# **Bachelor Degree in Pharmaceutical Sciences (Clinical Pharmacy)**

Programme

### CONTENTS

4 4 5 5
4 5 5
5 5
5
-
5
5
5
6
7
7
7
8
8
8
1

### **1. INTRODUCTION**

The Faculty of Pharmacy is committed to improving human health through the development of a new programme with the aim to educate pharmacy practitioners to meet the pharmaceutical care needs of the community. This new program of clinical pharmacy offers a Bachelor Degree in Pharmaceutical Sciences with specialization in clinical pharmacy.

#### 1.1. Faculty of Pharmacy Mission Statement

Achieving medical and distinction providing integrated treatment service and positive interaction with medical teams on the regional level.

#### 1.2. Vision

Clinical pharmacy program (credit hours system), Faculty of pharmacy, Assiut University, aims to graduating a clinical pharmacists, qualified by the most recent pharmaceutical and medical concept and able to deal with medical teams to provide distinctive treatment service, and to conduct research for community service.

#### **1.3. Objectives**

- 1- Prepare qualified pharmacists able to efficiently work in the multidisciplinary pharmacy field through studying of pharmaceutical and clinical courses according to the student's bylaw.
- 2- Apply most recent techniques of interactive teaching and encourage participation of students in active learning.
- 3- Establish the principle of lifelong-learning through implementation of continuouspharmacy education and activate the cooperation with the faculties of Medicine and Nursing in pharmacy teaching and training.
- 4- Promote the pharmacy profession of the faculty of pharmacy graduates Assiut University after receiving pharmacy education and training with enhanced medical Knowledge.
- 5- Minimize the risks of therapy and avoid undesirable drug interactions and medication errors and improve the pharmaceutical care service in hospitals, resulting in reducing the mortality rates.
- 6- Improve the quality of health provided to patients that leads to improved patients equality of life.
- 7- Save the expenditure on health care through the rational and pharmaco-economic use of medicines in hospitals which is reflected in improved quality of care in hospitals and increased capacity to accommodate patients.
- 8- Illustrate the unique role of pharmacist in providing pharmaceutical care services that contributes to promote health and rapid-recovery.

#### **1.4.** Careers in pharmacy

The contemporary role of the pharmacist in society is to ensure that patients receive optimal medication therapy. There are three major employment areas for pharmacists:

- 1. Community Pharmacy
  - In community practice pharmacists are involved in:
  - Dispensing prescriptions
  - Primary health care
  - Health promotion
- 2. Hospital Pharmacy
  - Pharmacists are involved in:
  - preparing and supplying medication for outpatients and patients in the wards, compounding and quality assessment of specialized dosage forms for use in the hospital environment

**Clinical Pharmacists** (Pharmacists who practice their profession in the wards) are directly involved in ensuring optimal medication therapy for patients by devising regimens specific to individual patients and monitoring patient's progress. Drug Information and Poisons Centers are staffed by pharmacists whose task is to provide information to other health care professionals to assist with therapeutic decision making.

3. Industrial Pharmacy

- Pharmacists in industry are involved in:
- manufacturing products, quality control, marketing of pharmaceutical and medical products testing, research and development of new or improved products

#### 2. DEGREE AWARDED

The Faculty of Pharmacy awards its graduates the Bachelor Degree in Pharmacy (Clinical Pharmacy), after successful completion of the approved study programme. Holders of the Bachelor degree are qualified to practice pharmacy and / or to study for higher degrees.

#### **3. PROGRAMME STRUCTURE**

The Bachelor of Pharmacy programme can be completed in five years (ten semesters) of full-time study. It provides education in the biological, chemical and physical sciences together with professional instruction on material that is specific to the practice of pharmacy. The programme is structured into two semesters each year, each semester made up of 15 weeks. An optional 6 to 8 weeks summer semester is also offered. The Faculty of Pharmacy implements the credit hours system. A credit hour represents an hour of lectures (L) or two hours of practical or tutorial (P/T) classes a week for a period of 15 weeks.

#### 4. LEARNING AND TEACHING METHODS

The Bachelor of Pharmacy programme is designed to integrate the teaching, learning and understanding of pharmaceutical science in the context of pharmacy practice. The programme is delivered through lectures, practical classes, group tutorials, seminars, research, assignments and external cooperation with the community and industry.

#### 5. COURSES REGISTRATION

Academic advisers are available to help students choose the required courses from the list of the offered courses. Selection of courses for any given semester is conditional on the successful completion of the prerequisite courses of the preceding semester.

#### 5.1. Course Load

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

- The academic load in each semester ranges from 12 to 22 credit hours.
- The academic load in the summer semester ranges from 4 to10 credit hours.
- Credits acquired by the student are those of passed courses from the registered academic load.

#### 5.2. Add, Drop and Withdrawal

Students are allowed to add or drop a course or more during a specified time every semester. Students are allowed to withdraw from a course prior to a deadline set by the university. The course will carry a grade of "W" and students will be allowed to retake the course when available. Students who withdraw after the deadline will not be allowed to sit for the relevant exam and will carry a grade of "F" for that course.

#### 6. ATTENDANCE

Students are expected to attend the university on a full-time basis during each semester. Attendance is checked during seminars, tutorials and labs. Students must attend at least 75% of the tutorials and practical labs. If absence in a course exceeds the allowed percentage (25%) during the first ten weeks of the semester (either excused or unexcused), the student will not be allowed to sit for the exam of the relevant subject and will carry grade of "F".

#### 7. L ANGUAGE OF INSTRUCTION

English is the official language of instruction; all communication, lectures, coursework, and documentation are performed using the English language.

#### 8. SUMMER TRAINING

Every student should complete at least 200 hours (100 credit hr.) of training in pharmacy settings such as community or hospital pharmacies, pharmaceutical firms or research institutes and universities and further 100 credit hr. of clinical training in a teaching hospital. Students commence training after the end of the second year.

#### 9. ADMISSION POLICY

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

#### **9.1** Admission of Graduate from other Faculties (<sup>\*</sup>)

Graduates from the Faculties of Medicine, Veterinary Medicine, Dentistry, Nursing, Science and Agriculture are admitted on space-available basis.

\*Admission of Graduate from other Faculties was canceled by the Supreme Council of Universities resolution no. (3150) dated 02/08/2012 (Attached).

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

#### 9.2. Transfer Admission Rules

- Transfer students must fulfill the Faculty of Pharmacy admission requirements.
- Courses completed at another faculty are evaluated for equivalency to the Faculty of Pharmacy courses.
- The faculty from which the student is to be transferred should be accredited.

#### **10. ASSESSMENT**

Student's performance is assessed by both coursework and examinations. Exams are held at the end of each course. Methods of assessment include written, oral and practical examinations, research papers, course assignments and practical work.

#### **10.1. Grading Scheme:**

1. Grades are a measure of the performance of a student in an individual course.

Grade Expression	Grade Scale	Grade Point Average Value* (GPA)	Numerical Scale of Marks
Eveclort	Α	4	≥90 %
Excellent	А-	3.7	85 - < 90 %
	B+	3.3	82.5 - < 85 %
Very Good	В	3	77.5 - < 82.5 %
	В-	2.7	75 - < 77.5 %
	C+	2.3	72.5 - < 75 %
Good	С	2	67.5 - < 72.5 %
	C-	1.7	65 - < 67.5 %
	D+	1.3	62.5 - < 65 %
Satisfactory	D	1	60 - < 62.5 %
Fail	F	0	< 60 %

a. \* The grade point values above apply to marks earned in individual courses; grade point averages are weighted sums of the grade points earned.

