

# *MPharm Catalog*

*2018-19*

*“Dubai Pharmacy College for Girls located in the Emirate of Dubai is officially licensed from 07/02/2016 to 20/01/2021 and Initial Accreditation with effect from 01/10/2013 by the Ministry of Education - Higher Education Affairs of the United Arab Emirates to award **Masters of Pharmacy** degree in higher education with two areas of concentrations respectively in **Clinical Pharmacy** and **Pharmaceutical Product Development**”*

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***Praise be to Allah who taught man what he did not know and guided His servants through knowledge to the path of piety and obedience to Him. He Himself says in the Holy Book: Only those of his servants who are endowed with knowledge truly fear Allah. (35:28). And Allah's peace and blessing be upon Prophet Muhammad who taught humanity all things good, and guided it to righteousness and piety.***



***H.H. Shaikh Khalifa Bin Zayed Al Nahyan  
President of the United Arab Emirates***



***H. H. General Shaikh Mohammad Bin Rashid Al Maktoum  
Vice President and Prime Minister of the United Arab  
Emirates and Ruler of Dubai***



***H. H. Shaikh Hamdan Bin Mohammed Bin Rashid Al  
Maktoum Crown Prince of Dubai***



**Haji Saeed Bin Ahmed Al Lootah**  
**The Founder and Chairman of Dubai Pharmacy College for Girls**

Founder and Chairman **Haji Saeed Ahmed Al Lootah** is famous for his diverse and successful business ventures, non-profit educational institutions, entrepreneurship, veracity as well as its profound dedication to corporate citizenship and sustainable development. His success spans across key business sectors from construction, real estate and energy conservation, to financial services, applied research, ICT, education, hospitality, media and healthcare among others.

With the enduring values of education, cooperation and economy which set the foundations of his work, Dubai Pharmacy College for Girls was established in 1992. The first pharmacy college, accredited by the Ministry of Higher Education and Scientific Research, UAE, is the result of single minded dedication of this great visionary.

His earlier educational ventures of importance and repute are- The Islamic School for Training and Education, Dubai Medical College for Girls, Dubai Institute for Environmental Research and Dubai Medical Centre for Treatment and Research.

Thanks to his vision and leadership, Dubai Pharmacy College for Girls continues to demonstrate unique values that extend well beyond its functional benefits creating greater economic, social and environmental benefits for people in the United Arab Emirates and beyond.

## PREFACE: an insight into Dubai Pharmacy College for Girls



*Prof. Dr. Saeed Ahmad Khan  
Dean, Dubai Pharmacy College  
for Girls*

Dubai Pharmacy College for Girls has been committed to leading in education in pharmacy and offering BPharm degree since it was established in 1992 by Haji Saeed Ahmed Al Lootah. In recognition, our College is accredited and licensed by the Ministry of Education - Higher Education Affairs, UAE since 1998. Around the globe we have more than 1000 alumni well placed or working towards higher degree in the US, UK, Canada, India, Syria, Egypt, Sudan - this stands a testimony to all our accomplishments. It is also endowed with the Dubai Quality Appreciation Award in 2004. With increasing demands of in industries and hospitals, this is a highly demanding time for specialized pharmaceutical services.

DPC is taking privilege to commence Master of Pharmacy degree program to match the need of the hour and to avail you with best educational and research experience to entail you to be a leader in pharmaceutical profession. You are commencing your professional education at a particularly exciting time for pharmacy and you will be in the vanguard of new developments and models of professional practice.

Over the next two years of the study, you will gain comprehensive understanding and skills required for you to succeed in your specialized career. These range from the development of drug formulations in the pharmaceutical industries through to patient-facing clinical roles in hospital, primary care and community sectors.

The modern facilities provided in the classrooms and, teaching and research labs would be a solid atmosphere for you and every aspect of the teaching and learning processes which will be continuously assessed to ensure that you are learning and instructors are teaching appropriately. Students, with the help of faculty advisors, will prepare *Graduation Research Project* portfolio to showcase their academic rigor and document their progress in mastering the program's educational outcomes.

Dubai Pharmacy College for Girls is proud of its tradition of friendly atmosphere. We welcome all of you who have a strong will to fulfill your dreams as competent and successful healthcare providers.

I wish you good luck with your studies.

A handwritten signature in black ink, appearing to read 'S. A. Khan', written over a horizontal line.

## The Vision, Mission and Institutional Goals of the College

### Vision

*"To serve the healthcare community by nurturing competent and professional pharmacists while promoting a learning environment that fosters innovation, leadership, continued professional development and quality assurance, making DPC one of the leading institutions for the pharmacy education in the world."*

