Faculty of Pharmacy
Alexandria University

Programme Specification

2014/2015

Bachelor of Pharmacy

A- Basic Information

1- Programme title: Bachelor of Pharmacy

2- Programme type: Single [√] **Double** [ ] **Multiple** [ ]

3- Department(s): Seven departments: Pharmaceutics, Industrial Pharmacy, Pharmaceutical Chemistry, Pharmaceutical Analytical Chemistry, Pharmacognosy, Pharmaceutical Microbiology, and Pharmacology

4- Coordinator: Dr. Elsayed Aboulmagd Elsayed, Professor of Pharmaceutical Microbiology .

5- External evaluator (2010/2011): Dr. Camilia George, Professor of Pharmacognosy, Faculty of Pharmacy, Cairo University.

6- External evaluator (2013/2014): Dr. Hoda Daabees, Professor of Pharmaceutical Chemistry, Dean of Faculty of Pharmacy, Damanhour University .

7- Last date of programme specifications approval by Faculty council: November 2015

B- Professional Information

1- Programme aims

The programme, through its diverse courses, wet and dry lab activities and supervised pharmacy practice summer training, aims to graduate pharmacists able to deliver pharmaceutical care in community pharmacies and in hospitals, well acquainted with good manufacturing, good laboratory, good dispensing and good storage practices of pharmaceutical and natural products, dedicated to assuming an active role in health education of the public, and in prevention and

management of disease in accordance with evidence-based medicine, committed to professional ethics, continuous education and self learning.

2- Graduate attributes

The Faculty of Pharmacy, Alexandria University strives to ensure that graduates of the programme 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 as well as natural products.

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 and storage 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. Demonstrate good judgment in resolving drug-related problems and promoting rational use of medicines.

9. Demonstrate competence in assuring quality of raw materials and pharmaceuticals 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, decision-making and team-working spirit.

12. Be committed to further develop acquired literature research, presentation, promotion, marketing and business administration skills.

3- Intended learning outcomes (ILOs)

A- Knowledge and understanding:

Students, after completing the programme, will be able to demonstrate knowledge and understanding of:

A1. Issues relevant to modern pharmacy profession based on key aspects of basic, pharmaceutical, medical, social, behavioral, management, health and environmental sciences as well as pharmacy practice and human rights issues.

A2. Physical and chemical properties of active and inactive pharmaceutical ingredients influencing the performance of traditional and novel therapeutic and diagnostic products including radiopharmaceuticals and biopharmaceuticals.

A3. Principles of validated analytical methods for drugs in bulk, in dosage forms and in biological fluids, using good laboratory practice guidelines.

A4. Principles and applications of organic and pharmaceutical chemistry, and phyto-chemistry in synthesis, isolation, purification, identification and standardization of pharmaceutical compounds.

A5. Principles and concept of structure–based drug design and molecular modeling.

A6. Characteristic features, potentials and limitations of different dosage forms including novel drug delivery systems, veterinary pharmaceuticals, cosmetics and nutratraceuticals in terms of formulation, characterization, stability and performance.

A7. Principles of pharmaceutical industrial operations covering manufacture, packaging, labeling, storing and distribution.

A8. Principles and input of biopharmaceutics and basic pharmacokinetics in optimizing formulations, individualizing dosage regimen and conducting bioequivalence studies.

A9. Hospital pharmacy department services, including administrative, technical and clinical services.

A10. Public health issues that impact health promotion, disease prevention and safe disposal of waste related to the manufacture and use of medicines.

A11. Principles of immunology, biochemistry, physiology and anatomy related to drug handling by the body in different disease conditions.

A12. Key aspects of pathophysiology of different diseases, including etiology, symptoms and lab diagnosis

A13. Pharmacological properties of drugs including mechanism of action, therapeutic uses, dosage regimen, adverse reactions, contraindications and drug interactions.

A14. Pharmacotherapeutic principles applied to the treatment of different diseases, as well as principles of pharmacovigilance and rational use of drugs.

A15. Identification and detection of adulteration of medicinal plants, as basis for herbal remedies, among other types of complementary and alternative medicines.

A16. Toxicity of drugs and other xenobiotics including identification, symptoms, management and treatment.

A17. Pharmaceutical calculations and methods of statistical and biostatistical analysis.

A18. Principles of business management including management of financial and human resources.

A19. Principles of drug marketing, promotion, sales, computation, documentation and pharmaco-economics as well as linguistic principles.

A20. Pharmacy laws, regulatory affairs and ethics in pharmacy practice.

A21. Quality assurance of pharmaceutical processes and products including physical, chemical, microbiological and biological quality control as well as quality control of herbal products.

A22. Pharmaceutical care concept applied in different pharmacy practice settings.