2. Grade Point Average (GPA): The University calculates for each student, both at the end of each grading period and cumulatively, a grade point average (GPA) based on the

ratio of grade points earned divided by the number of credits earned with grades of A-F (including pluses and minuses). Both the periodic and cumulative GPA appears on each student's record. Repeated courses will be counted once toward the calculation of accumulated credit hours. The best achieved GPA will be used for calculating GPA. The cumulative GPA calculation starts from the first semester for each student and is updated each semester till his/her graduation. The semester GPA of the student is the weighted average of the grade points acquired in the courses passed in that particular semester.

#### **Registration symbols that do not carry grade points or credit:**

- S: Represents achievement that is satisfactory.• U: Represents achievement that is unsatisfactory.
- T: Transfer, indicates credits transferred from another institution.
- W: Withdrawal prior to deadline indicates a student has officially withdrawn from a course.

#### **11. FAILURE IN COURSES**

- Student who fails to attend the final exam.
- Student who fails to achieve 30 % of the marks in the final written exam.
- Student who fails to achieve 60% of the total marks.

#### Progression of Students

The student cannot progress to the next course without having passed its pre-requisite courses.

- Student who fails to pass a required course will be allowed to repeat this course.
- Student who fails to pass an elective course will be allowed to repeat this course or register for another elective course

#### **12. ACADEMIC DIFFICULTY**

A student who fails to maintain a minimum cumulative GPA of "1" for six consecutive semesters or for a total of ten semesters will be dismissed from the faculty.

Students are allowed to repeat courses with a grade of "D" under the supervision of an academic advisor in order to improve their cumulative GPA. The higher grade of any repeated course is used in the GPA calculation.

#### **13. LEAVE OF ABSENCE**

Students may apply for a leave of absence of two continuous semesters or for a total of three non-continuous semesters.

Students granted a leave of absence must meet the graduation requirements in effect at the time of graduation.

#### **14. GRADUATION**

Students receive the Bachelor of Pharmaceutical Sciences degree (Clinical Pharmacy) upon completion of:

- 1. The requisite number of credit hours (194 credit hours) with a cumulative GPA equivalent to 1 or above.
- 2. At least 200 hours (100 credit hr.) of training in pharmacy setting.
- 3. At least 100 credit hours of clinical training in teaching hospital

#### **15. ACADEMIC INTEGRITY**

Any form of cheating, plagiarism, falsification, impersonation, evidence of concealment or fabrication of results are resisted and opposed by the University. The minimum penalty for such cases is failing the course where this offence was committed. In some cases, the penalty may reach dismissal from the University for one semester or more based on the circumstances of the case.

#### **16- STUDY PLAN**

The Bachelor degree of Pharmacy is granted to students who successfully complete a minimum of 194 credit hours divided as follows:

- University requirements: 9 credit hours.
- Faculty requirements: 179 credit hours.
- Elective courses: 6 credit hours.
- And at least 200 hours (100 credit hr.) of training in pharmacy setting and at least 100 credit hours of clinical training in a teaching hospital

CS 000	Computer Science
EN	English language
HU	Humanities
MS	Mathematics
PB	Biochemistry
PC	Chemistry
PG	Pharmacognosy
PM	Microbiology and Immunology
PO	Pharmacology and Toxicology
PP	Pharmacy Practice
PT	Pharmaceutics and Pharmaceutical Technology
MD	Medical Courses

#### **Key for Course Abbreviations**

1. The Letter 'P' means that the courses are offered to students of Pharmacy only.

- 2. The first digit represents the semester number.
- 3. The second and third digits represent the course number.

### 16.1. University Requirements

Course		Credit Hours*					
Code	Course Title	L	P/T	Total			
CS 101	Computer Science	1	1	2			
EN 101	English Language	2	-	2			
HU 201	Human Right	2	-	2			
HU 302	Psychology	2	-	2			
HU 903	Sociology	1		1			
Total		8	1	9			

L: Lecture; P/T: Practical or tutorial.

#### **16.2 Faculty Requirements**: See programme curriculum (page 9)

#### **16.3 Elective Courses**

The faculty of Pharmacy offers elective courses from which the students are free to select six credits.

Course		Credit Hours				
Code	Course Title	L	Р	Total		
PC E11	Drug Design	2		2		
PC E12	Advanced Pharmaceutical Analysis -Spectroscopy	2	-	2		
PG E8	Alternative Medicinal Therapies	2	-	2		
PG E9	Production & Manufacture of Medicinal plants	2	-	2		
PG E10	Chromatography and Separation Techniques	2	-	2		
PT E10	Quality Assurances and GMP	2	-	2		
PT E11	Applied Industrial Pharmacy	2	-	2		
PT E12	Good Manufacturing practices	2	-	2		
PT E13	Cosmetic Preparations	2	-	2		
PM E5	Biological Standardization	2	-	2		
PM E6	Antimicrobial Agents	2	_	2		
PO E9	Veterinar Pharmacology	2	-	2		

## 7. PROGRAMME CURRICULUM

## Table (1)

### Semester (1)

Course Title	Course	Credit hours			Prerequisite	Exa	mination	Total.	Fin Exa		
Course Thie	Code	Lect.	Pract.	Total	rierequisite	Period.	Pract.	Wr.	Oral	marks	(hrs
ysical & Inorganic Chemistry	PC 101	2	1	3	Registration	10	25	65	-	100	2
armaceutical Organic chemistry-1	PC102	2	1	3	Registration	10	25	50	15	100	2
physics	MD101	1	1	2	Registration	10	25	65	-	100	1
tany and medicinal plants	PG 101	2	1	3	Registration	10	25	50	15	100	2
l Biology	MD 102	1	1	2	Registration	10	25	65	-	100	1
thematics and statistics	MS 101	2	-	2	Registration	10	-	90	-	100	2
mputer sciences	CS 101	1	1	2	Registration	10	25	65	-	100	1
glish language	EN 101	2	-	2	Registration	10	-	90	-	100	2
tal		13	6	19						800	

Examination Marks:

Period = Periodical Exam.

Practl = Practical Exam.

Vr. = Written Exam.