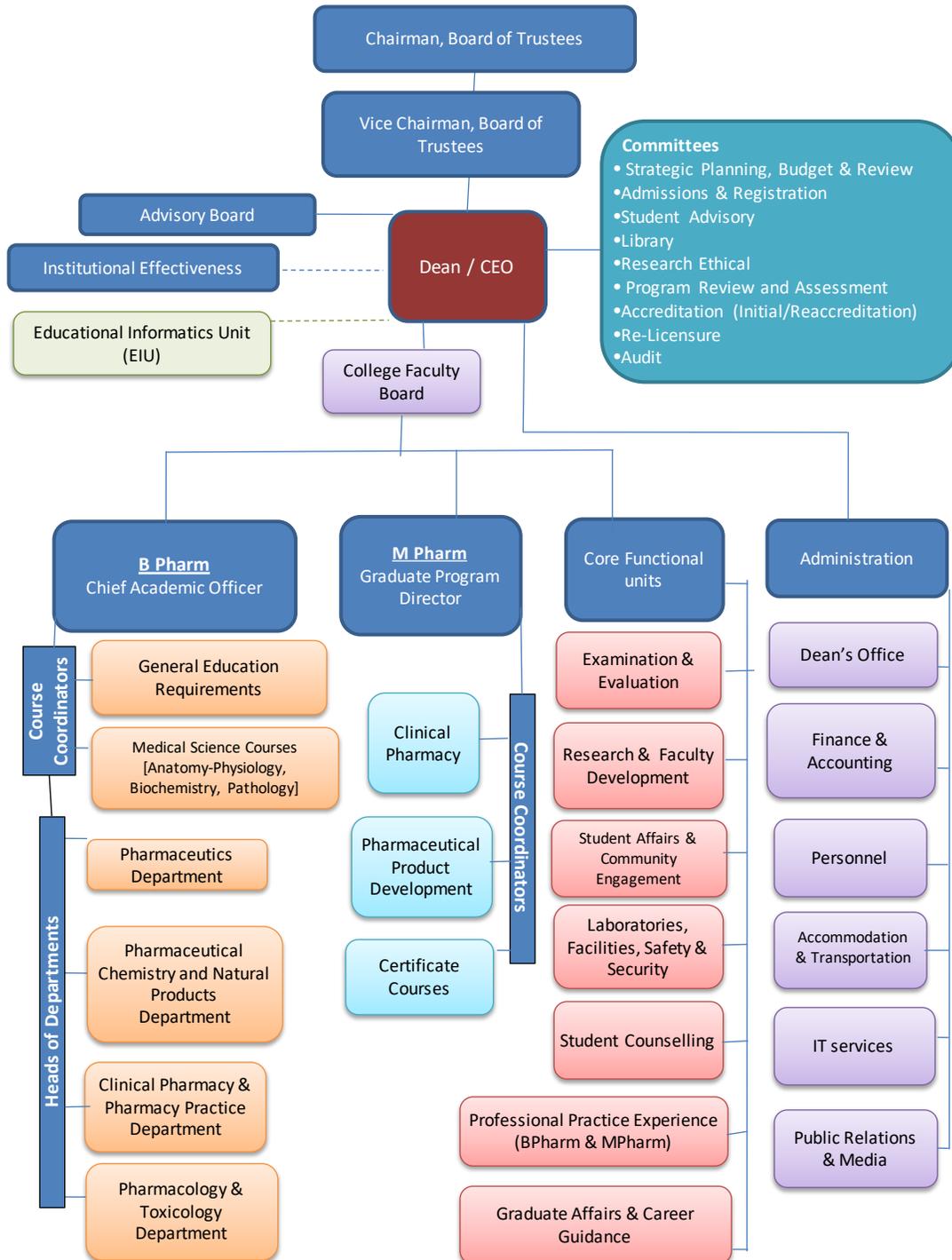
### Mission

*"DPC is committed to provide accredited pharmacy education at undergraduate and graduate level to female students based on Islamic values, advancement of pharmaceutical knowledge through research and community service in order to serve pharmacy profession, scientific community and public."*

### Institutional Goals

- Goal 1. Develop, maintain and continually improve educational programs and services that are in conformity with the DPC mission.**
- Goal 2. Enroll and retain sufficient number of students in each of the DPC's educational programs.**
- Goal 3. Promote active student engagement with the Learning, Teaching and Assessment strategies intended to provide all students with opportunities to realize their potential, and raise their aspirations.**
- Goal 4. Promote and sustain research and professional development activities in the college.**
- Goal 5. Nurture and support community engagement and civic service activities.**

# Organizational Structure



## 1. Program Details

<b>INSTITUTION:</b>	<b>Dubai Pharmacy College for Girls, Dubai, UAE</b>
<b>DEGREE:</b>	<b>Master of Pharmacy (with specialization)</b> <b>a) MPharm (Clinical Pharmacy)</b> <b>b) MPharm (Pharmaceutical Product Development)</b>
<b>LENGTH &amp; MODE:</b>	<b>Two academic years, Full time</b>
<b>MINIMUM REGISTRATION PERIOD:</b>	<b>2 years</b>
<b>MAXIMUM REGISTRATION PERIOD:</b>	<b>3.5 years</b>
<b>Program Director:</b>	<b>Prof. Aliasgar Shahiwala</b>

## 2. Admission Requirements

Admission to the Graduate School is based on academic qualifications as shown in Table below. Prospective students can find information on application procedures as well as a link to the application at the college web site at [www.dpc.edu](http://www.dpc.edu). Inquiries concerning particular degree programs or courses of instruction should be addressed to the graduate program director or to the Dean.

<b>Entry requirements</b>	BPharm
<b>Other qualifications accepted</b>	--
<b>Minimum average % of marks</b>	CGPA of 3 on a scale of 4.0, or its equivalent
<b>English Language proficiency requirements</b>	<ul style="list-style-type: none"> <li>• Internet Based Test (IBT) TOEFL 79 out of 120</li> <li>• International English Language Testing System (IELTS-Academic) 6.0</li> <li>• Cambridge English : Advanced (CAE) with a test score of 52</li> <li>• Score range of 50-57 Pearson Test of English Academic (PTEA)</li> <li>• B2 Class City &amp; Guilds International ESOL</li> <li>• The Emirates Standardized Test (EmSAT) : A score between 1400-1525</li> </ul> <p><b>Exceptions are:</b></p> <ol style="list-style-type: none"> <li>1. A native speaker of English who has completed her undergraduate education in an English-medium institution and in a country where English is the official language;</li> <li>2. An applicant with an undergraduate qualification from an English-medium institution who can provide evidence of acquiring a minimum TOEFL score of 500 on the Paper-Based test, or its equivalent on another standardized test approved by the Commission, at the time of admission to her undergraduate Program. To be eligible for this exemption you must have completed your studies no more than two years prior to the start of the postgraduate degree program for which you are applying.</li> </ol> <p><b>Note: No conditional admission will be provided to students who do not meet the specified English Language proficiency requirements.</b></p>
<b>Entry eligibility</b>	Passing an interview

*Applications are initially reviewed by the college and applicant will be called for an interview. Final decisions rest with the college, which, after considering the recommendation of the department concerned, will notify the applicant of the decision.*

### **Conditional Admission**

A student with a recognized baccalaureate degree with a grade point average below 3.00 on a 4.0 scale or its established equivalent may be admitted conditionally to the Masters program. Such a student must meet the following requirements during the period of conditional admission or be subject to dismissal:

- a. may take a maximum of nine credit hours in the first semester of study*
- b. must achieve an overall grade point average of 3.00 on a 4.0 scale in the first nine credit hours for the Masters program*

### **Transfer Admission**

Dubai Pharmacy College for Girls (DPC) accepts transfer of students from accredited College with a curriculum that is comparable to that offered at DPC. The transfer of students is not allowed after second semester. The following are the necessary conditions for transfer to the DPC from other pharmacy colleges

1. Students must meet the English language proficiency requirements such as minimum TOEFL score of (79 IBT) or 6.0 in IELTS.
2. DPC requires applicants to submit their transcripts for evaluation of transferable subjects /teaching hours from previous college experiences. The student must provide a letter of application to the Dean of the College specifying reason(s) for requesting transfer and desired date of transfer.
3. All applicants must provide conduct certificates from the Pharmacy College where they are currently enrolled. No student who has been dismissed from any Pharmacy College will be eligible for transfer to DPC.
4. The student transferring from another accredited college must be in a good academic standing (CGPA of 3 on a scale of 4.0, or its equivalent) in BPharm.
5. The student must have earned a grade of "B" or better in the course. No more than six credit hours of graduate work may be transferred from another institution. The courses must be graduate level and have been taken for graduate credit at the accredited institution.
6. The final decision for approval of transfer will be made by the Dean after review of the transfer request. .