A23. Principles and applications of pharmaceutical microbiology in the control of infectious diseases and microbial contamination and in sterilization procedures.

A24. Stability issues of medicines, including assessment and control of biological, physical and chemical degradation.

A25. Principles of novel drug therapy development through pharmaceutical biotechnology, antisense drugs and gene therapy modalities.

B- Intellectual skills

Students after completing the programme will be able to:

B1. Propose a suitable drug formulation, and suggest ideas for novel drug delivery systems to improve drug safety and performance.

B2. Distinguish good laboratory, good manufacturing, and good storage practices and distinguish pharmacy-related terminology.

B3. Plan quality control tests for different natural and synthetic pharmaceutical compounds as well as for different dosage forms.

B4. Assess prescriptions before compounding or dispensing them to detect prescription-related problems such as incompatibilities.

B5. Propose appropriate methods to identify, isolate, synthesize, purify and standardize active principles from different origin using relevant basic scientific and pharmaceutical knowledge.

B6. Design potential drugs through computer-aided drug design and predict their potential biological activity.

B7. Distinguish specific pharmacy practice requirements in handling biopharmaceutical products based on characteristics of biotechnology-produced protein drugs.

B8. Propose suitable infection control methods, and assess means for promoting community health.

B9. Select medicinal products to suit different diseases based on principles of pharmacology, biochemistry and pharmaceutical chemistry.

B10 Judge drug disposition in physiologic and pathologic conditions and calculate doses in diseased patients based on pharmacokinetic principles.

B11. Evaluate consequences of drug-related problems, such as drug interactions and adverse drug reactions, as essential issues in implementing pharmaceutical care.

B12. Assess cost-effective drug therapy issues based on sound pharmacoeconomic principles.

B13. Analyze and interpret experimental data based on relevant chemical, pharmaceutical, mathematical and analytical principles.

B14. Criticize published evidence-based information relevant to drug therapy and pharmacy practice.

B15. Assess biological specimens and medicinal plants microscopically and macroscopically, and judge quality and possible adulteration of herbal drugs.

B16. Judge mental and social health hazards of natural and synthetic drug abuse, misuse and of exposure to toxic agents.

B17. Manage minor illness and respond appropriately to presented symptoms.

C- Professional and practical skills

Students after completing the programme will be able to:

C1. Use pharmaceutical and medical terms and abbreviations correctly in different professional settings.

C2. Apply good laboratory practice in handling and disposing of chemicals in a manner ensuring safety of individuals and environment.

C3. Apply good pharmacy practice in compounding, dispensing, storing 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.

C5. Show good judgment in selecting and dispensing appropriate medicines, including herbal products, according to good clinical practice guidelines.

C6. Apply suitable strategies to control microbial contamination and growth in patient settings and interpret results of lab tests for different diseases.

C7. Apply good judgment in identifying symptoms of drug poisoning and isolating poisons in biological samples.

C8. Operate instruments and equipment required in various laboratory and pharmaceutical operations and handle experimental animals and biological specimen.

C9. Demonstrate the public health hazards of natural and synthetic drug abuse and misuse.

C10. Practice patient counseling when dispensing OTC and prescription products to ensure safe and proper use of medicines.

C11. Demonstrate competence in generating, presenting, analyzing and interpreting experimental and mathematical data.

C12. Solve problems encountered in pharmaceutical manufacturing sites and employ suitable quality control tests for manufactured products.

D- Transferable or general skills

Students after completing the programme will be able to:

D1. Effectively communicate drug-related information to health care professionals and express medical issues in lay language to the public.

D2. Retrieve up-to-date drug information from a variety of sources.

D3. Work effectively as individuals and within a team.

D4. Use information technology tools and apply mathematical and statistical methods when needed.

D5. Continue professional development through self learning.

D6. Follow ethical, legal and safety guidelines in all practice settings.

D7. Further develop skills of market management.

D8. Manage time effectively.

D9. Demonstrate writing and presentation skills when needed.

D10. Further develop problem solving skills including decision making and critical thinking.

4- Academic standards

4a. External references standards

The academic standards for the faculty programme have been referred to The National Academic Reference Standards in Egypt (NARS, 2009) which include the minimum knowledge and skills to be gained by the graduate.

4b. Comparison of faculty programme academic characteristics with the adopted external reference standards

The Faculty programme fulfills most of NARS 2009 requirements concerning graduate attributes, intended learning outcomes and suggested courses.

Comparison of graduate attributes of the faculty programme with NARS

NARS 2009	Faculty Programme
1.1	2
1.2	3 and 5
1.3	4
1.4	6
1.5	7
1.6	12
1.7	12
1.8	11
1.9	1
1.10	10
....	8
.....	9

Comparison of the faculty programme ILOs with NARS.

