.
A15: Explain the basis of pharmacogenetics and genetic predisposition to disease, the fundamentals of immunology, biotechnology and biochemical pathways of molecular biology and radio labeled pharmaceutical products regarding their correlation with different diseases.
A16: Discuss etiology, epidemiology and laboratory diagnosis for different disease states, in addition to the host microbe relationship and basis of inflammation and infectious disease.

A17: Describe mechanisms of action, therapeutic uses, dosage regimes, adverse drug reactions, drug interactions and contraindication of pharmacologically active drugs of natural or synthetic origins as well as antimicrobial agents.
A18: Review the general principles of clinical pharmacology, features of therapeutic drug monitoring and rational use of drugs.
A19: Explain rational for the use of complementary and alternative medicine.
A20: Describe toxicological features of drugs and xenobiotics and their management as well as major therapeutic guidelines.
A21: Explain basics of mathematics and principles of biostatistical analysis and their applications in different pharmaceutical fields.
A22: Summarize fundamentals of pharmaceutical management, including financial and human resources.
A23: Describe primary, secondary and tertiary drug information resources.
A24: Recognize principles of sales and marketing as well as drug promotion

2.2. Intellectual Skills:

By completion of the program, students should be able to:

B1: Illustrate the acquired knowledge and terminology in calculation, preparing, analyzing and formulating compounds, medicines and cosmetic preparations effectively.
B2: Predict the properties of biomolecules and medicinal agents as well as their structure-activity relationship and potency by application of various studies including bioinformatics and other computer-aided tools in drug design.
B3: Make use of medical and pharmaceutical calculation as well as statistics for estimation and data interpretation of experimental results and published literature.
B4: Apply GLP, GMP, GSP and GCP guidelines in the different areas of pharmacy practices, as well as measures of infection control.
B5: Discover the appropriate design and strategies of targeting drug delivery systems and technologies of biologically active molecules.
B6: Select the proper radionuclide and type of imaging device required for detecting various diseases.
B7: Identify pharmacological actions, adverse drug reactions, drug interactions, contraindications as well as drug incompatibilities and drug instability intervene to manage and resolve different diseases and problems.
B8: Predict the changes in the pharmacokinetic processes on the concentration of the drug in the body.
B9: Assess evidence-based information, ethical and legislation frameworks needed in pharmacy practice decisions to prevent medication errors in addition to adjust dosage and dose regimen.
B10: Discover different problems of manufacturing and dispensing of the different dosage forms and their solutions
B11: Select the optimum and validated method of manufacturing of the dosage form.
B12: Select appropriate tools or analytical method for the assay and quality control of raw materials and pharmaceutical products.
B13: Differentiate processes in which materials undergo physical changes (unit operations) or certain chemical changes (unit processes).
B14: Employ physical, analytical and microscopic methods for qualitative and quantitative analysis for medicines in different forms.

B15: Choose appropriate methods of synthesis, extraction, identification, isolation, purification and standardization of natural products, as well as biologically active pharmaceutical and toxic substances.
B16: Compare between different disease states with respect to their etiology, epidemiology, laboratory diagnosis, clinical features and pharmacotherapeutics aspects of the disease.
B17: Apply pharmacological, pharmacogenomics, pharmacoimmunology pharmacotherapeutics and clinical pharmacy principles for the proper selection of drugs to include in formulary and for management of individual patients.
B18: Develop cost-effective pharmacotherapy management for application of principles of pharmaceutical management, sales and marketing, and taxes in different pharmaceutical fields.
B19: Calculate different indices important for manufacturing of solid dosage form.
B20: Relate social and behavioral activities, nutritional status as well as environmental problems on human health.
B21: Choose measures of infection control to prevent infections

2.3. Professional and Practical Skills:

By completion of the program, students should be able to:

C1: Apply pharmaceutical and medical knowledge, terms & abbreviations correctly in different professional settings.
C2: Develop good laboratory practice in handling and disposing chemicals, natural products and microbial specimen in a manner ensuring safety of individuals and environment.
C3: Adapt good pharmacy practice in compounding, selecting, dispensing, storing, analyzing and distributing medicines, including medicinal plant products, in a manner sustaining their quality.
C4: Apply good manufacturing practices in synthesis, extraction, isolation, purification, quantitative analysis and standardization of active substances from different origins.
C5: Judge ethically selecting and dispensing appropriate medicines, cosmetics preparations including herbal products, according to good clinical practice guidelines.
C6: Analyze results of various lab tests for selecting the proper strategies for treatment of different diseases and controlling microbial contamination in different settings.
C7: Determine the type of poison according to the symptoms.
C8: Assemble professional skills for operating instruments & equipment and handling experimental animals & biological specimen.
C9: Explain different drug–related problems including health hazards
C10: Practice patient counseling during dispensing OTC & prescription products to ensure safe and proper use of medicines and cosmetic preparations.
C11: Demonstrate competence in generating, presenting, analyzing and interpreting experimental and mathematical data.
C12: Solve problems encountered in pharmaceutical fields in addition to the employment of suitable quality control tests for manufactured products.
C13: Analyze management issues and economic principles involved in industrial operations, in addition to the determination of costs, approximate profit second to investment in a given process and a unified tax return.
C14: Apply proper pharmaceutical registration rules, documentation and drug filing system.
C15: Design systematic search strategy for retrieving, analyzing and evaluating relevant information.