### **Advanced Standing**

At the moment DPC does not accept any form of non-degree certificates, non-credit courses or advanced high school subjects as an equivalent to any of the credit hour courses offered at any one of the DPC accredited programs. In case, a student with exceptionally advanced standing applies we will forward it to the commission for a final approval.

### **Recognition of Prior Learning**

RPL does not apply to MPharm (CP). The recognition of prior learning for the transfer of credit in MPharm (PPD) program may apply to following:

- Prior certificated learning is learning which has been formally assessed and certificated. It includes non-standard qualifications, certificated study from other higher education institutions, professional and vocational qualifications. For example, students who obtained professional certificate course in regulatory affairs will be exempted from Drug Regulatory affairs course of MPharm (PPD) program.
- Prior experiential learning is learning gained through substantial, relevant experience which has not been formally assessed. This may include work experience or knowledge gained through experiences outside work. The emphasis is on the learning achieved through the experience, and not just on the experience itself.

Candidates seeking admission to MPharm (PPD) program with credit exemption on the basis of formal and/or non-formal prior learning should submit the written application with evidence based portfolio to the graduate program director. Such portfolio may include:

- Certificates and course outlines from non-standard qualifications
- CV and/or work reference
- Portfolio
- Written assignments

The application is then reviewed by the committee appointed for this specific purpose. The Committee is composed of respective course coordinators and is appointed by the graduate program director. The final decision for approval of credit exemption will be made by the Dean after the successful review by the committee. No more than 25% of the total program credits will be awarded for any RPL application.

#### **Graduate Student Readmission:**

Students returning from a **Leave of Absence** will need to fill out a readmission form available in the Dean's office.

#### **Deadline for Readmission:**

Readmission form must be submitted on or before the start of the term/semester.

Students returning from a **Leave of Absence** who have a tuition balance are subject to the rules regarding overdue tuition balances in place at that time. After one year, students will have to re-apply for admission.

#### **Leave of Absence:**

Students in good standing may request a **Leave of Absence**. A leave of absence allows a student to return to the same semester at any registration period for up to one year from the start of the leave without the necessity of re-applying but should fill in the Leave of Absence form. Students on scholarship who are in good academic standing will retain their award when returning to the College from a leave of absence not more than one year. The forms for readmission are available in the Dean's office.

#### **Add/Drop/Withdrawal from Courses**

As DPC strictly adheres to the time-table schedule, the graduate students cannot add or drop any regular courses allotted for each semester.

#### **Withdrawal Policy**

Up to the end of the 10<sup>th</sup> week of a semester, students may choose to withdraw from a course without academic penalty; however, a grade of **W** will appear on the student's transcript. Students may officially withdraw from a course up to the end of the 10<sup>th</sup> week of the semester. After the 10<sup>th</sup> week, withdrawals are no longer permitted, except by special permission of the Dean. A withdrawal form must be signed by the Dean.

**Note:** All withdrawals from course(s) after the fourth week of the term are noted with a grade "**W**" on the transcript.

## Online Registration:

New applicants should follow the steps below to register online:



New applicants will be shortlisted and contacted. If you have any questions regarding the system, or should you encounter problems while using the system, call the college reception during office hours.

## Registration Procedure:

Registration must be completed by the end of the July of each year. Authority to extend this deadline is vested on the Dean.

The applicant should fill the online application form and attach the required documents with 300/- AED and then submit it to Dean's office.

## DOCUMENTS required for admission

The following documents will be required to be submitted along with the application form. The original certificates should be brought in person by the applicant at the time of interview.

1. Provisional certificate of the examination passed (Higher Secondary) on the basis of which admission is sought.
2. Mark-sheet of the examination passed.\*
3. Leaving certificate from the school last attended.
4. Six passport size color photographs.
5. Birth certificate.
6. Character certificate from the Head of the Institution last attended.
7. Copy of the passport and resident visa (for expatriate students only).
8. Medical certificate.
9. Document certifying TOEFL/IELTS/any English language proficiency exam as required by the Ministry of Education – Higher Education Affairs

**\*Note: School certificates from outside UAE should be attested from place of issue:**

### a) Country of Study

- Ministry of Education
- Ministry of Foreign Affairs
- The Embassy

### b) UAE

- Equivalency certificate from Ministry of Education

<b>3. Student Intake and Fee Structure</b>		
<b>Student Intake</b>	Minimum enrollment of 5 students not exceeding 15 students in total for both the specialization.	
<b>Fees</b>	<b>Total Amount/Year</b>	<b>Mode of Payment</b>
<b>Tuition</b>	Dhs50,000/-per year (+5% VAT applicable)	Dhs25,000/- at time of admission
<b>Hostel</b>	Dhs12000/- to 18000/-	Four installments with tuition fees.
<b>Transportation (+5% VAT applicable)</b>		
Dubai(daily)	Muhaisna/Mezher/Mirdiff/Rashidiya/Twar/Qusais /Nahda - Dhs3000/- Deira/Bur Dubai/Satwa/Karama/Umm Suqaim/Jumeirah/Barsha - Dhs4000/- Dhs 5000/-	Four installments with tuition fees.
Sharjah/Ajman(daily)		
AbuDhabi, Fujairah, Al Ain, Baniyaas (weekly)	Dhs 5000/-	Four installments with tuition fees.

### **Refund Policy of Tuition Fees**

Dubai Pharmacy College for Girls admits only a very limited number of students, so if any student after admission cancels her admission then this will create a vacancy which could have been used by another qualified student. Therefore the College authorities are strict in their action for such students and they will not refund the fees paid at the time of admission until and unless a valid reason is provided for cancellation of admission. The valid reasons can be:-

1. If a candidate faces visa difficulties from U.A.E. govt. that are out of College Control.
2. If the guardian of the candidate faces sudden employment problems, such as termination, visa cancellation etc.
3. If a candidate is granted a scholarship provided that it occurs after the date of fee payment.