Knowledge and understanding

NARS 2009	Faculty programme
2.1	A1
2.2	A2
2.3	A3
2.4	A4
2.5	A5
2.6	A6
2.7	A7
2.8	A8
2.9	A9
2.10	A10
2.11	A11
2.12	A12
2.13	A13
2.14	A14
2.15	A15
2.16	A16
2.17	A17
2.18	A18
2.19 and 2.20	A19
2.21	A20
2.10, 2.3 and 2.17	A21
-	A22
2.10	A23
-	A24
-	A25

Remarks on faculty program ILOs (A21 to A25):

Knowledge and understanding areas A21 – A25, represent areas of emphasis in the faculty program which have developed over the years:

A21 reads: **Quality assurance** of pharmaceutical processes and products including physical, chemical, microbiological and biological quality control as well as quality control of herbal products. Several courses in different departments contribute to this area of knowledge namely 2nd year Pharmaceutical Microbiology, 3rd year Phytochemistry and 4th year Biological Standardization and Biostatistics, Applied Pharmacognosy as well as Industrial Pharmacy courses.

A22 reads: **Pharmaceutical care** concept applied in different pharmacy practice settings. This area of knowledge is covered in the Pharmaceutics courses for third and fourth year students. We feel it is important that this term, "pharmaceutical care", should appear in the program ILOs. The term appears in NARS in the introductory part under Pharmacy Education but does not appear in the NARS ILOs.

A23 reads: **Principles** and applications of Pharmaceutical Microbiology in control of infectious diseases and microbial contamination and in sterilization procedures. The 2nd year Microbiology course covers this area of knowledge and understanding.

A24 reads: **Stability issues of medicines** including assessment and control of biological, physical and chemical degradation. 3rd year Pharmaceutics course covers this important knowledge area.

A25 reads: **Principles** of novel drug therapy development through pharmaceutical biotechnology, antisense drugs and gene therapy modalities. These knowledge areas are covered in 2nd year Microbiology, 3rd year Pharmaceutical Chemistry and 4th year Pharmaceutics courses.

Remarks on selected faculty program ILOs with reference to NARS:

The area of knowledge (2.14) in NARS reads: **Principles** of clinical pharmacology, pharmacovigilance and rational use of drugs. The term Clinical Pharmacology does not appear in the faculty ILO (A14) which reads: **Pharmacotherapeutic principles applied to the treatment of different diseases** (which is the core of Clinical Pharmacology knowledge area) as well as principles of pharmacovigilance and rational use of drugs. Measures have been taken to include a course entitled Clinical Pharmacology in the modified program developed in 2010.

Intellectual skills

NARS 2009	Faculty Programme
4.1	B1
4.2	B2
4.3	B3
4.4	B4
4.5	B5
4.6	B6
4.7	B7
4.8	B8
4.9	B9
4.10	B10
4.11	B11
4.12	B12
4.13	B13
4.14	B14
-	B15
-	B16
-	B17

Remarks on faculty program ILOs (B15 to B17 and B11):

B15 reads: **Assess** biological specimens and medicinal plants microscopically and macroscopically, and judge quality and possible adulteration of herbal drugs.

This component originates from a long history of excellence in this area in the Pharmacognosy department. Three courses are taught by the Pharmacognosy department contribute to this skill namely, 2nd year Pharmacognosy and Medicinal plants, 3rd year Phytochemistry and 4th year Applied Pharmacognosy.

B16 reads: **Judge** mental and social health hazards of natural and synthetic drug abuse, misuse and of exposure to toxic agents. Two courses contribute to this skill namely, 4th year Toxicolgy and 2nd year Psychology courses.

B17 reads: **Manage** minor illness and respond appropriately to presented symptoms. This skill is the core of the pharmacy practice dry lab sessions in the 4th Pharmaceutics course.

NARS ILO 4.11 reads: Assess drug interactions, ADRs and pharmacovigilance. The faculty program ILO (B11) reads: **Evaluate** consequences of drug-related problems, such as drug interactions and adverse drug reactions, as essential issues in implementing pharmaceutical care. Pharmaceutics courses for 2nd, 3rd and 4th year help the student acquire this skill.

Professional skills

NARS 2009	Faculty programme
3.1	C1
3.2	C2
3.2	C3
3.4	C4
3.5	C5
3.6	C6
3.7	C7
3.8	C8
-	C9
-	C10
-	C11
-	C12

Remarks on faculty program ILOs (C9 to C12):

C9 reads: Demonstrate the public health hazards of natural and synthetic drug abuse and misuse. Three courses contribute to the student acquiring this skill, 2nd year Pharmacognosy, 3rd year phytochemistry and 4th year Toxicology, Forensic Chemistry and First Aid.