2.4. General Skills:

By completion of the program, students should be able to:

D1: Demonstrate capability of communication by verbal and written means.
D2: Utilize literature for the evaluation of the information from different sources including the library, internet...etc.
D3: Demonstrate effective participation in group-based learning
D4: Use numeracy, calculation, and statistical methods, as well as information technology tools.
D5: Develop self-learning skills needed for continuous professional development
D6: Employ different skills required for sales, marketing and pharmacy administration
D7: Use ethical, legal and safety guidelines in evaluating & dealing with different problems and in decision making
D8: Show creativity and time management abilities
D9: Demonstrate the ability of critical thinking and problem solving
D10: Show different writing and presentation skills

- **Student Support System:**

Academic Support

- There is the (academic supervision) scientific leadership system in which each staff member gives academic support to specified number of students as academic advisor.
  There is a general academic advisor for the faculty and 2 deputies for him.
- In the Fall and Spring 2022/2023, lists were done to know that exact the number of students who possessed academic problems (المتعثرين), and they were divided into categories according to the cumulative GPA. The grades and absences of students were also monitored, and the academic supervision urged the students to be regular and raise the grades to prevent failure. The students' midterm scores were also counted, and the academic supervision communicated with them to discuss the possibility of raising them. Students' results were also reviewed at the end of each semester to determine their progress.
- Declared office hour system (2 hours/week/course) for each staff member involved in teaching to answer students' scientific questions.
- Follow-up the work of the Committee of international students on a regular basis and stand to solve the problems facing them.
- Continuous follow-up of لجنة المقاصات to determine the extent of its work and raising the percentage score for each course as the calculation was on a low percentage.
- Comparison tables were also made between the four bylaws that operate within the faculty, in order to facilitate the work of لجنة المقاصات.
- Studying the petitions received by the college regarding the registration of courses at the beginning of each semester for approval and sending them to the Vice President of the University for admission and registration.
- The use of simulation programs has been activated, which is an educational method that simulate reality and give more chances for the students to practice and acquire skills, examples for the used programs (**OBSIM, Cal pharmacology MS media, Rat CVS, Mendely, Drug eye, Molecular Operating Environment etc.).**

Support for Students Who Are at Risk:

- Students who miss **25%** or more of practical sessions, or tutorials are warned twice via official letters sent to their addresses, students should attend **75%**, otherwise will be prevented from applying to final examination.
- Students who manage to provide a legal document indicating an acceptable excuse for missing 25% or more of practical sessions, or tutorials are allowed to attend the final examinations.
- According to the faculty bylaws the academic year is divided into two semesters, the students are informed with their grades of the first term examination maximum one week after the end of exams so those who are at risk of failure can work harder during the second term.
- After being informed with their grades, students are offered a reasonable period of time (2 weeks) during which they are allowed to submit complain to the dean's office (if they are not

satisfied with their grades), and their answer sheets are revised by control committee and course instructor, then they are informed of the results.

- The academic advisor can support students who are at risk in academic and social level.
- Students are asked to prepare presentations, posters, or other assignments throughout the semester, which help them to get better marks through continuous course work evaluation.
- Students are graded every practical session in some departments, where the students submit the results of the practical experiment they performed and these results together with their performance during the practical session are evaluated. These grades are included in their final grade.
- Model answers of some quizzes/exams are displayed in the departments to inform the students with appropriate answers so they can estimate their average grade and com understand the scientific material better
- Student feed-back system is applied in all subjects.
- A committee has been formed to look after the students who are at risk to improve their academic situation.
- Determining the defaulting students who are at risk and studying their case separately to determine the extent of the possibility of evaluating their academic level so that they can graduate.

Disabled Students:

There are some specific facilities for them, due to their small number. However, the faculty takes this issue in consideration.

- Staff members and demonstrators give care and support to those students, in all aspects particularly in scientific issues. During the practical sessions and practical examinations, a demonstrator is appointed to help students with movement disability.
- The entrance of the building is designed to fit wheel chairs.

Support for Outstanding Students:

- They officially receive financial awards. This celebration occurs during the graduation day which is organized by the faculty and students' union in the presence of large number of faculty top managements, staff members, and representation of syndicate, stakeholders and previous alumni, representatives of the non-academic staff and parents of the graduates.
- The first outstanding students are employed in the faculty as demonstrators according to a faculty annual plan.
- Rewards are given by professors in some departments to students who prepare the best presentation, poster or written report
- Excellent students are awarded prizes and certificate of appreciation on the pharmacy day which is held every year.
- The faculty follows up the field projects and divides them among the various departments of the faculty in fall and spring semesters, then nominates the best project to participate in the discussion of research projects at the university level and follow the rehearsals with the course instructor and students to reach the best competitive presentation.

➢ Program Reference Standards:

National academic reference standards for pharmaceutical studies, NARS 2009

➢ Availability and Adequacy of Program Handbook

- There is a student handbook (guide) to show the regulations and instructions of the faculty. This handbook is received by all first-year students.
- The information supplied by handbooks is available on the faculty website.

➢ Continuous Program Revision System:

Available through a special faculty committee, specially constructed for this purpose. [Curriculum and Program Development Committee]
The committee construction is renewed whenever needed by adding new members, and approved by the faculty council.