The refund usually is granted to student in first or second week after commencement of academic year to which they are admitted.

Refund requests should be made at the Registration office through a written request enclosing the ID card and original fee receipt. Refunds will be made after clearance of dues, if any. The amount paid is construed as your booking the seat for yourself in the college. The refund policy applicable is as follows:

In the case of withdrawal before joining the college	5% (applicable only on tuition fees )
For every month of attendance in case of withdrawal after joining the college :	
Master of Pharmacy	AED 5000

## 4. MPharm (Clinical Pharmacy) Program Details

### 4.1 Basic Information

**Program title:** Master of Pharmacy (Clinical Pharmacy)

**Program duration:** **Min.** 2 years, **Max.** 3.5 years

**Teaching Institution:** Dubai Pharmacy College for Girls, Dubai, UAE

**Department(s) responsible:** Department of Clinical pharmacy and Pharmacy Practice

**Delivery Site:** Dubai Pharmacy College for Girls/Dubai health authority approved clinical facilities.

**Coordinator:** Prof. Mirza Baig, Dept of Clinical Pharmacy & Pharmacy Practice

### 4.2 Program aims

The program is intended to:

1. Produce clinical pharmacists capable of providing specialized pharmaceutical services in hospital and other clinical environments.
2. Choose various specialized areas by the graduates to become a Pharmacotherapy specialist, based upon their area of interest during their clerkships in hospital.
3. Produce confident and knowledgeable pharmacists to work with other health care professionals.
4. To enhance the pharmacists' role as a member of the healthcare team by improving their communication, managerial, clinical and research skills.
5. To provide a pathway towards academia as a career.
6. To provide learning opportunities to enable to think critically and to further develop as an autonomous and lifelong learner

### 4.3. Program Outcomes

Program outcomes of MPharm (Clinical Pharmacy) program are specifically aligned with the Level 9 of the Qualifications Framework for the UAE approved by The Board of the National Qualifications Authority (NQA) known as the *QF Emirates*.

<b>A. Knowledge:</b> On completion of the M. Pharm. program, the graduates will be able to:	
<p><b>A.1.</b> Demonstrate specialist and comprehensive knowledge required in providing specialized Clinical services required in hospitals and other clinical environments.</p> <p><b>A.2.</b> Comprehend the ethical, legal and quality principles of professional practice in clinical pharmacy practice.</p>	<p><b>Learning/Teaching methods</b> Lectures, tutorials, office hours, seminars</p> <p><b>Methods of Assessment</b> Written &amp; Oral exams. OSCE Case Presentations</p>
<b>B. Skills:</b> On completion of the M. Pharm. program, the graduates will be able to:	
<p><b>B.1.</b> Identify, analyze, deploy and utilize appropriate information in clinical case discussion and evaluate the pharmaceutical care required for the case.</p> <p><b>B.2.</b> Critically evaluate the available literature in the field of clinical pharmacy for the evidence based medicine.</p> <p><b>B.3.</b> Demonstrate effective project management skills.</p> <p><b>B.4.</b> Communicate effectively orally and in writing and deploy a range of presentation techniques and strategies to present, explain and critique information within workplace settings.</p>	<p><b>Learning/Teaching methods</b> PBL, Clerkships Research project, Assignments, Case studies, seminars, Demonstrations</p> <p><b>Methods of Assessment</b> OSCE Assignments Case presentations Problem based learning Presentations Dissertation evaluation &amp; defense</p>
<b>C. Competences:</b> On completion of the M. Pharm. program, the graduates will be able to:	
<p><b>Autonomy and responsibility</b></p> <p><b>C.1.</b> Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level through clerkship and research project.</p> <p><b>C.2.</b> Demonstrate ability to use skills to make decisions in complex situations where there are several factors that require analysis, interpretation and comparison.</p>	<p><b>Learning/Teaching methods</b> PBL, Clerkships, Research project Assignments, Case studies, seminars, Demonstrations</p> <p><b>Methods of Assessment</b> OSCE Assignments Case presentations Problem based learning Presentations Dissertation evaluation &amp; defense</p>
<p><b>Self-development</b></p> <p><b>C.3.</b> Practice self and continuing professional learning through reference books, published data, scientific publications and websites and attendance of seminars, workshop and conferences.</p> <p><b>C.4.</b> Utilize and contribute to the available scientific literature in the field of clinical pharmacy and pharmacy practice.</p>	
<p><b>Role in context</b></p> <p><b>C.5.</b> Deal with complex issues both systematically and creatively, make sound judgments in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences</p> <p><b>C.6.</b> Interact with professional colleagues and demonstrate team-working and leadership abilities in various professional contexts.</p>	

#### 4.4 Curriculum Requirements (Credit hours (CH))

**First Semester: 9 CH**

**Second Semester: 11 CH**

**Third Semester: 10 CH**

**Fourth Semester: 10 CH**

**TOTAL: 40 CH**

#### 4.5 Graduation Requirements

MPharm degree will be awarded to students who successfully complete all the requirements of graduation. The requirements of the graduation are:

1. She should pass all the courses both theoretical and practical as per assessment and grading rules of the college.
2. She should successfully complete required clerkships in hospitals approved by college.
3. She should complete a major research project and successfully defend it in front of panel of external and internal examiners appointed by college.
4. She should secure overall CGPA (Cumulative Grade Point Average) of 3 (80%) in all the above mentioned in 1, 2 and 3.
5. In all such cases, maximum duration of 3.5 years is allowed upon recommendation of the Graduate Program Director and permission from the Dean.