C10 reads: Practice patient counseling when dispensing OTC and prescription products to ensure safe and proper use of medicines. 2nd, 3rd and 4th year Pharmaceutics as well as 4th year Pharmaceutical Chemistry courses help the student acquire this skill.

C11 reads: Demonstrate competence in generating, presenting, analyzing and interpreting experimental and mathematical data. The program has a strong practical lab components, 14 courses are responsible for the student acquiring this skill through wet lab activities.

C12 reads: Solve problems encountered in pharmaceutical manufacturing sites and employ suitable quality control tests for manufactured products. The 4th year Industrial Pharmacy course

contributes mainly to the student acquiring this skill in addition to 2nd year Analytical Chemistry and 2nd year Pharmaceutics courses.

Transferable or general skills

NARS 2009	Faculty programme
5.1	D1
5.2	D2
5.3	D3
5.4	D4
5.5	D5
5.6	D6
5.7	D7
5.8	D8
5.9	D9
5.10	D10

Remarks on faculty program ILOs D8:

NARS ILO 5.8 reads: Demonstrate creativity and time management skills. The corresponding faculty ILO (D8) reads: Manage time effectively. The large number of students hinders targeting creativity as a skill. The faculty QAU is looking into means of enabling the students to acquire this skill within the constraints of large students' numbers.

5- Curriculum Structure and Contents

5.a. Programme duration *5 years*

5.b. Programme structure *No. of semesters: 10 semesters*

Pre-pharmacy:	No. of hrs/w		No. of hrs/w		No. of hrs/w
1st semester: Lectures	15	Lab./Exercise	11	total	26
2nd semester: Lectures	15	Lab./Exercise	11	total	26
First year:					
1st semester: Lectures	15	Lab./Exercise	13.5	total	28.5
2nd semester: Lectures	15	Lab./Exercise	7.5	total	22.5
Second year:					
1st semester: Lectures	13	Lab./Exercise	14	total	27
2nd semester: Lectures	12	Lab./Exercise	14	total	26
Third year:					
1st semester: Lectures	17	Lab./Exercise	16	total	33
2nd semester: Lectures	13	Lab./Exercise	12	total	25
Fourth year:					
1st semester: Lectures	15	Lab./Exercise	11.5	total	26.5
2nd semester: Lectures	13	Lab./Exercise	9.5	total	22.5

Summer Training: 300 hours

Comparison of programme curriculum structure with NARS

Sciences	NARS ILOs	Faculty Curriculum ILOs
Basic	10-15 %	29.97 %
Pharmaceutical	35-40 %	40.34 %
Medical	20-25 %	14.64 %
Pharmacy Practice	10-15 %	7.30 %
Health and Environmental	5-10 %	5.03 %
Behavioral and Social	2-4 %	1.59 %
Pharmacy Management	2-4 %	1.14 %
Discretionary	Up to 8 %	----

6-Programme courses

Pre-Pharmacy

1st Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
General Chemistry	4	3
Physics	3	2
General Botany	3	4
Zoology	2	2
English Language and Terminology	3	---
Total	**15**	**11**

2nd Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
General Chemistry	4	3
Physics	3	2
General Botany	3	4
Zoology	2	2
English Language and Terminology	3	---
Total	**15**	**11**

First Year Pharmacy

1st Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
Organic Chemistry	3	2.5
Pharmaceutical Analytical Chemistry	2	4
Pharmacognosy and Medicinal plants	2	2.5
Pharmaceutics I	3	2.5
Anatomy	2	1
Histology	1	1
Psychology	2	---
Total	**15**	**13.5**

2nd Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
Organic Chemistry	3	2.5
Pharmacognosy and Medicinal plants	2	2.5
Pharmaceutics I	3	2.5
Physiology	3	--
Mathematics	4	--
Total	**15**	**7.5**

Second Year Pharmacy

1st Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
Pharmaceutical Analytical Chemistry	3	4
Organic Chemistry	3	2.5
Pharmacognosy	2	3
Pharmaceutics II	2	2.5
Pharmaceutical Microbiology	2	2
Human Rights	1	----
Total	**13**	**14**

2nd Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
Pharmaceutical Analytical Chemistry	3	4
Organic Chemistry	3	2.5
Pharmacognosy	2	3
Pharmaceutics II	2	2.5
Pharmaceutical Microbiology	2	2
Total	**12**	**14**

Third Year Pharmacy

1st Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
Phytochemistry	3	3
Pharmaceutical Chemistry	2	2.5
Pharmaceutics III	3	2.5
Biochemistry	4	4
Pharmacology	2	2.5
Public Health, Parasitology and Pathology	3	1.5
Total	**17**	**16**