Matching of the Program Academic Structure with ILO's:

A- Matching with NARS

Sciences	NARS Hours	Faculty Curriculum Hours
Basic	**10-15 %**	**18.2%**
Pharmaceutical	**35-40 %**	**38.9%**
Medical	**20-25 %**	**26.1%**
Pharmacy Practice	**10-15 %**	**13.4%**
Health and Environmental	**5-10 %**	**5.9%**
Behavioral and social	**2-4 %**	**4.9%**
Pharmacy Management	**2-4 %**	**2.95%**
Discretionary	**Up to 8 %**	**3.9%**

B-Matching with Courses

Year	Level	Course code	Course title	Knowledge & Understanding	Intellectual Skills	Professional and Practical Skills	General Skills
I	1	ENG 101	English Language (I)	A1	B18	C1	D1, D3, D5
		PHR 177	Biophysics	A1	B6,B13	C1, C11	D1 - D4
		PHR 121	Physical Chemistry	A1	B3, B13	C1, C11	D1 - D3, D9
		PHR 122	General Chemistry	A1, A2	B3, B13, B14	C1, C2	D1 - D5
		PHR 171	Cell and Mol. Biology	A15	B17	C1, C2, C8	D1, D2, D5

Year	Level	Course code	Course title	Knowledge & Understanding	Intellectual Skills	Professional and Practical Skills	General Skills
		MAT 105	Mathematics	A21	B3	C11	D4
		PHR 101	Orientation to Pharmacy	A1, A4, A23	B1	C1	D1, D3, D5
		PHR 102	Pharm. Terminology	A1	B18	C1	D1, D3
	2	PHR 125	Basic Inorganic Chem.	A1, A2	B3,B14	C1, C2	D1 - D3, D5
		PHR 131	Basic Organic Chem.	A1, A3	B1	C1, C2, C4	D1, D3, D5
		PHR 141	Botany and Med. Plants	A1, A3, A17	B7, B14, B15	C2, C8	D2, D3, D5 & D9
		PHR 178	Anatomy and Histology	A14	B3	C1, C8	D1 - D5
		COM 101	Computer Fundamentals	A1, A21	B3	C1, C11	D2, D4
		ENG 102	English Language II	A1	B18	C1	D1, D3, D5
		PHR 110	Ethics and History of Pharmacy Practice	A1, A9	B9	C1, C5	D1 - D3, D5
II	3	PHR 242	Pharmacognosy I	A1, A3, A17	B1, B7, B14	C1, C3, C8	D1-D3
		PHR 211	Physical Pharmacy	A1, A4	B1	C1 - C3	D1, D4, D5, D8
		PHR 272	Physiology I	A14	B16	C1	D1, D2, D5
		PHR 223	Analytical Chemistry I	A1, A3	B1, B14, B15	C1, C4, C8, C11	D1, D3 - D5
		PHR 232	Organic Chemistry I	A1, A3	B1	C1, C2, C4	D1, D3, D5
		PHR 251	Microbiology I	A1, A16	B16	C1, C2, C6	D1 - D3
	4	MAT 208	Basic Statistics	A21	B3	C11	D3 - D5
		PHR 212	Drug Dosage Forms I	A1, A4	B1	C3, C12	D3, D5, D8
		PHR 273	Physiology II	A14	B16	C1	D1 - D3

Year	Level	Course code	Course title	Knowledge & Understanding	Intellectual Skills	Professional and Practical Skills	General Skills
		PHR 224	Analytical Chem. II	A1 - A3	B1, B3,B14	C1, C2, C11	D1 -D3, D5
		PHR 233	Organic Chem. II	A1, A3	B1, B15	C1, C2, C4	D1, D3, D5
		PHR 243	Pharmacognosy II	A3, A17	B7, B14	C2, C3, C8	D1 - D3, D5
		PHR 252	Microbiology II	A2, A13, A17	B16	C2, C6	D2, D3, D9
III	5	PHR 374	Biochemistry I	A14, A15	B14, B16	C1, C11	D1, D3, D8
		PHR 312	Drug Dosage Forms II	A1, A4	B1, B10	C1 - C3	D1 - D3, D8
		PHR 326	Pharm. Analysis	A2, A3, A21	B1, B3, B14	C1, C2, C4, C8, C11	D1, D3, D4
		GEN 103	Pharm Management	A1, A22	B18	C13	D1, D3, D5
		PHR 343	Phytochemistry	A2, A3, A17	B2, B7, B14, B15	C4	D3, D5, D9
	6	PHR 375	Biochemistry II	A15	B16	C1, C8	D2, D3, D9
		PHR 344	Evaluation of Crude drugs	A1, A3, A17	B1, B2, B15	C4	D3, D5, D9
		PHR 314	Biopharmaceutics	A4	B1, B3	C1	D2, D3, D8
		PHR 380	Pharmacology I	A6, A15, A17	B7, B8	C1, C8, C15	D1, D3, D5
		PHR 327	Medicinal Chemistry I	A1, A3, A17	B1, B2, B7, B15	C1, C2, C4	D1, D2, D5
IV	7	PHR 428	Medicinal Chemistry II	A1, A3, A17	B1, B2, B7, B15	C1, C2, C4	D1, D2, D5
		PHR 461	Pharmacogenetic and Pharmacoimmunology	A1, A15, A16	B17	C1	D1 - D3
		PHR 403	Library and Drug Information	A1, A23	B7, B9	C15	D1 - D3, D9
		PHR 481	Pharmacology II	A17	B7, B16	C1, C8, C11, C15	D1, D3, D5, D9
		PHR 415	Hospital Pharmacy	A1, A9, A12	B7, B9, B17	C1, C2, C5	D1, D2, D4