## 4.6 Study Plan

FIRST YEAR					
First Semester					
Course Code	Course	Prerequisite	Contact hours/week		Credit hours
			Lecture	Case studies	
CP901	Clinical Pharmacy Practice	--	2	-	2
CP902	Pharmacovigilance		1	-	1
CP903	Clinical Pharmacokinetics	--	2	-	2
CP904-1	Pharmacotherapeutics-I	--	3	2	4
<b>Total Credit Hours</b>					<b>9</b>
Second Semester					
Course Code	Course	Prerequisite	Contact hours/week		Credit hours
			Lecture	Case studies	
CP904-2	Pharmacotherapeutics-II	--	3	2	4
CP904-3	Pharmacotherapeutics-III	--	2	-	2
CP905	Pharmacoeconomics	--	1	-	1
CP906	Clinical Pharmacology	--	2	-	2
CP907	Clinical Research Methodology & Biostatistics	--	2	-	2
<b>Total Credit Hours</b>					<b>11</b>

SECOND YEAR				
Major Clerkship		Prerequisite	Duration (weeks)	Credit hours
CPC-IM-C	Internal Medicine		4	2
CPC-ID-C	Infectious Diseases		4	2
CPC-PD-C	Pediatrics		4	2
CPC-ICM-C	Intensive Care Medicine		4	2
CPC-S-C	Surgery		4	2
CPC-OG-C	Obstetrics & Gynecology		4	2
Minor Clerkship (Any two)			Duration (weeks)	Credit hours
CPC-PSY-E	Psychiatry		2	1
CPC-TDM-E	Therapeutic Drug Monitoring		2	1
CPC-DIS-E	Drug Information Service		2	1
CPC-TPN-E	Total Parenteral Nutrition	--	2	1
CPC-AC-E	Ambulatory Care/ Community Pharmacy		2	1
<b>Research Project &amp; Dissertation [CP-RP]</b>		<b>CP907</b>	--	<b>6</b>
<b>Credit hours (Total)</b>				<b>20</b>

## 4.7 Course Descriptions

### **CP901: CLINICAL PHARMACY PRACTICE (2 CH, First Semester)**

#### **Course Coordinator: Prof. Mirza Baig**

This course introduces to the concepts and abilities required for a clinical pharmacist in relation to interpersonal skills and their responsibilities for caring and respecting the patients' needs and beliefs. Legal and ethical issues are also discussed in this course. The student works with and discuss real and complex patient cases with a focus on drug-related problems, while highlighting the need for continual professional development. Pharmacist Interventions, wider public health issues, and the awareness of guidelines are also studied to reflect the changes which occur in drug development and disease management.

### **CP902: PHARMACOVIGILANCE (1 CH, First Semester)**

#### **Course Coordinator: Dr. Ritu Pahuja, Prof. Mirza Baig**

This course covers the principles of Pharmacovigilance methodology, reporting of adverse drug reactions, identifying the sources and documentation of Individual Case Safety Reports (ICSRs), medical dictionary (MedDRA) and Medical aspects in Pharmacovigilance, safety monitoring in Clinical Trials and signal detection.

### **CP903: CLINICAL PHARMACOKINETICS (2 CH, First Semester)**

#### **Course Coordinator: Prof. Aliasgar Shahiwala**

This course is designed to provide students with various important aspects of basic concepts & principles of pharmacokinetics with special emphasis on clinical applications. Principles of clinical pharmacokinetics will be thoroughly covered with special emphasis on pharmacokinetic variability, therapeutic drug monitoring, individualization of drug therapy, kinetics of drug interaction and pharmacokinetic approach to new drug discovery.

### **CP904-1: PHARMACOTHERAPEUTICS I (3+1 CH, First Semester)**

#### **Course Coordinator: Dr. Juliana F Roos, Ms. Eman Shamseldin**

The aim of this course is to provide the students with the knowledge of the pathophysiology, clinical presentations, pharmacology of drug classes used for disease management (pharmacokinetics, pharmacodynamics, drug/drug interactions, dosage calculations, and adverse effects), treatment algorithm, and goals of therapy and patient education of: 1) Cardiovascular, 2) Endocrine and 3) Gastroenterology disorders.

**CP904-2: PHARMACOTHERAPEUTICSII (3+1 CH, Second Semester)**

**Course Coordinator: Dr. Juliana Roos, Ms. Eman Shamselddin**

The aim of this course is to provide the students with the knowledge of the pathophysiology, clinical presentations, pharmacology of drug classes used for disease management (pharmacokinetics, pharmacodynamics, drug/drug interactions, dosage calculations, adverse effects), treatment algorithm, goals of therapy and patient education of: 1) Infections, 2) Oncology, 3) Hematological, 4) Renal, and 5) Respiratory disorders.

**CP904-3: PHARMACOTHERAPEUTICS III (2 CH, Second Semester)**

**Course Coordinator: Dr. Arwa Mohammed**

This course covers the pathophysiology, clinical presentations, pharmacotherapy of drug classes used for disease management (pharmacokinetic, pharmacodynamics, drug/drug interactions, dosage calculations, adverse effects), treatment algorithm, goals of therapy and patient education) of Rheumatology, Immunology disorders, Neurology disorders, Psychiatric disorders, and dermatovenerology and also expose the students to current epidemics.

**CP905: PHARMACOECONOMICS (1 CH, Second Semester)**

**Course Coordinator: Prof. Mirza Baig**

This course covers the introduction of pharmacoconomics, need and practice of pharmaco-economic analyses in drug management, basic types of pharmaco-economic analyses, drug utilization studies. This course also covers the description of measuring quality-adjusted life years (QALYs) and analysis of costs.

**CP906: CLINICAL PHARMACOLOGY (2 CH, Second Semester)**

**Course Coordinator: Dr. Rawoof Khan**

The aim of this course is to covers the advanced understanding of various Special aspects topics which deals with Immunosuppressive Agents, clinical uses of Immunosuppressive Drugs, Immunologic Reactions to Drugs & Drug Allergy. Diagnosis and staging of cancer is also covered with special aspects on cancer chemotherapy.

This course also includes study of advanced concepts in prenatal, pediatric and geriatric pharmacology. During the course, students will learn to make selected clinical decisions regarding using current, reliable sources of information, understanding of pharmacokinetics and pharmacodynamics, developmental physiologic considerations, monitoring and evaluating the effectiveness of drugs and the management of poisoned patients

**CP907: CLINICAL RESEARCH METHODOLOGY AND BIostatISTICS (2 CH, Second Semester)**

**Course Coordinator: Dr. Arwa Mohammed**

This course is the integration of epidemiological and biostatistical techniques with an emphasis on applications to clinical research (including study design, bias and confounding, hypothesis testing, confidence intervals, sample size calculations, and introduction to parametric and nonparametric test). Students will gain practical skills in developing a research project and in carrying out data analyses.