2nd Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
Phytochemistry	3	3
Pharmaceutical Chemistry	2	2.5
Pharmaceutics III	3	2.5
Pharmacology	2	2.5
Public Health, Parasitology and Pathology	3	1.5
Total	**13**	**12**

Fourth Year Pharmacy

1st Semester:

Subject	Lecture (hrs/w)	Tutorial/ Practical (hrs/w)
Pharmaceutical Chemistry	2	2.5
Applied Pharmacognosy	2	2.5
Pharmaceutics IV	3	2.5
Industrial Pharmacy	4	2
Toxicology, Forensic Chemistry and First aid	4	2
Total	**15**	**11.5**

2nd Semester:

Subject	Lecture (hrs/w)	Tutorial/Practical (hrs/w)
Pharmaceutical Chemistry	2	2.5
Applied Pharmacognosy	2	2.5
Pharmaceutics IV	3	2.5
Biological Standardization and Biostatistics	4	2
Pharmacy Administration	2	---
Total	**13**	**9.5**

The following tables summarize programme ILOs achieved in the various programme courses

Pre-Pharmacy	Programme (ILOs) Covered
Physics	A_1^*, B_2^*, C_8^*, D_3
General Chemistry	$A_1^*, B_5^*, B_{13}^*, C_2, D_3, , D_6$
Zoology	$A_1^*, B_5^*, B_{15}^*, C_8^*, D_3$
General Botany	$A_1^*, B_{15}^*, C_3^*, D_3$
English Language and Terminology	$A_{19}^*, B_2^*, C_1, D_9$

*Partial fulfillment

First year	Programme (ILOs) Covered
Organic Chemistry	$A_1, A_4, B_5, C_2, C_4, D_5, D_8$
Pharmaceutical Analytical Chemistry	$A_1, A_3, B_2, B_{13}, C_2, C_{11}, D_5, D_8$
Pharmacognosy and Medicinal plants	$A_1, A_{15}, B_{15}, C_5, D_5, D_8$
Pharmaceutics I	$A_1, A_{17}^*, B_2^*, B_4, C_1, C_3, C_8, D_5, D_8$
Principles of Physiology, Anatomy and Histology	$A_1, A_{11}, B_{15}, C_8, D_5, D_8$
Mathematics	$A_1, A_{17}^*, B_{13}, C_{11}, D_4, D_8$
Psychology	A_1, B_{16}^*, D_6

* Partial fulfillment

Second year	Programme (ILOs) Covered
Pharmaceutical Analytical Chemistry	$A_1, A_3, B_2, B_3, B_{13}, C_4, C_{11}, D_3, D_5, D_8$
Organic Chemistry	$A_1, A_4, B_5, B_{13}, C_2, C_4, D_3, D_6, D_8$
Pharmacognosy	$A_1, A_{15}, B_{15}, C_9, D_3, D_5,$
Pharmaceutics II	$A_1, A_6, B_1, B_3, C_{12}, D_5, D_8$
Pharmaceutical Microbiology	$A_1, A_{23}, A_{25}, B_2, B_8, B_{14}, C_6, C_{11}, D_1, D_3, D_5, D_8$
Human Rights	A_1, D_6

Third year	Programme (ILOs) Covered
Pharmaceutical Chemistry	A_1,A_4,A_{25},B_9,C_2,C_4,C_8,D_1,D_5,D_8,D_9
Phytochemistry	A_1,A_4,B_5,C_4,C_{11}, D_5,D_8
Pharmaceutics III	A_1,A_6,A_8,A_{20},A_{22},A_{24},B_1,B_4,B_{10},B_{11},B_{13},B_{17},C_5,C_{10},D_1, D_2,D_3,D_5,D_9
Pharmacology	A_1,A_{13},B_9,B_{11},C_8,C_{11},D_3,D_5,D_8
Biochemistry	A_1,A_{11},A_{12},B_9,C_1,C_{11}, D_3,D_5,D_8
Public Health, Parasitology and Pathology	A_1,A_{10},A_{11},B_8,C_6,C_{11},D_1,D_5,D_9
Practice in retail Pharmacy (300 Hours) During summer vacation	A_{19},B_4,B_{11},B_{14},B_{17},C_1,C_2,C_3,C_4,C_5,C_9,C_{10},D_1,D_2,D_3 ,D_5,D_6,D_8,D_{10}