## Table (2)

## Semester (2)

Course	Credit hours			Proroquisito	Examination Marks*				Total.	Fi Exa
Code	Lect	Pract	Total	rrerequisite	Period	Pract.	Wr.	Oral	marks	EX (h
PC 203	2	1	3	Pharmaceutical Organic chemistry-1	10	25	50	15	100	
PC 205	2	1	3	Registration	10	25	50	15	100	
PG 202	2	1	3	Botany and Medicinal plants	10	25	50	15	100	
MD 203	2	1	3	Registration	10	25	65	-	100	
PT 201	2	1	3	Registration	10	25	50	15	100	
PT 202	2	-	2	Registration	10	-	90	-	100	
HU 201	2	-	2	Registration	10	-	90	-	100	
	14	5	19						700	
	Code PC 203 PC 205 PG 202 MD 203 PT 201 PT 202	Course Code         Lect           PC 203         2           PC 205         2           PG 202         2           MD 203         2           PT 201         2           PT 202         2           HU 201         2	Course Code         Iect         Pract           PC 203         2         1           PC 205         2         1           PC 205         2         1           PG 202         2         1           MD 203         2         1           PT 201         2         1           PT 202         2         1           HU 201         2         -	Course Code         Iect         Pract         Total           PC 203         2         1         3           PC 205         2         1         3           PC 205         2         1         3           PG 202         2         1         3           PG 203         2         1         3           PG 202         2         1         3           PT 201         2         1         3           PT 202         2         -         2           HU 201         2         -         2	Course CodePrerequisiteCourse CodeLectPractTotalPrerequisitePC 203213Pharmaceutical Organic chemistry-1PC 205213RegistrationPG 202213Botany and Medicinal plantsMD 203213RegistrationPT 201213RegistrationPT 2022-2RegistrationHU 2012-2Registration	Course CodePrerequisitePrerequisitePC 203LectPractTotalPeriodPC 203213Pharmaceutical Organic chemistry-110PC 205213Registration10PG 202213Botany and Medicinal plants10PG 203213Registration10PT 201213Registration10PT 2022-2Registration10HU 2012-2Registration10	PrerequisitePrerequisiteCourse CodeLectPractTotalPrerequisitePeriodPract.PC 203213Pharmaceutical Organic chemistry-11025PC 205213Registration1025PG 202213Botany and Medicinal plants1025MD 203213Registration1025PT 201213Registration1025PT 202213Registration1025PT 2022-2Registration1025HU 2012-2Registration10-	Precubic PrecubicPrecubic PeriodPractWr.PC 203213Pharmaceutical Organic chemistry-1102550PC 205213Registration102550PG 202213Botany and Medicinal plants102550MD 203213Registration102550PT 201213Registration102550PT 202213Registration102550PT 202213Registration102550PT 202213Registration102550PT 202213Registration102550PT 202213Registration102550PT 2022-2Registration10-90HU 2012-22Registration10-90	Course Code         Iect         Pract         Total         Prerequisite         Period         Pract.         Wr.         Oral           PC 203         2         1         3         Pharmaceutical Organic chemistry-1         10         25         50         15           PC 205         2         1         3         Registration         10         25         50         15           PG 202         2         1         3         Registration         10         25         50         15           PG 202         2         1         3         Registration         10         25         50         15           MD 203         2         1         3         Registration         10         25         65         -           PT 201         2         1         3         Registration         10         25         50         15           PT 202         2         -         2         Registration         10         -         90         -           HU 201         2         -         2         Registration         10         -         90         -	Code CodeLectPractTotalPrerequisitePeriodPract.Wr.OralTotal. marksPC 203213Pharmaceutical Organic chemistry-110255015100PC 205213Registration10255015100PG 202213Botany and Medicinal plants10255015100MD 203213Registration10255015100PT 201213Registration10255015100PT 202213Registration10255015100PT 202213Registration10255015100PT 202213Registration10255015100PT 2022-2Registration10255015100HU 2012-2Registration10-90-100

## Table (3)

## Semester (3)

Course	Credit hours			Prerequisite	Examination Marks				Total.	Fin Exa
code			Period.	Pract.	Wr.	Oral	marks	(hr		
PC 304	2	1	3	Pharmaceutical organic chemistry-1	10	25	50	15	100	2
PC 306	2	1	3	Pharmaceutical analytical chemistry-1	10	25	50	15	100	2
PG 303	2	1	3	Botany and Medicinal plants	10	25	50	15	100	2
MD 304	1	1	2	Registration	10	25	65	-	100	1
MD 305	3	1	4	Registration	10	25	65	-	100	3
EN 302	2	-	2	Registration	10	-	90	-	100	2
HU 302	2	-	2	Registration	10	-	90	-	100	2
	14	5	19						700	
	code         PC 304         PC 306         PG 303         MD 304         MD 305         EN 302	Course code         Lect.           PC 304         2           PC 306         2           PG 303         2           MD 304         1           MD 305         3           EN 302         2           HU 302         2	Course code         Lect.         Pract           PC 304         2         1           PC 306         2         1           PC 306         2         1           PG 303         2         1           MD 304         1         1           MD 305         3         1           EN 302         2         -           HU 302         2         -	Course code         Lect.         Pract         Total           PC 304         2         1         3           PC 306         2         1         3           PG 303         2         1         3           PG 303         2         1         3           MD 304         1         1         2           MD 305         3         1         4           EN 302         2         -         2           HU 302         2         -         2	Course codeImage: Course Lect.PractTotalPrerequisitePC 304213Pharmaceutical organic chemistry-1PC 306213Pharmaceutical analytical chemistry-1PG 303213Botany and Medicinal plantsMD 304112RegistrationMD 305314RegistrationHU 3022-2Registration	Course codePrecequisiteLect.PractTotalPrerequisitePeriod.PC 304213Pharmaceutical organic chemistry-110PC 306213Pharmaceutical analytical chemistry-110PG 303213Botany and Medicinal plants10MD 304112Registration10MD 305314Registration10HU 3022-2Registration10	Course codePrecuisitePrecuisiteLect.PractTotalPrerequisitePeriod.Pract.PC 304213Pharmaceutical organic chemistry-11025PC 306213Pharmaceutical analytical chemistry-11025PG 303213Botany and Medicinal plants1025MD 304112Registration1025MD 305314Registration1025HU 3022-2Registration10-	Course codePrecequisitePrecequisiteLect.PractTotalPrecequisitePeriod.Pract.Wr.PC 304213Pharmaceutical organic chemistry-1102550PC 306213Pharmaceutical analytical chemistry-1102550PG 303213Botany and Medicinal plants102550MD 304112Registration102565MD 305314Registration102565EN 3022-2Registration10-90HU 3022-2Registration10-90	Prerequisite         Prerequisite           Lect.         Pract         Total         Prerequisite         Period.         Pract.         Wr.         Oral           PC 304         2         1         3         Pharmaceutical organic chemistry-1         10         25         50         15           PC 306         2         1         3         Pharmaceutical analytical chemistry-1         10         25         50         15           PG 303         2         1         3         Botany and Medicinal plants         10         25         50         15           MD 304         1         1         2         Registration         10         25         65         -           MD 305         3         1         4         Registration         10         25         65         -           MD 305         3         1         4         Registration         10         25         65         -           HU 302         2         -         2         Registration         10         -         90         -	Course code         Prerequisite         Total marks           PC 304         Pract         Pract         Total         Period.         Pract.         Wr.         Oral         Marks           PC 304         2         1         3         Pharmaceutical organic chemistry-1         10         25         50         15         100           PC 306         2         1         3         Pharmaceutical analytical chemistry-1         10         25         50         15         100           PC 306         2         1         3         Pharmaceutical analytical chemistry-1         10         25         50         15         100           PG 303         2         1         3         Botany and Medicinal plants         10         25         50         15         100           MD 304         1         1         2         Registration         10         25         65         -         100           MD 305         3         1         4         Registration         10         25         65         -         100           EN 302         2         -         2         Registration         10         -         90         -

Table	(4)
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### Semester (4)

<b>κs*</b>	Total. marks	
	monlza	Fina Exai
Oral	marks	Exal (hrs
15	100	2
15	100	2
15	100	1
15	100	3
15	100	1
15	100	2
-	100	1
	700	
	15 15 15 15	15     100       15     100       15     100       15     100       15     100       -     100