### **Clinical Clerkships (14 CH, Third & Fourth Semester)**

Clinical clerkship is for 14 weeks each during third and fourth semester, during which students will be assigned primarily to clinical rotations in different hospital departments of Dubai Health Authority approved facilities. Each student's experience will include total four weeks each on Internal medicine, Infectious diseases, Pediatric care, Intensive Care, Surgery, Obstetrics & Gynecology, and a two week blocks on two of the following Selection:

- Psychiatry
- Drug Information Service
- Therapeutic Drug Monitoring
- Total Parenteral Nutrition
- Ambulatory Care/Community Pharmacy

### **Research Project & Dissertation (6 CH, Third (3CH) & Fourth (3CH) Semester)**

After successful completion of didactic courses in year one in Dubai Pharmacy College for Girls (DPC), Students are required to go for clinical clerkship rotation in Hospitals in Year two. During their training, students are required to conduct a publishable research for a minimum of 12 weeks in clinical, hospital or community related topics. The research project must exhibit original investigation, analysis and interpretation. All the senior academic staff of Clinical Pharmacy and Pharmacy Practice unit will be involved in supervising the M. Pharm Clinical pharmacy postgraduate students in their research as part of the curriculum. Students are required to prepare a proposal for their research/review topic. If the project involves interaction with the patients or patient data then they are required to apply for institutional ethical approval in DPC. They are also required to get an approval from DHA/MoH, if the data collection site is in DHA/MOH hospitals. Students utilize hospital databases, library databases to conduct the research/reviews. Students have to submit the report at the end of Clerkship training and have to do final presentation of the research to fulfill the requirement of Master of Pharmacy (clinical pharmacy) program.

#### 4.8 Faculty for MPharm (Clinical Pharmacy)

<b>Faculty</b>	<b>Dearees</b>	<b>Institution</b>	<b>Year</b>
<b>Prof. Mirza Baig</b> <i>Head, Clinical Pharmacy and Pharmacy Practice Department Professor in Clinical Pharmacy</i>	PhD (Clinical Pharmacy)	University Science Malaysia	2011
<b>Dr. Juliana F Roos</b> <i>Associate Professor in Clinical Pharmacy</i>	Knowledge Assessment of Pharmaceutical Sciences (KAPS) Phd (Pharmacy) Postgraduate Diploma in Clinical Pharmacy	University of Queensland, Australia	2013 2007 2003
<b>Dr. Rawoof Khan</b> <i>Assistant Professor in Pharmacology</i>	PhD (Pharmacy)	Periyar Maniyammai University, India	2014
<b>Dr. Arwa Mohammed</b> <i>Assistant Professor in Clinical Pharmacy</i>	PhD (Clinical Pharmacy)	University Science Malaysia	2016
<b>TEACHING ASSISTANT</b>			
<b>Ms. Eiman Shamseldin</b> <i>Assistant Lecturer in Clinical Pharmacy</i>	MPharm (Clinical Pharmacy)	Dubai Pharmacy College for Girls (UAE)	2016
<b>ADJUNCT FACULTY MEMBERS</b>			
<b>Prof. Dr. Ali Sayeed Hussain</b>	<i>Professor, Department of Clinical Pharmacy &amp; Pharmacy Practice, Director-Pharmaceutical Services, Dubai Health Authority</i>		
<b>Dr. Ritu Pahuja</b>	<i>Assistant Professor, Department of Clinical Pharmacy &amp; Pharmacy Practice</i>		

## 5. MPharm (Pharmaceutical Product Development) Program Details

### 5.1 Basic Information

**Program title:** Master of Pharmacy with specialization in Pharmaceutical Product Development

**Program length:** **Min.** 2 years, **Max.** 3.5 years

**Teaching Institution:** Dubai Pharmacy College

**Department (s) responsible:** Department of Pharmaceutics

**Delivery Site:** Dubai Pharmacy College

**Coordinator:** Prof. Heyam Saad, Professor, Dept. of Pharmaceutics

### 5.2 Program Aims

The program is intended the graduates to:

1. To equip students with versatile skills in the theoretical understanding, practical execution and critical evaluation of pharmaceutical science principles to underpin their professional careers.
2. To provide with practical and hands-on skills applicable to the development of stable pharmaceutical formulations.
3. To develop within the context of Pharmaceutical Product Development, a comprehensive understanding of communication, research and scientific method;
4. To provide learning opportunities to enable to think critically and to further develop as an autonomous and lifelong learner;
5. To plan and execute major research project.
6. To enable students to develop knowledge and a range of interpersonal, transferable and employability skills.

### 5.3 Program Outcomes

Program outcomes of MPharm (**Pharmaceutical Product Development**) are specifically aligned with the Level 9 of the Qualifications Framework for the UAE approved by The Board of the National Qualifications Authority (NQA) known as the *QF Emirates*.

<b>A. Knowledge:</b> On completion of the M. Pharm. program, the graduates will be able to:	
On completion of the MPharm program, the graduates will be able to: <b>A.1.</b> Demonstrates specialist and comprehensive pharmaceutical knowledge in development and evaluation of pharmaceutical formulations. <b>A.2.</b> Comprehend the ethical, legal and quality principles of professional practice in the field of specialization.	<b>Learning/Teaching methods and strategies</b> Lectures, tutorials, office hours, self-study <b>Types/Methods of Assessment</b> Written & Oral exams, presentations
<b>B. Skills:</b> On completion of the M. Pharm. program, the graduates will be able to:	
<b>Skills</b> On completion of the MPharm program, the graduates will be able to: <b>B.1.</b> Evaluate physicochemical and pharmacokinetics aspects in stable pharmaceutical product development. <b>B.2.</b> Critically evaluates the available literature in the field of pharmaceutical formulation development. <b>B.3.</b> Demonstrate effective project management skills. <b>B.4.</b> Communicate effectively orally and in writing and deploy a range of presentation techniques and strategies to present, explain and critique information within workplace settings.	<b>Learning/Teaching methods and strategies</b> Problem based learning, Team based learning, Labs, research project, assignments, literature review, demonstrations <b>Types/Methods of Assessment</b> Practical exams, Assignments Oral exams, Problem solving, Presentations.
<b>C. Competences:</b> On completion of the M. Pharm. program, the graduates will be able to:	
<b>Autonomy and responsibility</b> <b>C.1.</b> Demonstrate self-direction and originality in tackling and solving problems, and act autonomously in planning and implementing tasks at a professional or equivalent level through executing major research project. <b>C.2.</b> Demonstrates ability to use skills to make decisions in complex situations where there are several factors that require analysis, interpretation and comparison. <b>Role in context</b> <b>C.3.</b> Deal with complex issues both systematically and creatively, make sound judgments in the absence of complete data, and communicate their conclusions clearly to specialist and non-specialist audiences <b>C.4.</b> Undertake major formulation development project dealing with related ethical, quality, regulatory, intellectual property and stability related issues. <b>Self-development</b> <b>C.5.</b> Practice self and continuing professional learning through reference books, published data, scientific publications and websites and attendance of seminars, workshop and conferences. <b>C.6.</b> Utilize and contribute to the available scientific literature in the field of pharmaceutical formulation development.	<b>Learning/Teaching methods and strategies</b> Problem based learning, Team based learning, Labs, research project, assignments, literature review, demonstrations <b>Types/Methods of Assessment</b> 1. Assignments 2. Lab reports 3. Problem based learning 4. Presentations 5. Research Project 6. Dissertation evaluation & defense