Fourth year	Programme (ILOs) Covered
Pharmaceutical Chemistry	$A_1,A_4,A_5,B_6,B_9,C_2,C_4,C_8,D_5,D_8,D_{10}$
Pharmaceutics IV	$A_1,A_2,A_6,A_9,A_{14},A_{22},A_{25},B_1,B_4,B_7,B_{11},B_{14},B_{17},C_1,$ $C_5,C_{10},D_1,D_2,D_3,D_9$
Industrial Pharmacy	$A_1,A_7,A_{21},B_2,C_4,C_8,C_{12},D_3,D_5,D_8,$
Biological Standardization and Biostatistics	$A1,A_{12},A_{14},A_{17},A_{21},B_9,B_{14},C_4,C_{11},D_3,D_4,D_5,D_8,D_9$
Toxicology, Forensic Chemistry and First Aid	$A_1,A_{16},B_{16},C_2,C_7,C_9,D_1,D_3,D_5,D_8$
Applied Pharmacognosy	$A_1,A_{15},A_{21},B_3,B_5,B_{15},C_4,C_8,C_{11},D_3,D_5,D_8$
Pharmacy Administration	$A_1,A_{18},A_{19},B_{12},C_5,D_6,D_7,D_{10}$

The following is a detailed matrix indicating programme graduate attributes and ILOs acquired by the student attending the various courses

Courses	Graduate attributes											
	Pre- pharmacy											
	1	2	3	4	5	6	7	8	9	10	11	12
Physics												
General Botany												
General Chemistry												
Zoology												
English Language and Terminology												

Partial fulfillment

Complete fulfillment

Knowledge and understanding																								
Pre- pharmacy																								
courses	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25
Physics																									
General Botany																									
General Chemistry																									
Zoology																									
English Language and Terminology																									

Partial fulfillment

Complete fulfillment

Courses	Intellectual skills																
	Pre- pharmacy																
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17
Physics																	
General Botany																	
General Chemistry																	
Zoology																	
English Language and Terminology																	

Partial fulfillment

Complete fulfillment

Courses	Professional and practical skills											
	Pre- pharmacy											
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
Physics												
General Botany												
General Chemistry												
Zoology												
English Language and Terminology												

Partial fulfillment

Complete fulfillment

Courses	Transferable or general skills									
	Pre- pharmacy									
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Physics										
General Botany										
General Chemistry										
Zoology										
English Language and Terminology										

Courses	Graduate attributes											
	First year											
	1	2	3	4	5	6	7	8	9	10	11	12
Pharmaceutical Analytical Chem.		■		■								
Organic Chemistry		■		■								
Principles of phys., Anat. and Hist.							▦					
Pharmaceutics I					■							
Psychology						▦						
Mathematics											▦	

▦ Partial fulfillment

■ Complete fulfillment

Courses	Knowledge and understanding																								
	First year																								
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25
Pharmaceutical Analytical Chem.	■		■																						
Organic Chem.	■			■																					
Principles of Phys., Anat. and Hist.	■										■														
Pharmaceutics I	■																▦								
Psychology	■																								
Mathematics	■																▦								
Pharmacognosy and Medicinal Plants	■														■										

▦ Partial fulfillment

■ Complete fulfillment

Courses	Intellectual skills																
	First year																
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17
Pharmaceutical Analytical chemistry		■											■				
Organic Chemistry					■												
Principles of Phys., Anat. and Hist.															■		
Pharmaceutics I		▦		■													
Psychology																▦	
Mathematics													■				
Pharmacognosy and Medicinal Plants															■		

▦ Partial fulfillment

■ Complete fulfillment

Courses	Professional and practical skills											
	First year											
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
Pharmaceutical Analytical Chemistry		■									■	
Organic Chemistry		■		■								
Principles of Physiology , Anatomy and Histology								■				
Pharmaceutics I	■		■					■				
Psychology												
Mathematics											■	
Pharmacognosy and Medicinal Plants					■							

Courses	Transferable or general skills									
	First year									
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Pharmaceutical Analytical Chemistry					■			■		
Organic Chemistry					■			■		
Principles of physiology , Anatomy and Histology					■			■		
Pharmaceutics I					■			■		
Psychology						■				
Mathematics				■				■		
Pharmacognosy and Medicinal Plants					■			■		

Courses	Graduate attributes											
	Second year											
	1	2	3	4	5	6	7	8	9	10	11	12
Pharmaceutical Analytical Chemistry		■		■					▦			
Organic Chemistry		■		■								
Pharmacognosy		■			■				▦			
Pharmaceutics II					■							
Pharmaceutical Microbiology				■		▦			▦			
Human Rights	▦											

▦ Partial fulfillment

■ Complete fulfillment

Courses	Knowledge and understanding																							
	Second year																							
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25
Pharmaceutical Analytical Chemistry	■		■																						
Organic Chemistry	■			■																					
Pharmacognosy	■														■										
Pharmaceutics II	■					■																			
Pharmaceutical Microbiology	■																						■		■
Human Rights	■																								