## Table (5)

## Semester (5)

					1				-	-
Course code	Credit hours			Duouoguisito	Exa	Total.	Fin			
	Lect.	Pract.	Total	Frerequisite	Period.	Pract.	Wr.	Oral	marks	Exa (hı
PO 701	2	1	3	Physiology	10	25	50	15	100	2
PM 502	2	1	3	General microbiology & immunology	10	25	50	15	100	2
PT 505	2	1	3	Physical pharmacy	10	25	50	15	100	2
PB 502	2	1	3	Biochemistry -1	10	25	50	15	100	2
PG 505	2	1	3	Pharmacognosy-1	10	25	50	15	100	2
MD 608	2	1	3	Registration	10	25	50	15	100	2
PT 506	2	-	2	Registration	10	-	90	-	100	2
	14	6	20						700	
	code         PO 701         PM 502         PT 505         PB 502         PG 505         MD 608	Course code         Lect.           PO 701         2           PM 502         2           PT 505         2           PB 502         2           PG 505         2           MD 608         2           PT 506         2	Course code         Lect.         Pract.           PO 701         2         1           PM 502         2         1           PT 505         2         1           PB 502         2         1           PG 505         2         1           PG 505         2         1           PT 506         2         1	Course code         Lect.         Pract.         Total           PO 701         2         1         3           PM 502         2         1         3           PT 505         2         1         3           PB 502         2         1         3           PG 505         2         1         3           PG 505         2         1         3           PG 505         2         1         3           PT 506         2         1         3	Course codeImage: Course Lect.Pract.TotalPrerequisitePO 701213PhysiologyPM 502213General microbiology & immunologyPT 505213Physical pharmacyPB 502213Biochemistry -1PG 505213RegistrationPT 5062-2Registration	Course codePrerequisitePrerequisiteLect.Pract.TotalPrerequisitePeriod.PO 701213Physiology10PM 502213General microbiology & immunology10PT 505213Physical pharmacy10PB 502213Biochemistry -110PG 505213Pharmacognosy-110MD 608213Registration10PT 5062-2Registration10	Course code         Lect.         Pract.         Total         Prerequisite         Period.         Pract.           PO 701         2         1         3         Physiology         10         25           PM 502         2         1         3         General microbiology & ino         10         25           PT 505         2         1         3         Physical pharmacy         10         25           PB 502         2         1         3         Physical pharmacy         10         25           PB 502         2         1         3         Physical pharmacy         10         25           PG 505         2         1         3         Pharmacognosy-1         10         25           MD 608         2         1         3         Registration         10         25           PT 506         2         1         3         Registration         10         25	Course code         Icet.         Pract.         Total         Prerequisite         Period.         Pract.         Wr.           PO 701         2         1         3         Physiology         10         25         50           PM 502         2         1         3         General microbiology & inmunology         10         25         50           PM 502         2         1         3         General microbiology & inmunology         10         25         50           PT 505         2         1         3         Physical pharmacy         10         25         50           PB 502         2         1         3         Physical pharmacy         10         25         50           PG 505         2         1         3         Pharmacognosy-1         10         25         50           MD 608         2         1         3         Registration         10         25         50           PT 506         2         -         2         Registration         10         -         90	Course code         Image: Course code         Pract.         Total         Prerequisite         Period.         Pract.         Wr.         Oral           PO 701         2         1         3         Physiology         10         25         50         15           PM 502         2         1         3         General microbiology & inmunology         10         25         50         15           PM 502         2         1         3         General microbiology & inmunology         10         25         50         15           PT 505         2         1         3         Physical pharmacy         10         25         50         15           PB 502         2         1         3         Pharmacognosy-1         10         25         50         15           PG 505         2         1         3         Pharmacognosy-1         10         25         50         15           MD 608         2         1         3         Registration         10         25         50         15           PT 506         2         -         2         Registration         10         -         90         -	Course code         Image: Course code         Precequisite         Prerequisite         Prerequisite         Prerequisite         Precequisite         Preside         Pract.         Wr.         Oral         marks           PO 701         2         1         3         Physiology         10         25         50         15         100           PM 502         2         1         3         General microbiology & inmunology         10         25         50         15         100           PT 505         2         1         3         General microbiology & inmunology         10         25         50         15         100           PT 505         2         1         3         Physical pharmacy         10         25         50         15         100           PB 502         2         1         3         Pharmacognosy-1         10         25         50         15         100           PG 505         2         1         3         Pharmacognosy-1         10         25         50         15         100           MD 608         2         1         3         Registration         10         25         50         15         100

## Table (6)

## Semester (6)

(*)											
Course Title	Course	Credit hours			Duonocuicito	Examination Marks*				Total.	Fii Exa
Course Thie	code	Lect.	Pract.	Total	Prerequisite	Period.	Pract.	Wr.	Oral	marks	Exa (h
licinal chemistry-1	PC 509	2	1	3	Pharmaceutical Organic chemistry-2	10	25	50	15	100	,
rmaceutical technology	PT 607	2	1	3	Registration	10	25	50	15	100	,
nmunity pharmacy practice	PT 608	2	1	3	Registration	10	25	50	15	100	
pharmaceutics and rmacokinetics	PT 609	2	1	3	Pharmaceutical dosage forms-2	10	25	50	15	100	,
lity Control of Herbal Drug	PG 606	2	1	3	Pharmacognosy-1	10	25	50	15	100	,
hophysiology	MD 507	2	-	2	Physiology	10	-	75	15	100	
mas and First Aid	MD 609	2	-	2	Registration	10	-	75	15	100	
al		14	5	19						700	

## Table (7)

## Semester (7)

× /								-			-
Course Title	Course	Credit hours			Duonoquisito	Exa	mination	Total.	Fir Exa		
	code	Lect.	Pract.	Total	Prerequisite	Period.	Pract.	Wr.	Oral	marks	Exa (hr
licinal chemistry-2	PC 610	2	1	3	Pharmaceutical organic chemistry-2	10	25	50	15	100	2
liopharmaceuticals	PP 701	1	-	1	Registration	10	-	90	-	100	1
nical pharmacy -1	PP 702	2	1	3	Registration	10	25	50	15	100	2
pital pharmacy	PP 703	2	1	3	Registration	10	25	50	15	100	2
trolled drug delivery ems	PT 704	2	-	2	Pharmaceutical dosage forms-2	10	-	75	15	100	2
lic health and preventive licine	MD 710	2	-	2	Clinical Microbiology	10	-	75	15	100	2
rmaceutical Biotechnology	PM 703	2	1	3	Registration	10	25	50	15	100	2
rmaceutical microbiology	PM 704	2	1	3	Registration	10	25	50	15	100	2
al		15	5	20						800	

## Table (8)

### Semester (8)

									v		-
Course Title	Course	С	redit hou	irs			aminatio	n Marks	Total.	Fin	
	code	Lect.	Pract.	Total	Prerequisite	Period.	Pract.	Wr.	Oral	marks	Exa (hr
armacology -2	PO 802	2	1	3	Pharmacology -1	10	25	50	15	100	2
nical pharmacy -2	PP 805	2	1	3	Clinical pharmacy-1	10	25	50	15	100	2
ytotherapy	PG 807	2	1	3	Pharmacognosy-1	10	25	50	15	100	2
armaceutical analysis and ality control	PC 808	2	1	3	Pharmaceutical analytical chemistry-2	10	25	50	15	100	2
nical biochemistry	PB 803	2	1	3	Biochemistry-2	10	25	50	15	100	2
ug marketing	PP 806	1	-	1	Registration	10	-	90	-	100	1
ug interactions	PO 803	2	-	2	Pharmacology-2	10	-	75	15	100	2
ective course	PE	2	-	2	Registration	10	-	75	15	100	2
tal		15	5	20						800	

## Table (9)

## Semester (9)

Course Title	Course	Credit hours			Prerequisite	Exai	Total.	Fir Exa			
	code	Lect.	Pract.	Total	1 Tel equisite	Period.	Pract.	Wr.	Oral	marks	LXa (hr
cicology and forensic chemistry	PO 904	2	1	3	Pharmacology -2	10	25	50	15	100	2
erapeutics -1	PO 905	2	1	3	Pharmacology-2	10	25	50	15	100	2
nical pharmacokinetics	PP 907	2	1	3	Biopharmaceutics and pharmacokinetics	10	25	50	15	100	2
cology	PP 908	2	1	3	Pathology, pharmacology-2	10	25	50	15	100	2
nical nutrition	PP 909	1	1	2	Biochemistry-2	10	25	50	15	100	1
nical pharmacology	PO 906	2	1	3	Pharmacology -2	10	25	50	15	100	2
iology	HU 903	1	-	1	Registration	10	-	90	-	100	2
ctive course	РЕ	2	-	2	Registration	10	-	75	15	100	2
al		14	6	20						800	