Year	Level	Course code	Course title	Knowledge & Understanding	Intellectual Skills	Professional and Practical Skills	General Skills
		PHR 416	Principles and Kinetics of Drug Stability	A1, A4	B1, B3	C1, C3	D2, D3, D5
		PHR 413	Sterile pharmaceutical Preparations	A2 - A4	B1 - B3	C1 - C3	D1, D2, D9
	8	PHR 404	Pharm. Technology	A1, A4, A7	B5, B10, B14, B19	C12	D1 - D5, D8
		PHR 446	Forensic Pharmacognosy	A2, A3, A17, A20	B14, B15	C7 - C9	D2, D3, D5
		PHR 417	Pharmacokinetics	A6, A17	B1, B8, B9	C1, C12	D1, D3, D4, D9
		PHR 418	Community Pharmacy	A1, A16	B7, B9	C3, C5, C10	D1, D3, D9
		PHR 476	Forensic Chemistry	A20	B16	C1, C2, C7, C9	D1, D5, D8
		PHR 453	Pathogenesis and Etiology of Infectious Diseases	A17	B16	C1, C6	D2, D3, D9
V	9	PHR 525	Analytical Quality Control	A2, A5, A10	B3, B4, B11 - B13	C2, C4, C8, C11, C12, C15	D1 - D3, D5, D8, D10
		PHR 505	Industrial Quality Control and GMP	A5, A8, A10	B4, B12	C1, C3, C4	D1 - D3, D8
		PHR 582	Bioevaluation and Drug Screening	A1, A17	B1, B3, B14	C1, C5, C8, C11	D2, D3, D5, D9
		PHR 511	Clinical Pharmacy	A1, A6, A17, A18	B7 - B9, B17	C1, C10, C14	D1 - D3, D5
		PHR 513	Cosmetics	A1, A4	B1	C5, C10	D3, D5, D8
		PHR 570	First Aid	A14	B16, B17	C1	D1 - D3, D5
	10	PHR 554	Drug Biotechnology	A3, A4, A15	B5, B15	C1, C15	D1, D2, D4
		PHR 555	Applied Industrial Hygiene	A1, A5, A9, A20	B4, B10	C2, C5, C12	D1 - D3, D9
		PHR 506	Pharm. Manufacturing Processes	A1, A4, A10	B4, B10, B11	C12	D1 - D3, D5, D8

Year	Level	Course code	Course title	Knowledge & Understanding	Intellectual Skills	Professional and Practical Skills	General Skills
		PHR 508	Unit Operation	A10	B11, B13	C1, C12	D1, D3, D8
		PHR 583	Pharmacotherapeutics	A14, A17	B7, B17	C1, C5	D1, D3, D5, D9
		PHR 556	Pharmacoepidemiology	A1, A8, A21	B3, B9, B16	C10, D11	D2, D3, D9
		PHR 600	Seminar or Project	A17 - A19	B7, B16, B17	C1, C5, C9, C15	D1, D2, D4 - D6
			Summer Training	A10, A12, A16, A18 - A20, A23	B4, B7, B9, B10, B16	C1, C3, C6, C7, C10, C12	D1 - D3, D5, D6

➢ Elective Courses

Year	Course code	Course title	Knowledge & Understanding	Intellectual Skills	Professional and Practical Skills	General Skills
2	GEN 108	Environment & Society	A1, A23	B20	C1, C2	D1 - D3
	PHR 564	Parasitology	A1, A13, A16	B16	C1, C6	D2, D3, D10
	PHR 572	Radiation Pharmacy	A15	B6	C1	D1, D2, D8
3	GEN 104	Legislation &Health Policies	A8, A9	B9	C5	D1, D5, D9
	GEN 105	Professional Communication	A1	B17, B18	C1	D1, D3, D7, D10
	GEN 110	Principles of sales &Marketing	A22, A24	B18	C13	D1 - D3, D6, D7
	PHR 520	Advanced Instrumental Analysis	A2, A3, A21	B3, B14	C8, C11	D1, D3 - D5
	PHR 546	Applied Pharmacognosy	A2, A3	B4, B14, B15	C2 - C4	D1, D3, D5
	PHR 558	Advanced Microbiology	A1, A5, A13, A15	B4, B5, B16, B21	C6, C12	D2, D3, D9
	PHR 562	Mycology	A1, A16	B16	C1, C6	D2, D9, D10
	PHR 563	Virology	A16, A17	B16	C1, C6	D2, D3, D9
	PHR 573	Fundamental of clinical chemistry	A16	B16	C1, C6	D1 - D4, D8
4	GEN 106	Taxes	A22	B18	C13	D4, D7
	MAT 505	Applied Statistics	A21	B3	C11	D1, D4, D5, D8
	PHR 512	Advanced Pharmaceutics	A4, A6	B5, B6	C1, C5	D3, D5, D8
	PHR 571	Hematology	A1, A2, A14	B16	C1	D1 - D3