## 5.4 Curriculum Requirements (Credit hours (CH))

**First Semester: 9 CH core courses**

**Second Semester: 12 CH core courses**

**Third Semester: 5 CH core courses**

**Third & Fourth Semester: 10 CH Research Project & Dissertation**

**TOTAL: 36 CH**

## 5.5 Graduation Requirements

MPharm degree will be awarded to students who successfully complete all the requirements of graduation. The requirements of the graduation are:

1. She should pass all the courses both theoretical and practical as per assessment and grading rules of the college.
2. She should complete a major research project and successfully defend it in front of panel of external and internal examiners appointed by college.
3. She should secure overall CGPA (Cumulative Grade Point Average) of 3 (80%) in all the above mentioned in 1, 2 and 3.
4. In all such cases, maximum duration of 3.5 years is allowed upon recommendation of the Graduate Program Director and permission from the Dean.

## 5.6 Study Plan

FIRST YEAR					
FIRST SEMESTER					
Code	Courses	Prerequisite	Contact Hours/Week		Credit Hours
			Lecture	Lab	
PPD901	Instrumental Analysis of Drugs and Drug Products	--	3	2	4
PPD902	Principles of Pharmacokinetics and drug delivery disposition	--	2	0	2
PPD903	Dosage Form Design & Technology	--	2	2	3
<b>TOTAL NUMBER OF CREDIT HOURS FOR FIRST SEMESTER</b>					<b>9</b>
SECOND SEMESTER					
Code	Courses	Pre/Co-requisites	Contact Hours/Week		Credit Hours
			Lecture	Lab	
PPD904	Pharmaceutical Quality Control and Assurance	--	3	0	3
PPD905	Advance Drug Delivery Systems	PPD901 PPD902	3	2	4
PPD906	Pharmaceutical Product Development	--	2	--	2
PPD907	Research Methodology and biostatistics	--	3	--	3
<b>TOTAL NUMBER OF CREDIT HOURS FOR SECOND SEMESTER</b>					<b>12</b>

SECOND YEAR					
FIRST SEMESTER					
Code	Courses	Pre/Co-requisites	Contact Hours/Week		Credit Hours
			Lecture	Lab	
PPD908	Biotechnology based products	--	2	--	2
PPD909	Drug Regulatory Affairs	--	2	--	2
PPD910	Seminars and Journal Club	PPD908	--	--	1
PPD-RP-1	Research Project & Dissertation Part 1	PPD907	--	--	4
<b>TOTAL NUMBER OF CREDIT HOURS FOR THIRD SEMESTER</b>					<b>9</b>
SECOND SEMESTER					
Code	Courses	Prerequisite			Credit hours
PPD-RP-2	Research Project & Dissertation Part 2	PPD907, PPD-RP-1			6
<b>TOTAL NUMBER OF CREDIT HOURS FOR FORTH SEMESTER</b>					<b>6</b>

## 5.7 Course Description

### **PPD901 INSTRUMENTAL ANALYSIS OF DRUGS AND DRUG PRODUCTS (3+1 CH, First Semester)**

**Course Coordinator: Dr. Fazilatun Nessa**

This course prepares the students with knowledge and skills required in analysis of drugs and formulations through commonly employed techniques, UV – Visible spectroscopy; Florescence spectroscopy; High performance liquid chromatography; Fourier Transform Infrared spectroscopy; Thermal methods of analysis; X-ray diffraction, particle size determination using Laser diffraction, determination of zeta potential using zeta-sizer, in pharmaceutical industries. The theory and practical of the instrumental methods is supported by qualitative/quantitative analytical method, method development and validation, proper interpretation of analytical data, and mathematical techniques for preparing standards and samples.

### **PPD902 PRINCIPLES OF PHARMACOKINETICS & DRUG DELIVERY DISPOSITION (2 CH, First Semester)**

**Course Coordinator: Prof. Bazigha Kadhim Abdul Rasool**

This course provides knowledge and understanding of biopharmaceutical and pharmacokinetic considerations in safe and effective pharmaceutical product development. The course emphasizes the impact of the physiological factors, pharmacokinetic parameters and physicochemical properties on drug pharmacokinetics and bioavailability. Students are also exposed to the concepts and procedures related drug diffusion and dissolution, *in-vitro in-vivo* correlations, biopharmaceutical classification system and biowaivers.

### **PPD903 DOSAGE FORM DESIGN & TECHNOLOGY (2+1, First Semester)**

**Course Coordinator: Prof. Heyam Saad Ali**

This course covers basics and recent developments in pharmaceutical dosage forms, specifically, designing, manufacturing, and evaluations of solid dosage forms, parenteral dosage forms, liquids, and semisolids. The Lab component of this course is designed to provide extensive practical exposure in development & evaluation of such dosage forms.

### **PPD904 PHARMACEUTICAL QUALITY ASSURANCE & QUALITY CONTROL (3 CH, Second Semester)**

**Course Coordinator: Prof. Heyam Saad Ali**

This course mainly deals with the quality and regulatory aspects involved in pharmaceutical product development. It mainly describes concepts related to quality assurance, quality control and good manufacturing practice. During the course, students are also provided with the exposure to quality assurance and quality control department of the pharmaceutical industry.

### **PPD905 ADVANCE DRUG DELIVERY SYSTEMS (3+1 CH, Second Semester)**

**Course Coordinator: Prof. Bazigha Kadhim Abdul Rasool**

This course covers recent developments in drug delivery systems including transdermal drug delivery systems, mucosal drug delivery systems (buccal, nasal, ocular, rectal and vaginal routes of administration), site-specific and targeted drug delivery systems with respect to their designing, manufacturing, and evaluations of, in addition to. This course also provides extensive practical exposure in development & evaluation of such delivery systems.