## Table (10)

## Semester (10)

											,
Course Title	Course	Credit hours			Dronoquisito	Exa	mination	Total.	Fir Exa		
	code	Lect.	Pract.	Total	Prerequisite	Period.	Pract.	Wr.	Oral	marks	Lxa (hr
erapeutics -2	PO 007	2	1	3	Pharmacology-2	10	25	50	15	100	2
eatment of dermatological and roductive diseases	PP 010	1	1	2	Pathology, pharmacology-2	10	25	50	15	100	1
eatment of Pediatrics diseases	PP 011	2	1	3	Pathology pharmacology-2	10	25	50	15	100	2
eatment of Cardiovascular diseases	PP 012	2	1	3	Pathology pharmacology-2	10	25	50	15	100	2
stroenterology	PP 013	2	1	3	Pathology pharmacology-2	10	25	50	15	100	2
eatment of Respiratory system eases	PP 014	2	1	3	Pathology pharmacology-2	10	25	50	15	100	2
ug information	PP 015	1	-	1	Pharmacology -2 Clinical pharmacy -2	10	-	75	15	100	2
ctive course	РЕ	2	-	2	Registration	10	-	75	15	100	2
tal		14	6	20						800	

### **18 COURSE DESCRIPTIONS**

#### PC 101 Physical and Inorganic Chemistry

Matter; its properties and measurement, electromagnetic spectrum, atomic structure, chemical bonding and intermolecular forces. Gases, liquids, and solids. Man and his environment and nuclear chemistry.

#### PC 102 Pharmaceutical Organic Chemistry (1)

Nature of organic compounds and structures. Nomenclature, aliphatic (saturated and unsaturated) hydrocarbons. Organic reactions (substitutions, additions, eliminations and condensations). Chemistry of the different organic classes: halogenated hydrocarbons, alcohols, ethers, carbonyl compounds, mono- and dibasic carboxylic acids and derivatives, amino acids.

#### PC 203 Pharmaceutical Organic Chemistry (2)

Chemistry of aromatic organic compounds including aromatic hydrocarbons, halogen and nitro derivatives, amines and diazonium salts, phenols, aromatic carboxylic acids, aromatic aldehydes, aromatic ketones , sulfonic acids and polynuclear aromatic hydrocarbons. Introduction to use of spectroscopic methods in organic chemistry (UV, IR, MS, NMR).

#### PC 304 Pharmaceutical Organic Chemistry (3)

Stereochemistry and Stereoisomerism. Organic reaction mechanisms (substitutions, additions, eliminations and condensations). Heterocyclic compounds including monocyclic monoheteroatom and fused bicyclic compounds.

#### PC 205 Pharmaceutical Analytical Chemistry (1)

Mixtures (suspensions, colloids and solutions), colligative properties of solutions (vapour pressure, osmotic pressure, effects on boiling and freezing points), Analytical chemistry Quantitative analytical chemistry comprises; acid base titrations and buffer solution, precipitimetry and gravimetry.

#### PC 306 Pharmaceutical Analytical Chemistry (2)

An introduction to statistical analysis, Oxidation-reduction titrations,( electrical properties of redox systems, factors affecting oxidation potential, redox titration curves). Complexometry (importance complexones stability titration curves, application, direct EDTA titrations, masking and demasking, non EDTA titrations)

#### PC 407 Instrumental Analysis

Spectrophotometric methods of analysis including; ultra-violet, visible and flame photometry, spectrofluorometry, atomic absorption & flame, electrochemistry (potentiometry, conductimetry, polarography), chromatography.

#### PC 808 Pharmaceutical Analysis and Quality Control

Control and quality assurance, in process control and validation, sampling process prior to analysis, analysis of raw materials and finished products using reference standards, pharmacopeial methods of stability and stability testing of drugs, performance and calibration of instruments used in pharmaceutical analysis, validation of analytical methods and ISO and BSI

#### PC 509 Medicinal Chemistry (1)

Introduction to pharmaceutical and medicinal chemistry, physicochemical properties of drugs in relation to biological action, chemotherapeutic agents, synthetic antimicrobial agents, malaria chemotherapy, antibacterial antibiotics and cancer chemotherapy.

#### PC 610 Medicinal Chemistry (2)

Central nervous system depressants, central nervous system stimulants, cardiovascular agents, analgesic agents, steroids and related compounds.

#### PC E11 Drug Design

Structure activity relationships, quantum mechanical approaches, molecular connectivity, pharmacophore generation, molecular modification by isosteric replacement. Natural products leading to new pharmaceuticals, mathematical treatment serving prediction, defining sites and targets, molecular modeling, prodrugs and drug latentiation.

#### PC E12 Advanced Pharmaceutical Analysis -Spectroscopy

Applications of instrumental methods of analysis (ultraviolet and infrared spectroscopy; NMR; mass spectrometry; atomic absorption spectroscopy) to pharmaceutical compounds.

#### PG 101 Botany and Medicinal Plants

Plant Kingdom; classification and systematic botany of some lower and higher plants with examples of medically active plants; Cytology, plant physiology,. A general introduction to pharmacognosy (cultivation, collection, drying, packing, storage, and adulteration of edicinal plants), and a detailed pharmacognostical study of drugs composed of leaves

#### PG 202 Pharmacognosy (1)

Detailed pharmacognostical study of drugs composed of flowers, barks, galls, woods, and herbs.

#### PG 303 Pharmacognosy (2)

Detailed pharmacognostical study of drugs composed of seeds, fruits, rhizomes and roots; animal drugs and unorganized drugs

#### PG 404 Phytochemistry (1)

Devoted to the study of plants therapeutically active principles; volatile oils, carbohydrates, resins and resin combinations, bitter principles and tannins

#### PG 505 Phytochemistry (2)

Detailed study of phytochemicals; alkaloids and glycosides, in addition to hallucinating and anticancer drugs. Introduction to chromatography and separation technique.

#### PG 606 Quality Control of Herbal Drugs

Quality control of herbal drugs including; herbal adulteration, detection of common pollutants in herbal medicine such as pesticide residues, heavy metal, radioactive contaminants, aflatoxins, bacteria and fungi.

#### PG 807 Phytotherapy

Guidelines for prescribing herbal medicines, drugs affecting digestive system, cardiovascular system, respiratory system, nonspecific enhancement of resistance, urinary system, rheumatic conditions, nervous system, gynaeocological conditions, cancer, skin diseases, eye diseases, wounds and other injuries.

#### **PG E8** Alternative Medicinal Therapies

The study of herbal preparations, nutritional supplements, and homeopathies. The study of herbal preparations that are widely used by the general public as self-selected OTC (over-the-counter) products/NPDs (nonprescription drugs). Food items for therapeutic, disease prevention, or health promotion purposes. Emphasis will be placed on the role of the pharmacist to help clients make an informed choice and counsel them on the selection of useful and safe products.

#### PG E9 Productions and Manufacture of Medicinal Plants

Commercial production of medicinal plants, cultivation, collection, drying, preservation, extraction, quality control, and final packaging of entire or powdered forms or extracts.

#### PG E10 Chromatography and Separation Techniques

Introduction and modes of separation, gel filtration and permeation, ion exchange chromatography, type properties, ion exchange and non-ion exchange manifestation and applications. High-pressure liquid chromatography, gas liquid chromatography and their applications.