5	PHR 507	Design & Formulation of d.f.	A4, A6	B1	C1, C5	D3, D5, D8
	PHR 514	Advanced Drug Delivery system	A4, A6	B1	C5	D1 - D3, D8
	PHR 515	Home Health Care	A1, A12, A17, A18	B7, B16, B17	C5, C10	D1 - D3
	PHR 565	Immuno-Pharmaceutics	A1, A15	B16, B17	C1	D2, D3, D9
	PHR 574	Nutrition	A14	B20	C1	D2, D3, D5, D8
	PHR 585	Molecular Therapeutics	A1, A15	B17	C1	D1, D3, D9
	PHR 586	Geriatric Pharmacy	A14, A17	B16, B17	C5, C10	D1 - D4
	PHR 587	Pediatric Drug Therapy	A17, A18	B17	C1, C4, C10	D2, D3, D7, D10
	PHR 589	Alternative Therapy	A19	B15, B20	C1	D1, D3, D5, D8
	PHR 529	Advanced Pharm. Chemistry	A1, A11, A17	B1, B2, B15,	C1, C2, C15	D3, D5, D10

- **Administrative Constrains:**

The administrative structure is central, which may help achieving the faculty requirements.

10- Students Evaluation for Measuring the ILO's

- **Assessment methods**
  - Different types of assessment are applied including written, oral and practical examinations to evaluate the students' performance in respect of the achievement of program ILOs.
  - Teaching, learning and assessment strategy matches blended learning.

Methods and Rules of Student's Evaluation According to Bylaw 2006:

Methods	Program Intended Learning Outcomes
Written Exams	Knowledge & Understanding and Intellectual Skills (+ Professional skills if course contains case studies)
Written and Online Quizzes	Knowledge & Understanding and Intellectual Skills (+ Professional skills if course contains case studies)
Oral Exams	Knowledge & Understanding, Intellectual Skills, Professional Skills and General Skills
Practical exams	Intellectual Skills and Professional & Practical Skills (+General Skills in Some Courses)
Assignments/ Practical & Tutorial Activities/ Field Projects	Knowledge & Understanding, Intellectual Skills, Professional Skills and General Skills
Graduation Project	Competencies

- Marks allocated 40% for final written exam and 10% for oral exam and 50% for final written exam if an oral exam is not required. 20% for mid-term exam and 30% for course work

including practical exams, assignments, quizzes, field projects, etc. Assessment methods in the faculty are mostly compatible with those criteria needed for evaluation of ILO's for each course.

- Oral exams were held as graded written sheet distributed with the final written exam (For Senior students) and held normally on campus (For Freshmen, Sophomore, Junior and midsenior students)
- Examiner boards consist of staff members sharing in teaching the course and any staff member that has a relative of the 4th degree in an academic year in the faculty is excluded from the examiner board of this year.
- Clear rubrics for evaluation of any exam are clearly announced to the students.

➢ Schedule for students' evaluation:

According to the university calendar:

Fall 2022/2023:

- **Interactive learning activities/practical or tutorial activities:** Throughout the semester.
- **The mid-term exam:** 8th week.
- **The practical exam:** 15th week.
- **Final exams:** 16/17th week
- **4 Quizzes** are held on week 5 and 11 (according to the academic calendar) and other 2 weeks decided by the staff members.

Spring 2022/2023:

- **Interactive learning activities/practical or tutorial activities:** Throughout the semester.
- **The mid-term exam:** 8th week.
- **The practical exam:** 17th week.
- **Final exams:** 18/19th week
- **4 Quizzes** are held on week 5 and 12 (according to the academic calendar) and other 2 weeks decided by the staff members.
- Research project: 20th week.

- Final grades are announced shortly after the end of exams and uploaded on the faculty web site, any student has the right to review his grades after filling complain application form, this process is monitored, the responsibility of this process is taken by the Vice-Dean of education and students affairs.

11- Learning resources

- **Staff members to students' ratio: or Adequacy of academic staff members:**

The actual ratio of staff members to students is **1:2**١ which indicated that there is an extra number of staff members who can teach post graduate courses or courses in other faculties in the same specialization in the university.

Matching of Faculty Members' Specialization to Program Needs:

- All faculty members are specialized at the field they teach and are at least Ph.D. holders. Faculty assistants are either Master holders or preparing for the Master. All faculty members are research active, in addition to an agreement by university with FLDC department in Alexandria university to offer promotion and training accredited courses to staff members

- **Adequacy of Library Facilities**:

For students:

- The central library is now at the new building supplied with high level facilities.
- The library contains many scientific books as well as some scientific references and 9 computers with an access to the internet in addition to a free wireless internet to allow all students to use their own laptops.
- Announcement about registration to the Egyptian Knowledge Bank (EKB) is available in the library. And access is guaranteed through the computers

For staff members and their assistants:

- It contains scientific books of interest to the members of the teaching staff, but no periodicals are available for researchers and postgraduate students, Periodicals are now available via EKB
- Two librarians are devoted to library and supplying information.
- There is one library computer operated by the library specialists, where books and references information are available.
- Lighting and ventilation of the Library are good.
- The area in the library is adequate to the number of students at the mean time.