Courses	Intellectual skills																
	Second year																
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17
Pharmaceutical Analytical Chemistry		■	■										■				
Organic Chemistry					■								■				
Pharmacognosy															■		
Pharmaceutics II	■		■														
Pharmaceutical Microbiology		■						■						■			
Human Rights																	

Courses	Professional and practical skills											
	Second year											
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
Pharmaceutical Analytical Chemistry				■							■	
Organic Chemistry		■		■								
Pharmacognosy									■			
Pharmaceutics II												■
Pharmaceutical Microbiology						■					■	
Human Rights												

Courses	Transferable or general skills									
	Second year									
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Pharmaceutical Analytical Chemistry			■		■			■		
Organic Chemistry			■			■		■		
Pharmacognosy			■		■					
Pharmaceutics II					■			■		
Pharmaceutical Microbiology	■		■		■			■		
Human Rights						■				

Courses	Graduate attributes											
	Third year											
	1	2	3	4	5	6	7	8	9	10	11	12
Pharmaceutical Chemistry		■		■								■
Pharmaceutics III	■		■		■			■			■	
Biochemistry				■						■		
Public Health, Parasitology and Pathology						■	■			■		
Phytochemistry		■			■				■			
Pharmacology			■				■	■		■		■
Summer Training	■		■			■		■			■	

Courses	Knowledge and understanding																							
	Third year																							
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25
Pharmaceutical Chemistry	■			■																					■
Pharmaceutics III	■					■		■												■		■		■	
Biochemistry	■										■	■													
Public Health, Parasitology and Pathology	■									■	■														
Phytochemistry	■			■																					
Pharmacology	■												■												
Summer Training	■																		■						

Courses	Intellectual skills																
	Third year																
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17
Pharmaceutical Chemistry									■								
Pharmaceutics III	■			■						■	■		■				■
Biochemistry									■								
Public Health, Parasitology and Pathology								■									
Phytochemistry					■												
Pharmacology									■		■						
Summer Training				■							■			■			■

Courses	Professional and practical skills											
	Third year											
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
Pharmaceutical Chemistry		■		■				■				
Pharmaceutics III					■					■		
Biochemistry	■										■	
Public Health, Parasitology and Pathology						■					■	
Phytochemistry				■							■	
Pharmacology								■			■	
Summer Training	■	■	■	■	■				■	■		

Courses	Transferable or general skills									
	Third year									
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Pharmaceutical Chemistry										
Pharmaceutics III										
Biochemistry										
Public Health, Parasitology and Pathology										
Phytochemistry										
Pharmacology										
Summer Training										

Courses	Graduate attributes											
	Fourth year											
	1	2	3	4	5	6	7	8	9	10	11	12
Biological Standardization and biostatistics				■			■		■	■		
Toxicology. Forensic Chemistry and First Aid						■				■		
Pharmaceutics IV	■		■			■		■		■	■	
Applied Pharmacognosy		■			■				■	■		
Pharmaceutical Chemistry		■		■						■		
Industrial Pharmacy									■	■	■	
Pharmacy administration											■	■

Courses	Knowledge and understanding																								
	Fourth year																								
	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19	A20	A21	A22	A23	A24	A25
Biological Standardization and biostatistics	■											■		■			■				■				
Toxicology, Forensic Chemistry & First Aid	■															■									
Pharmaceutics IV	■	■				■			■					■								■			■
Applied Pharmacognosy	■														■						■				
Pharmaceutical Chemistry	■			■	■																				
Industrial Pharmacy	■						■														■				
Pharmacy administration	■																	■	■						

Courses	Intellectual skills																
	Fourth year																
	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13	B14	B15	B16	B17
Biological Standardization and biostatistics									■					■			
Toxicology. Forensic Chemistry and First Aid																■	
Pharmaceutics IV	■			■			■				■			■			■
Applied Pharmacognosy			■		■										■		
Pharmaceutical Chemistry						■			■								
Industrial Pharmacy		■															
Pharmacy administration												■					

Courses	Professional and practical skills											
	Fourth year											
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
Biological Standardization and biostatistics				■							■	
Toxicology. Forensic Chemistry and First Aid		■					■		■			
Pharmaceutics IV	■				■					■		
Applied Pharmacognosy				■				■			■	
Pharmaceutical Chemistry		■		■				■				
Industrial Pharmacy				■				■				■
Pharmacy administration					■							

Courses	Transferable or general skills									
	Fourth year									
	D1	D2	D3	D4	D5	D6	D7	D8	D9	D10
Biological Standardization and Biostatistics			■	■	■			■	■	
Toxicology. Forensic Chemistry and First Aid	■		■		■			■		
Pharmaceutics IV	■	■	■						■	
Applied Pharmacognosy			■		■			■		
Pharmaceutical Chemistry					■			■		■
Industrial Pharmacy			■		■			■		
Pharmacy administration						■	■			■

7- Programme admission requirements

General Secondary School Certificate with Major in Biology and Chemistry, or an equivalent certificate from a foreign institute recognized by the university.