#### **PT 201 Physical Pharmacy**

Principles of physical pharmacy, rheology and the flow of fluids, surface and interfacial phenomena, solutions and their properties, solubility and dissolution rate, disperse systems

#### PT 202 Pharmacy Orientation

Topic covered: History of pharmacy practice with particular emphasis on Arab impact, roles of the pharmacist, pharmacy organizations, systems of medicine, ethics of pharmacy, system for weights and measures, routes of drug administration, introduction to pharmaceutical dosage forms, types of prescription, and Incompatibilities, pharmaceutical terminology.

#### PT 403 Pharmaceutical Dosage Forms (1)

Includes, pharmaceutical calculation, pharmaceutical solutions, colloids and macromolecular system, coarse dispersions, suspensions and emulsions. Formulation, preparation and evaluation of solid forms, micromeritics, powders and granules, tablets, coating, hard capsules, soft capsules and microencapsulation

#### PT 404 Pharmacy Legislation

A detailed presentation of law that governs and affects the practice of pharmacy, legal principles for non-controlled and controlled prescriptions, over-the-counter drug requirements, opening new pharmacies, opening medical stores, opening factories, opening scientific offices, medicine registration, pharmacies and medicine stores management. Pharmacist duties and responsibilities, pharmacist-patient relationship, patient's rights and ethical principles and moral rules.

#### PT 505 Pharmaceutical Dosage Forms (2)

Formulation, preparation and evaluation of semisolids and related dosage forms, transdermals, topical Drugs and Suppositories.; Parentral medications, ophthalmic preparations

#### PT 506 Pharmacy Administration

Capital requirements, purchasing and financing a new pharmacy, location analysis, pharmacy layout design, space management for

pharmacy practice, inventory purchasing and control, OTC merchandising, advertising, interpersonal communication, interprofessional relations and patient consultation

#### PT 607 Pharmaceutical Technology

Heat transfer, evaporation, drying, extraction, crystallization, filtration, centrifugation and distillation; Mixing, emulsification, homogenization, size reduction, size separation, size enlargements, materials for plant constructions, packaging materials, good manufacturing practice, flow of fluids, mass transfer, safety measures and validation

#### **PT 608 Community Pharmacy Practice**

Concept and techniques of pharmaceutical care, the pharmacy profession, professional communication, patient counseling, problem solving skills, role of the pharmacist in management of symptoms of certain disease of cardiovascular system, GIT, kidney, respiratory tract, eye, skin and certain rheumatic and metabolic disease.

#### **PT 609 Biopharmaceutics and Pharmacokinetics**

Factors affecting drug absorption, factors affecting drug elimination, product development, pharmacokinetics models, pharmacokinetics following I.V. administration, pharmacokinetics following oral dosage forms, kinetics of drug absorption, clearance, bioavailability and bioequivalence, absolute and relative bioavailability, assessment of bioavailability and correlation between in vitro dissolution and in vivo absorption.

#### PT E10 Quality Assurances and GMP

Quality control and assurance organization, analytical control, inspection control, documentation, environmental control, GMP regulations, statistical quality control.

#### PT E11 Applied Industrial Pharmacy

Good manufacturing practice regulations and quality assurance with emphasis on process validation and sampling techniques.

#### PT E12 Good Manufacturing practices

Concepts, objectives and applicability, general provisions, organization and personal, Building and facilities, materials, equipment, production and process controls, packing and labeling, control, distribution, laboratory controls, records and reports, returned and salvaged drug products, repacking, inspections and recalls

#### **PT E13 Cosmetic Preparations**

Definition and concepts, classification, hair preparation, bath preparation, fragrance preparation, make-up preparation, nail lacquers, shaving preparations, after-shave preparations, skin care, anal hygiene products, antiperspirants and deodorants, quality control tests and evaluation of cosmetic products.

#### PM 401 General Microbiology and Immunology

Eukaryotic and prokaryotic cells, nomenclature of microorganisms, structure and form of the bacterial cells, spores, mycoplasma or PPLO, actinomycetes. Rickettsiae, viruses, eukaryotic microorganisms (fungi), bacterial genetics, molecular genetics, physiology of microorganisms, the growth curve microbial metabolism.

#### PM 502 Clinical Microbiology

Topic covered include: Bacteriology; gram positive bacteria, the mycobacterium group, Gram negative bacteria, Chlamydia and Rickettsiae. Mycology: Ringworm, Moniliasis, Maduromycosis and Sporotrichosis. Virology: RNA viruses and DNA viruses Immunology: Host parasite relationship, Non-specific and specific immunity, Mechanism of protective immunity, Hypersensitivity and in vitro antigen antibody reactions, Autoimmunity and auto-immune disease, Immune deficiency disorders, Transplantation immunology, Cancer immunology, Immunological tolerance

#### PB 703 Pharmaceutical Biotechnology

Introduction, biology of industrial micro-organisms, biophysical and biochemical processes, introduction to tissue culture and genetic engineering techniques. Techniques for the improvement of the economically important plants and animals and for the development of micro-organisms to act on the environment. Manipulation of living organisms, especially at the molecular genetic level, to produce new products, such as hormones, vaccines or monoclonal antibodies. Production of pharmaceuticals by microorganisms. Gene therapy.

#### PM 704 Pharmaceutical Microbiology

Sterilization. sterilization indicators, sterility testing, microbial contamination pharmaceutical products, aseptic of area. the microbiological quality of pharmaceuticals. Antimicrobial agents: classification, mechanism of action of antimicrobial drugs, drug combination, resistance of microorganisms to antimicrobial agents, assessment of a new antibiotic, microbiological assay of antibiotics, microbiological assay of vitamins, amino acids and growth factor, mode of action of nonantibiotic antimicrobial agents. Chemical disinfectants, antiseptics and preservatives.

#### PM E5 Biological Standardization

Assays of hormones, sera, vaccines, toxins, antitoxins, antibiotics and vitamins.

#### PM E6 Antimicrobial Agents

Factors affecting choice of antimicrobial agent, types of antimicrobial compounds, types of antibiotics and synthetic antimicrobial agents, clinical uses of antimicrobial drugs, manufacturing of antibiotics and other synthetic antimicrobial agents, principle methods of assaying antibiotics, mechanism of action antibiotics, bacterial resistance.

#### PO 701 Pharmacology (1)

The general principles of pharmacology, pharmacokinetics, pharmacodynamics, receptor theory and drug interaction. This is followed by a comprehensive study of drugs acting on the autonomic nervous system, cardiovascular system and renal system and autacoids.

#### PO 802 Pharmacology (2)

Drugs affecting the central nervous system, the gastrointestinal system, the blood and blood forming elements, as well as the drugs acting locally; the course deals with the chemotherapy of microbial diseases, neoplastic diseases and parasitic infestation and the study of hormones and hormone antagonists.

#### PO 803 Drug Interactions

Mechanism of drug interaction, significance of drug-drug interaction, management of drug-drug interaction, drug interaction of antibiotics, antiarhythmics, anticoagulants, anticonvulsants, barbiturates, betaagonists and antagonists, calcium channel antagonists, sulfonamides, drug-food interaction, drug-smoking interaction, drug-environment interaction.