- **Adequacy of Laboratories**

- Specialized labs are available according to the various departments of the faculty for the students and the researchers.
- The staff members of the faculty and their assistants exert a lot of effort to organize the work inside the labs to suit the needs of the students.
- The process of education and training within the labs is characterized by accuracy and efficiency.
- The technical staff of all labs is highly qualified and they attend special training workshops for maintenance and optimum safety of the labs.

- **Adequacy of Computer Laboratories (Dry Labs):**
  - Specialized two dry labs are available each of area 136 and 87 m^2 respectively.
  - Each lab is equipped with 86 computers, connected to the internet in addition, they are supplied with data show, Audio-visual devices, LCDs as well as the suitable software
  - Two computer labs were established in the ground floor of Faculty of Pharmacy, the area is as follows 70, and 105 m^2. They possess 64 computers connected to the Internet, through which it is possible to access global databases so that the student can use them for scientific research, carrying out study tasks and training on the use of technology in serving patients and applying Fundamentals of clinical pharmacy.

- **Adequacy of Animal House:**
  - Air-conditioned building consists of four rooms equipped with shelves to accommodate the animal cages.
  - Male & female “Sprague Dawely” rats of different weights are available
  - The technical staff of the animal house is highly qualified to ensure optimum care, life support, nutrition, reproduction and hygiene of the animals.

- **Adequacy of Research laboratories:**
  - Central Lab for the scientific instruments. Separated six research labs are available each of area 31 m^2. Two preparation rooms each of area 14 m^2 each, respectively.
  - The faculty is interested in strengthening the infrastructure of scientific research and therefore has been keen to establish and equip the “Pharmaceutical Nanotechnology Research Lab” (PNRL), (110 m^2) which was opened in February 2019, it is now highly equipped

- **Adequacy of Computer Facilities:**
  - All study rooms are supplied with computer and data show.
  - There are 9 computers available to students in the library, connected to the internet.
  - All heads of the departments have computers equipped with printers.
  - Staff members and their assistants can get access to the internet, either by DSL or wireless connections available in the university.
  - Computer courses are university requirement courses for all students.

- **Adequacy of Field / Practical Training Resources**

  - Summer training is obligatory for both junior and mid-senior students: in house summer training inside the educational pharmacy specially constructed in the faculty. Training also extends to hospitals and community pharmacies. The training program is held under the supervision of faculty staff members and their assistants and evaluated according to the approved summer training LOs.

    In addition, obligatory courses are taught to students before starting the training including:
    - Ethics and history of pharmacy (compulsory)
    - Communication Skills (university requirement)

- **Summer training for academic year 2022/2023**
- **Community pharmacy training:**

- 278 Junior PharmD and PharmD-clinical students are currently trained in community pharmacy for 100 hours according to the by-law.
- 25 Regular pharmacy students are currently trained in community pharmacy for 120 hours as substitute training.
- There are 34 pharmacy training supervisors are responsible for receiving students' training schedule, making random 2 video-call evaluation for each student using Blackboard recording, oral evaluation of booklet, and computer post-test on the final evaluation day on week zero of the Fall semester 2023-2024.

- **Hospital training:**

- 14 Regular pharmacy students are currently trained in the hospital for 60 hours as substitute training on July 16 – August 10, 2023.
- **Participating hospital:** Armed Force Hospital in Mostafa Kamel
- During Fall 2022/2023, Five field projects were carried out in the following courses: Pharmacy Practice Experience I, Biochemistry II, Pharmaceutical Analytical Chemistry I, Pharmaceutics III and Medicinal Plants.
- Many field visits were done to link the theoretical and practical side such as (Amiri University Hospital, Children's Cancer Hospital 57357, Arab Company for Medicines and Medicinal Plants (MEPACO), The European Egyptian Company for Pharmaceutical Industries).

- **Adequacy of Any Other Program Needs:**

- A well-established bylaw program for master degree in pharmaceutical sciences, for Department of Pharmacology and Therapeutics, Department of Pharmaceutical chemistry, Department of Pharmaceutics and Pharmaceutical technology as well as program for diploma of higher studies in hospital pharmacy. Such bylaws are accredited.

- Establishment of the "International Publication and Nanotechnology Consultation Center" (INCC) for pharmaceutical and non-pharmaceutical specialties, the first academic service center at Alexandria Universities that provides free consultation and follow-up for international publication at all stages of different specialties and consultations related to all kinds of pharmaceutical nanotechnology researches.

- In addition, international publications and patents were achieved as a result of INCC research agreements.

- The INCC was given an approval of the Postgraduate Studies university Council to construct Nanotechnology research team that is composed of head of INCC together with researchers from Pharos university in Alexandria and from other universities. They work all together to establish research cooperations as well as research projects.