8- Regulations for progression and programme completion

a. For the students to be transferred from one academic year to the next, he/she is required to have successfully passed in all subjects. However, the student may still be transferred if he/she has failed in not more than two basic courses and two complementary ones from the same academic year or from previous years. In such cases, students "carrying" subjects from one year to the next, should re-sit for their "failed" subjects in their respective semesters.

b. Final year students who have failed in a maximum of two basic and two complementary ones in that year or from previous years can re-sit for their exams in those subjects in November of the same year. If the student fails again, he/she has to re-set for his/her exams in those subjects in their proper respective semesters thereafter as many times as necessary until he/she succeeds.

c. Students are not granted the BSc degree unless they present a certificate accredited by the faculty council indicating satisfactory accomplishment of summer training based on a report from the training supervisors.

d. Students are not granted the BSc degree unless they pass the military education course

Pre-Pharmacy/Semester 1:

Automatically moved to second Semester

Pre-Pharmacy/Semester 2:

Pass in all subjects or fail in no more than two compulsive subjects and two subsidiary subjects.

First Year/Level/Semester 1:

Automatically moved to second Semester

First Year/Level/Semester 2:

Pass in all subjects or fail in no more than two compulsive subjects and two subsidiary subjects.

Second Year/Level/Semester 1:

Automatically moved to second Semester.

Second Year/Level/Semester 2:

Pass in all subjects or fail in no more than two compulsive subjects and two subsidiary subjects.

Third Year/Level/Semester 1:

Automatically moved to second Semester.

Third Year/Level/Semester 2:

Pass in all subjects or fail in no more than two compulsive subjects and two subsidiary subjects.

Fourth Year/Level/Semester 1:

Automatically moved to second Semester

Fourth Year/Level/Semester 2:

Pass in all subjects or fail in no more than two compulsive subjects and two subsidiary subjects. In the latter case, the student is allowed to enter a November Exam. If fails, the student will be enrolled in the next regular semester exam.

By laws and Regulations for Undergraduate Students

Enrollment opportunities for "regular" and "external" students:

Academic year	Enrollment opportunities	
	Regular students	External students
Pre-pharmacy	Two opportunities	None
First	Two opportunities	One opportunity
Second	Two opportunities	Three opportunity
Third	Two opportunities	Three opportunities
Fourth	Two opportunities	Infinite opportunities (If failed in less than 50% of courses) *this rules has been changed to three opportunities in May 2015)

* Once the student exhausts the specified number of opportunities of being a "regular" student, he/she becomes an "external" student for a number of opportunities specified in the table. Once an "external" student succeeds in his/her exams, he starts the next academic year as regular students to be transferred to the following year (he/she automatically becomes registered as a regular student).

9. Assessment methods

- End of semester written exam: to assess knowledge and understanding and intellectual skills.
- End of semester oral exam: to assess knowledge and understanding, intellectual skills and general transferable skills.
- End of discussion group sessions written exam: to assess knowledge and understanding and intellectual skills.
- Assessment during practical lab sessions: to assess professional and practical skills.
- Assessment of the student's attendance record.
- Assessment of the student's oral presentation, poster making and essay writing skills

10- Evaluation of programme intended learning outcomes:

Evaluator	Tool	Sample
1- Senior students	Questionnaires	20%
2- Graduates	Questionnaire	20%
3- Stakeholders	Questionnaires Focus group interview	20
4- External Examiner(s)	Questionnaire	50-75 yearly
5- External Evaluator(s)	Template / report	One External Evaluator for the program and one External Evaluator for each department
6- Other	Peer-reviewers visit	Feb. 2007 March 2008 October 2009 May 2010 September 2010 October 2010 May 2012

Programme coordinator :

Dean:

Head of Quality Assurance Unit :

قـــــــرار

وافق مجلس الكلية بجلستة فى 10 نوفمبر 2015 على إعتماد

توصيف البرنامج لمرحلة البكالوريوس للعام الجامعي

2015/2014 بعد تغير المسمى من :

Bachelor of pharmaceutical sciences إلى

Bachelor of Pharmacy.

تحريراً فى 11/ 11/ 2015

عميـــــد الكليـــة

أ.د/ ايفان إبراهيم سعد