#### PO 904 Toxicology and Forensic Chemistry

Introduction to toxicology, general principles of toxicology, disposition of toxicants, poisoning with common drugs, poisoning with common chemicals, chemical and biological warfare agents, radiation and radioactive material toxicity, general management of poisoning, clinical toxicology of specific drug groups, management of envenomation with natural toxins, maternal, foetal and neonatal toxicity. Therapeutic regimens for important prevalent diseases, including nonpharmacological approaches, pharmacotherapeutic requirements for treatment of pediatric and geriatric patients, and for pregnant and lactating mothers, immuno-compromised patients, patients with reduced organ function, and those with multi-morbidities, importance of form and route of administration, dialysis procedures, characteristics of certain therapeutic regimens, particularly with regard to anti-infective therapy, oncological therapy, and supportive therapy, anticoagulant therapy, immuno- and gene therapy and therapy of patients in intensive care

#### **PO 905 Therapeutics (1)**

Infectious disease, therapeutics, therapeutics of bone and joint disorders (hyperuricemia, osteoporosis, rheumatoid arthritis, tuberculosis of bones and joints)

#### **PO 906 Clinical Pharmacology**

General principles of pharmacotherapy, principles of pharmacotherapy in special patients, impact of drug interactions on therapeutics, pharmacotherapy for infectious diseases, cardiovascular disorders, respiratory disorders, gastrointestinal tract disorders and neurological and psychiatric disorders.

#### PO 907 Therapeutics (2)

Basic principles of therapeutics related to disease states encountered in medicine, in inpatients medicine setting. Participate in ward and attending rounds, emphasis is placed on the efficacy safety and comparative value of drug therapy of a large number of pathological diseases.

#### **PO E9 Veterinary Pharmacology**

The commonly used veterinary biological and pharmaceutical preparations; general sanitary and management procedures for the prevention and control of livestock diseases; a brief review of infectious diseases and animal parasites

#### PB 401 Biochemistry (1)

Subcellular organelles and membranes. Biological and biochemical properties of proteins, nucleic acids, carbohydrates, lipids, porphyrins and enzymes. Biological oxidations, and related biochemical processes.

#### PB 502 Biochemistry (2)

Metabolic map, regulation of metabolism, metabolism of carbohydrates, metabolism of lipids, nitrogen metabolism, integration of metabolism.

#### PB 803 Clinical Biochemistry

The course covers the analysis of blood and body fluid tests for the functional state of liver, kidney, heart, bone, gastrointestinal tract, endocrine glands, and interpretation of the results in relation to health and disease.

#### MD 101 Biophysics

Cell membrane structure, method of transport, channel types, receptors. Application of action potential, electrocardiogram and electroencephalogram identification and waves elucidation.

#### MD 102 Cell Biology

The cell theory, membranous organelles, non-membranous organelles, the cell inclusions, the nucleus, cell growth and proliferation, apoptosis, apoptosis and cancer, apoptosis and AIDS, apoptosis and organ transplants, cellular aging.

#### MD 203 Histology

Cytology, various tissues (epithelial, connective, muscular and nervous), heart, blood vessels, lymphatic organs, skin and its appendages, systems (digestive and associated glands, respiratory, urinary, reproductive, central nervous system), endocrine glands and eye.

#### MD 304 Anatomy

Introduction, skeletal system, muscular system, articular system, fascia, cardio-vascular system, lymphatic system, nervous system, digestive system, respiratory system, urogenital system, endocrine glands, cytology, blood, structure of liver, spleen, lungs, kidney, lymph nodes, cardiac muscle, stomach, intestine and aorta

#### MD 305 Physiology

Introduction (body water, homeostasis, transport of materials), nervous system (autonomic nervous system), neuron structure and function (reflex arc), cardiovascular system, blood, respiratory cycle, gastrointestinal system, reproduction system, renal system, endocrine glands and body temperature regulation

#### MD 406 Parasitology

Introduction, protozoology; amoebae; ciliate; flagellates; blood and tissue sporozoa. Medical helminthology; nematodes; cestodes; trematodes, and arthropods

#### MD 507 Pathophysiology

Introduction to pathophysiology, cell injury, inflammation and immune response, autonomic nervous system in health and disease, endocrine disorders, pancreatic disorders, fluid and electrolyte imbalance, vascular and haematological disorders, disease of urinary, pulmonary and digestive systems.

#### **MD 608 Pathology**

The study of the etiology, principle diagnostic features, and main characteristics of diseases of the cardiovascular system, respiratory tract, central nervous system and other important organ systems of the body.

#### MD 609 First AID

Basic Life Support, bleeding, shock, medical emergencies, poisoning, bones and joints, soft tissue injuries, rescue and transportation

#### MD 710 Public Health

Introduction, epidemiology, communicable and non-communicable diseases, control of communicable diseases, immunization, infections, occupational medicine, environmental health, water-borne and food borne diseases, milk-born diseases, nutrition and family health, environmental pollution, waste water treatment, waste disposal

#### **PP 701 Radiopharmaceuticals**

Basic principles involving the application of radiation and radioactive compounds in medical diagnosis, therapy and industry. Rationale for utility, preparation and quality control of radiopharmaceuticals. Biologic effects of various radiations

#### **PP 702 Clinical Pharmacy (1)**

Definition and concepts, case history, patient management approach, patient history taking, clinical problem solving. Topics of discussion include, clinical drug-interactions, adverse drug reactions, drugs interference and clinical laboratory data.

#### **PP 703 Hospital Pharmacy**

Organization and structure of a hospital pharmacy, hospital pharmacy department and dispensing, hospital formulary, radio-pharmaceuticals and nuclear pharmacy, surgical dressing and sutures, plasma substitute, central sterile supply unit and its management, manufacture of sterile and non-sterile products, I.V. admixtures, pharmacy and therapeutic committee and manufacturing units in hospitals.

#### **PP 704 Controlled Drug Delivery**

Controlled and Modulated release drug delivery systems, theory, methods. eg. Microcapsules – Bioadhesives.

#### PP 805 Clinical Pharmacy (2)

Clinical pharmacy in obstetrics, gynaecology, neonates, paediatrics, geriatrics, blood disease and CNS disease. Nutritional deficiencies, energy and nutritional needs, enteral and arenteral nutrition

#### **PP 806 Drug Marketing**

Marketing analysis, orientation to decision making, management of new product venture, advertising distribution, marketing information system.

#### **PP 907 Clinical Pharmacokinetics**

Introduction, applied clinical pharmacokinetics, therapeutic drug monitoring, mono and multi-exponential pharmacokinetics, Noncompartmental pharmacokinetics and moment analysis. Drug distribution and drug clearance mechanisms, IV infusion kinetics and kinetics following extra-vascular dosing, metabolite kinetics, multiple dose kinetics, nonlinear pharmacokinetics, dosage regimen design, dosage individualization of drugs of low therapeutic index, especially in patients with compromised renal and hepatic function.

#### PP 908 Oncology

Cancer etiology, risk factors, prognosis, types of tumors, systems affected, treatment, adjuvant therapy, patients factors and patient's support measures.

#### **PP 909 Clinical Nutrition**

The course focuses on the kinds and amounts of macronutrients (carbohydrates, fat, and proteins) and micronutrients (vitamins and minerals) that are needed to maintain optimal health and prevent chronic disease in adults. Fluid and electrolyte therapy and acid-base balance.

#### PP 010 Treatment of Dermatological and Reproductive Disease

Most popular skin diseases, types, bacterial, viral and fungal diseases, differentiation.

#### **PP 011 Treatment of Pediatrics Disease**

Nutritional requirements in neonates and infants, Nutritional disorders, neonatology, infectious diseases in pediatrics, congenital heart diseases, endocrine disorders, neurological disorders, pediatric emergencies.

#### PP 012 Treatment of Cardiovascular Disease

Diseases comprising the cardiovascular system, symptoms, prognosis drugs, selection, patients advice with hospital setting practice.

#### **PP 013 Gastroenterology**

GIT diseases, epidemiological aspects, symptoms, treatment, patient advice, case reports.

#### PP 014 Treatment of Respiratory System Disease

Infections, occupational, immunological diseases. Assessment of respiratory efficiency treatment, O<sub>2</sub> supply with case study reports.