12- Quality Management

- **Availability of Regular Evaluation and Revision System for the Program:**

- An internal auditing committee headed by program coordinator has been established to evaluate and revise the educational program and the newly launched programs.
- Questionnaires are distributed to a sample of students from different levels to evaluate the courses, questionnaires to evaluate the program is distributed for graduates and Stakeholders. The QAU informs the course coordinator and head of departments about the statistical analysis of the results of students' questionnaires (student opinion in the course and the assistant staff members teaching the course) and students' remarks in order to make the appropriate action plan. Moreover, the quality assurance center informs the course instructors with the statistical analysis of the results of students' questionnaires (student opinion in the course and staff members teaching the course) and students' remarks in order to make the appropriate action plan.
- The faculty adopted the National Academic Reference Standards 2017 (Competency-Based NARS 2017) and took all actions to shift from content to competency-based curricula. So, Gap Analysis was carried out, by the Quality Assurance Unit, between Program ILOs & Competency-Based NARS 2017. Some courses in both bylaws 2006 & 2016 were updated to fill the gap and enable students to have all competencies they should have as stated in NARS 2017.
- Follow-up spreading awareness about the National Academic Reference Standards 2017 (NARS-2017).
- Program and Course specifications and matrices of all departments for both bylaws 2006 & 2016 were updated and reviewed by the Quality Assurance Unit and approved in the department councils in order to be in line with the new teaching, leaning & assessment strategy in addition to competency-based learning.
- The faculty adopted and applied programs "Bachelor's Degree in Pharmacy (Pharm-D)/ (Pharm D Clinical), through which they adopt the National Academic Reference Standards 2017 (Competency-Based NARS 2017). they consist of new courses and practical training hours in all pharmaceutical fields either private or governmental. This program will allow the student to acquire all the skills and competencies needed in the future work place.
- The Quality Assurance Unit reviewed the course specifications of fall and spring semesters courses.
- The Quality Assurance Center's Performance Follow-up Committee examined the course files for the academic year 2022-2023 semester. Technical support committee was established to follow up the course files with low grades for justice confirmation.
- As part of the follow-up of the Quality Assurance Unit for the exam and control work, the Control Review Committee was assigned to evaluate the control files of the different levels. The Committee also carried out a technical and formal examination of the exam paper for the academic year 202٢-٢٠٢٣ and prepared a report regarding this examination which was approved in the faculty council.

- **Effectiveness of Faculty and University Laws and Regulations for Progression and Completion**

- The laws and regulations for progression and completion are clear and stated in the bylaws for the undergraduate students, faculty of Pharmacy, Pharos University in Alexandria. It is announced in the student handbook and on the web site of the faculty.

- Forming control committees for each academic semester so that the formation does not conflict with the relatives of the teaching staff members of the faculty, as well as emphasizing the lack of supervision or participation of the faculty member in preparing the examination paper or following up the grades of the course work in case that a relative is present in the academic year, and that to ensure that there are no conflicts of interest.

- **Effectiveness of Program External Evaluation System**:

- A review and an evaluation report of the program, by the external evaluator, have been conducted for 2013/2014. The report suggestions were taken into consideration in the final form of the program specification.
- External reviewer (Professor Dr. Salwa Elmeligy) evaluated and revised the educational programs as well as course specifications and matrices of these programs and the reports were approved by different departments and faculty councils (academic year 2019/2020).

- **Faculty Response to Student and External Evaluation:**

- The faculty responded positively, revision of some courses according to the opinion of students, stakeholders, and according to the points mentioned in the program coordinator report will be considered in the action plan.
- All course specifications were modified according to all revision processes done.

13- Proposals for Program Development

- **New Courses:**

- The faculty adopted and applied the ٢ programs “Bachelor’s Degree in Pharmacy (Pharm-D) and (Pharm-D Clinical Pharmacy), through which it adopts the National Academic Reference Standards 2017 (Competency-Based NARS 2017). It consists of new courses and practical training hours in all pharmaceutical fields either private or governmental. This program will allow the student to acquire all the skills and competencies needed in the future work place. So, New courses of these bylaws were opened and applied for Mid-senior students in the fall and spring of the academic year 2022/2023.

- **Electronic Learning:**
  - Blackboard collaborate plate form is used through which each faculty member can store and save lectures in archive, students can communicate with faculty and staff through chatting. Online assignments also allow students to write their opinions and ideas to faculty members through feedback and many other features.
  - The Committee carried out a weekly follow-up of teaching on the Blackboard platform and submitted the weekly report to the Dean of the College. The Committee is coordinating with the University Follow-up Committee to amend any observations
- **Blended Learning:**
  - In both Fall and Spring semesters 2022/2023, all lectures and practical/tutorial sessions were given on campus according to the prepared timetables but with aid of using blackboard collaborate plate form to upload lectures/practical/tutorial notes, also to discuss questions with students and upload extra learning sources.
  - Blended learning was applied for both semesters 2022/23 through using non-traditional method of teaching; flipped classroom, brain storming, peer learning, videos, gaming and self learning.
- **The role of the Curriculum and Program Development Committee:**
  - Part of sales and marketing course was given in the Professional Development and Entrepreneurship Center.
  - The Kamen team (Faculty of Pharmacy Students) were qualified for the finals of the Abu Hashima competition to support emerging projects for young people, after strong competitions with more than 6,000 teams at the level of the Arab Republic of Egypt, and qualifiers that lasted for 6 months. They also won a financial award of sixty thousand Egyptian pounds as financial support for his project.
  - Also, Faculty of Pharmacy Students participated in the HULT Prize 2023 which is a Student Competition (March – September 2023)
  - Faculty of Pharmacy Students participated in the second edition of the IntraAfrica 2063 International Competition, which is supported by the Egyptian Academy of Scientific Research and Technology and in cooperation with the Association of African Universities (March 6-9, 2023).
  - Encouraging the graduation projects students for doing Social awareness about the safe use and misuse of herbal drugs through applying questionnaire to measure people awareness about this topic and through brochure. This project was done under supervision of Dr/Dalia El-Sheikh. Etc.
  - Encouraging the students to participate in the 10th Medical Conference for Research and Innovations, Faculty of Science, Alexandria University that was held on 13-14/5/2023. Our students participated with poster titled ' The Medical Nutrition Therapy and its Role in Management of Several Diseases" This poster was done under supervision of Prof.Dr/ Hend Hussien.
  - Encouraging students to do practical work as a part of the graduation project that will be a part of an internationally published research papers for example graduation project of pharmacology and therapeutics department under the title of (neuroprotective effect of