#### **PP 015 Drug information**

Drug information and poison information centres, drug-drug interactions, drug-food interactions, drug disease interactions, and intravenous incompatibilities. Use of the Internet for drug and research information.

#### MS 101 Mathematics and Statistics

Functions and graphs, limits and continuity, differentiation, exponential, logarithmic, and trigonometric functions, integration, basic differential equations, functions of several variables and problems related to them, probability and random variables, hypothesis testing.

#### **CS 101 Computer Science**

Introduction to computer technology. Computer hardware, software and operating systems. Using various input/output devices and operating systems, data organization. Practice on major application software packages such as word processing, spreadsheets, database, and presentation graphics. How to use the Internet (searching and finding topics) and accessing email.

#### EN 101 English Language

Training in reading, comprehension, basic grammatical rules, writing and translation. The course adopts a systematic approach to proper essay writing, such as idea development, paragraph structure, introductions, support, and conclusions.

#### EN 302 Medical Terminology

Train the students to understand medical and pharmaceutical terminologies, medical abbreviations, medical idioms, suffixes and prefixes.

#### HU 201 Human rights

Human rights, principal concepts about human rights law and its sources. Civilian human rights, political rights, social and economical rights. Human rights in Islam. Protection measures of human rights on the national level. Protection measures of human rights on the international level.

#### HU 302 Psychology

The objective of this course is to help understand the behavior of the people around us. Topics include: Contemporary psychology: Psychological processes, sensation, perception, conditioned learning, motivation. Secondary psychological processes: learning, memory, language and cognition, intelligence, personality, developmental psychology, environmental and child psychology. Behavior dynamics: Groups, the individual, environmental, group problems, differentiation, density, handicaps, aggression, the media. Mental Health: signs of good mental health and disturbances (neuroses and psychoses), conflicts and frustration as precursors to the neuroses, genetic predisposition and diseases as precursors to the psychoses, some of the main therapies in psychology.

#### HU 903 Sociology

Culture ethnicity, ethnocentrism, prejudice, race and stereotype subculture, skills of communication (verbal and non verbal)

í sagar جمهور قرار وزاري رقم ( ۲۰۱۲ ) بتاريخ ٢٠١٢ / ٢٠١٢ بشأن إجراء تعديل باللائحة الداخلية لكلية الصيدلة جامعة الزقازيق (مرحلة البكالوريوس) بنظام الساعات المعتمدة

وزير التعليم العالى ورنيس المجلس الأعلى للجامعات

- بعد الإطلاع على القانون رقم ٤٩ لسنة ١٩٧٢ في شأن تنظيم الجامعات والقوانين المعدلة له.
- •• وعلى قرار رئيس الجمهورية رقم ٨٠٩ لسنة ١٩٧٥ بإصدار اللائحة التنفيذية لقانون تنظيم الجامعــات والقرارات المعدلة له .
- •• وعلى القرار الوزاري رقم (٤٤٦) بتاريخ ٢٠٠٤/٣/٢٩ بإصدار اللائحة الداخلية لكليـــــة الــصيدلة بجامعة الزقازيق والقرارات المعدلة له .
  - \*\* و على مو افقة مجلس جامعة الزقازيق بجلسته بتاريخ ٢/٢٨ / ٢٠١٢
  - • وعلى موافقة لجنة قطاع الدراسات الصيدلية بجلستها بتاريخ ٢٠١٢/٦/٦ •
- •• وعلى قرار المجلس الأعلى للجامعات بجلست بتاريخ ٢٠١١/١٢/٦ بتفويض السيد الأسناذ السدكتور وزير التعليم العالي ورئيس المجلس الأعلى للجامعات في الموافقة على إصدار اللوائح الداخلية للكليات والمعاهد الجامعية وتعديلاتها بعد موافقة لجان قطاعات التعليم الجامعي المختصنة .

#### قرر

#### (المادة الأولى)

يستبدل بنص المادة (٩) من الخطة الدراسية الموحدة لبرنامج الصيدلة الإكليزيكية و الملحقة باللائحة الداخلية لكلية الصيدلة جامعة الزقازيق الصادرة بالقرار الوزاري رقـم (٤٤٦) بتـاريخ ٢٠٠٤/٣/٢٩ النص التالي:

مادة (٩) : يشترط في من يتقدم للالتحاق بالبرنامج أن يستوفى الشروط التي يحددها المجلس الأعلى للجامعات ٠

يجوز قبول تحويل الطلاب المقيدين فى إحدى كليات الجامعات المــصرية أو الاجنبيـــة بشرط استيفاء الطالب لمتطلبات القبول بالكلية وتحتسب للطالب المقررات التى درسها فى الكلية المحول منها وفقًا للقواعد التى تحددها الكلية ٠

(المادة الثانية)

على جميع الجهات المختصة تنفيذ هذا القرأر .



وزير التعليم العالى ورنيس المجلس الأعلى للجامعات - Mu (i.د/ محمد عبدالحميد النشار )

المتراكب نائب رئيس الجامعة لشئون التعليم والطلاب

#### ZAGAZIG UNIVERSITY

Vice President For Education and Students Affairs

> السيده الاستاذه الدكتوره/ سلوى الغريب أمين المجلس الأعلى للجامعات

× 9. ×

تحية طيبة وبعد،،،

أتستشرف بأن أنهى لسيادتكم انه قرر مجلس الجامعة بجلسته رقم (٢٨ ٤) بتاريخ ٢٠١٢/٢/١٢ الموافقة على اقتراح مجلس إدارة البرامج الجديدة بشأن تعديل المادة

(٩) من اللائحة الداخلية لبرنامج الصيدلة الإكلينيكية بكلية الصيدلة لتصبح كالتالي:

#### الماده (٩) قبل التعديل من اللائحة الدتخلية لبرنامج الصيدلة الإكلينيكية

يُسْتَرَط في من يتقدم للالتداق بالبرنامج إن يستوفى الشروط التي يحددها المجلس الأعلى للجامعات . يجوز لمجلس الكلية بعد موافقة الجامعة قبول طلاب حاصلين على درجة البكالوريوس من كليات العلوم (تخصص كيمياء أو بيولوجي) والطب البشرى والطب البيطري والتمريض والزراعة وفق الضوابط التي يحددها مجلس الكلية ويوافق عليها رئيس الجامعة ، وتحتسب للطالب المقررات التي درسها للحصول على الدرجة الجامعية الأولى وفقا للقواعد التي تحددها الكلية ،

يجوز قبول تحويل الطلاب المقيدين في إحدى كليات الجامعات المصرية أو الأجنبية بشرط استيفاء الطالب لمتطلبات القبول بالكلية وتحتسب للطالب المقررات التي درسها في الكلية المحول منها وفعًا للقواعد التي تحددها الكلية ·

#### المادة (٩) بعد التعديل من اللائحة الدتخلية لبرنامج الصيدلة الإكلينيكية

يشترط في من يتقدم للالتحاق بالبرنامج إن يستوفى الشروط التي يحددها المجلس الأعلى للجامعات .

يجوز قبول تحويل الطلاب المقيدين في إحدى كليات الجامعات المصرية أو الأجنبية بشرط استيفاء الطالب لمتطلبات القبول بالكلية وتحتسب للطالب المقررات التي درسها في الكلية المحول منها وفقًا للقواعد التي تحددها الكلية ·

برجاء التكرم باتخاذ ما ترونه سيادتكم لازما .

شاكرين لسيادتكم صادق تعاونكم معنا .

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وتفضلوا بقبول فانق الاحترام...

(Sau 2 T. 1 T/T/T.

نانب رنيس الجامعة لشنون التعليم والطلاب

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