rasagiline and coffee in experimental induced encephalomyelitis in rats) under supervision of Dr/Sherihan salah eldin abdelhamid.

- The Quality Assurance Unit, in cooperation with the Alumni Committee, and under the supervision of Prof. Dr. Majid Al-Ghazouli, Dean of Faculty of Pharmacy, created google forms to collect graduate information and their suggestions for improving programs to cope with the requirements of the labor market and we aimed to know what are the workshops do they need so we can plan for establishing them.

➢ **Training and Skills:**

- Improving the tutorials and practical sessions of many courses by increasing computer based training sessions and ensuring the availability of different resources needed for such improvement.

➢ **Summer training for academic year 2022/2023**

➢ **Community pharmacy training:**

- 278 Junior PharmD and PharmD-clinical students are currently trained in community pharmacy for 100 hours according to the by-law.
- 25 Regular pharmacy students are currently trained in community pharmacy for 120 hours as substitute training.
- There are 34 pharmacy training supervisors are responsible for receiving students' training schedule, making random 2 video-call evaluation for each student using Blackboard recording, oral evaluation of booklet, and computer post-test on the final evaluation day on week zero of the Fall semester 2023-2024.

➢ **Hospital training:**

- 14 Regular pharmacy students are currently trained in the hospital for 60 hours as substitute training on July 16 – August 10, 2023.
- **Participating hospital:** Armed Force Hospital in Mostafa Kamel

- Diversity of the faculty from its educational, research and service activities directed to the development of the environment and community service and priorities such as the completion of agreements and partnerships with industry and the surrounding community, capacity-building, continuous professional development of specialization, applied scientific research, consultations and training programs, therapeutic and educational convoys and solving community problems, etc.

- Workshops were also held for both faculty members and the assisting staff to improve their skills needed in the teaching and learning process. Workshops were through the Education and Development Center (EDC) such as (Rationale of Scientific Novelties, Crisis Management, Flipped Learning, Interactive Non-traditional Teaching/Learning Tools, etc…) or the Quality Assurance Center at the university such as (Competency based education, data base, مهام إدارى وحدات ضمان الجودة, ملف المقرر المبنى على الجدارات etc…)

- During Fall 2022/2023, Five field projects were carried out in the following courses: Pharmacy Practice Experience I, Biochemistry II, Pharmaceutical Analytical Chemistry I, Pharmaceutics III and Medicinal Plants.

- Many field visits were done to link the theoretical and practical side such as (Amiri University Hospital, Children's Cancer Hospital 57357, Arab Company for Medicines and

Medicinal Plants (MEPACO), The European Egyptian Company for Pharmaceutical Industries).

- Encouraging students to join many workshops at the Entrepreneurship Center such as :

م	اسم ورشة العمل	التاريخ
١	Entrepreneurship (CISCO)	22-31/8/2022
٢	Fetch your Career	14/8/2022
٣	Principles of Marketing	28/8/2022
٤	Entrepreneurship (CISCO)	11-13/9/2022
٥	How to Finance your Project	4-6/9/2022
٦	Marketing tools	12/9/2022
٧	ESB	25/10/2022
٨	اعرف قدراتك	28/2/2023

Examination System:

- Oral exams were cancelled according to the decision of the University and Faculty Councils and grades for the oral exam were replaced by graded written sheet distributed with the final written exam, this was done in courses where number of students is large but oral exams were held on campus for courses with around 100 number of students.
- Reviewing exams by the Curriculum Development Committee represented by each department head to ensure the diversity of questions and their coverage of all parts of the curriculum with their suitability for the time specified for each exam, and supervising the conduct of substitute examinations
- Establishing an integrated electronic control to ensure the accuracy of the results and proper monitoring, then handing it over to the faculty's control to work within the framework of the university's requirements
- Discussing the results of the audit work done by the result revision committee to approve it.

➢ **Others:**

- The success rates in the spring semester were studied and the numbers of those who failed in each course were counted, which helped to develop a study plan for the summer semester to open many courses to allow students to complete the courses they failed.

Suggestions for Improving the Program

This bylaw is finished this year and won't be available anymore. Other bylaws are now implemented (Pharm D, Pharm D Clinical Pharmacy).

Program coordinator

Dr. Rasha ElBayaa

Faculty Dean

Prof. Dr. Maged Elghazoly

Head of Quality Assurance Unit

Dr. Sherihan SalahEldin