### **PPD906 PHARMACEUTICAL PRODUCT DEVELOPMENT (2 CH, Second Semester)**

**Course Instructor: Dr. Mohammed Shuaib Khan; Course Coordinator: Prof. Aliasgar Shahiwala**

This course aims to provide comprehensive compilation of all the steps involved in pharmaceutical

product development and management from the very beginning of product conception to the final packaged form that enters the market. Application of core science principles for product development is thoroughly discussed in conjunction with the latest approaches involving quality by design with a comprehensive illustration based on practical case studies of several dosage forms.

**PPD907: RESEARCH METHODOLOGY AND BIOSTATISTICS (3 CH, Third Semester)**

**Course Coordinator: Prof. Aliasgar Shahiwala**

This course exposes the students to a systematic process of identifying the research problems; defining the problems; identifying the variables/ indicators to address these problems; collecting, compiling, processing and analyzing data using various statistical methods; tools to assess the fundamental characteristics of the topics under study; and preparation of the report or presentation of results-formal write ups of conclusions reached. The course maximizes the use of self-directed studies by making use of assignments, presentations and statistical software using skills.

**PPD908: BIOTECHNOLOGY BASED PRODUCTS (2 CH, Second Semester)**

**Course Coordinator: Dr. Ghazala Khan**

This course is designed to provide latest knowledge about different biotechnological processes involved in development of therapeutic proteins, peptides and gene products. This course also discusses various issues related to development of stable biotechnological products and delivery considerations of these products in human.

**PPD909: DRUG REGULATORY AFFAIRS (2CH, Third Semester)**

**Course Instructor: Dr. Ritu Pahuja; Course Coordinator: Prof. Aliasgar Shahiwala**

In this course students will acquire or further develop knowledge relating to the Regulatory Affairs in a Pharmaceutical industry, as a profession which acts as the interface between the pharmaceutical industry and Drug Regulatory authorities across the world. Key concepts related to intellectual property rights in pharmaceutical product development are also covered.

**PPD910: SEMINARS/JOURNAL CLUB (1 CH, Third Semester)**

**Course Coordinator: Prof. Aliasgar Shahiwala**

Seminars/ Journal club will expose the students to systemic review of literature on a selected topic followed by article discussion. Students need to make an oral presentation of 40-50 minutes duration on a selected topic which will foster communication skills, presentation skills and IT skills. Through the questions & answers and evaluation session, students will be able to identify the need of their own self development and development of others.

**PPD-RP: RESEARCH PROJECT & DISSERTATION (Third & Fourth Semester (10 CH))**

This is one year long supervised, structured research project in the field of pharmaceutical product development in which students are responsible for developing their own research proposal and performing different tasks independently such as constructing research designs, performing different experiments, interpreting their results by employing different statistical tools and comparing their results with similar studies published, to accomplish their research objectives. Finally, students develop technical writing and oral presentation skills by writing final report on their project, and by defending their work before external and internal examiners.

## 5.8 Faculty for MPharm (Pharmaceutical Product Development)

<b>Name</b>	<b>Degrees</b>	<b>Institution</b>	<b>Year</b>
<b>Prof. Dr. Saeed Ahmed Khan</b> Dean, Professor and Head Pharmaceutical & Medicinal Chemistry Department	Ph. D. (Chemistry)	Delhi University (India)	1985
<b>Prof. Dr. Heyam Saad</b> Professor in Pharmaceutics	Ph. D. (Pharmaceutics).	University Bradford (UK)	2000
<b>Prof. Aliasgar Fakruddin Shahiwala</b> Graduate Program Director Professor in Pharmaceutics	Ph. D. (Pharmacy) Postdoctorate	M.S.University (India) Northeastern University (USA)	2005 2007
<b>Prof. Bazigha K. Abdul Rasool</b> Professor in Pharmaceutics	Ph.D. (Pharmaceutics)	University of Baghdad, (Iraq)	2004
<b>Dr. Fazilatun Nessa</b> Associate Professor in Pharm.& Medicinal Chemistry	Ph.D. (Pharmaceutical Chemistry)	University Sains Malaysia (Malaysia)	2004
<b>Dr. Gazala Afreen Khan</b> Associate Professor Pharmaceutical biotechnology and Pharmacogenomics	Ph. D. (Molecular Genetics)	Osmania University (India)	2004
<b>Teaching Assistant</b>			
<b>Ms. Zahraa Al Khalifa</b> Assistant lecturer	MPharm Pharmaceutical Product Development	Dubai Pharmacy College (UAE)	2013
<b>Ms. Suzan George</b> Instructor	Msc. Chemistry	MG University, India	
<b>Part-time Faculty</b>			
<b>Dr. Mohammed Shuaib Khan</b> Assistant Professor Research Scientist at Himalaya Global Research Center, UAE	PhD (Pharmaceutics and Drug Design)	JSS College of Pharmacy, India	2012
<b>Dr. Ritu Pahuja</b> National Responsible Person for Pharmacovigilance & Regulatory Specialist, Mallinckrodt Pharmaceuticals, UAE	PhD (Clinical Pharmacology)	All India Institute of Medical sciences, India	2015

## 6. Methods of Instruction

The classrooms at DPC are equipped with updated technologies such as interactive white board, seminar aids, speaker, and clickers. The laboratories at DPC are well equipped with latest equipments and instruments in performing Lab work and conducting research.

### **Different methods used in teaching and learning during the program:**

#### **Didactic Courses**

Didactic courses will be taught through different strategies such as Lectures; laboratory classes; tutorials; problem based learning, self-directed learning, assignments and seminars.

#### **Seminars**

All the students are required to participate in their respective specialization's seminar program. Seminars courses will be graded by the graduate faculty members for respective specialization. The grade will be assigned based on the quality of the student's seminar presentation and their attendance throughout the semester. Faculty and graduate students will complete an evaluation sheet for each student's seminar so that the student presenter can also receive specific comments on presentation style and content.

#### **Problem Based Learning (PBL)**

In PBL, students engage in complex, challenging problems and collaboratively work toward their resolution. Students spend a great deal of time discussing the problem, generating hypotheses, identifying relevant facts, searching for information, and defining their own learning issues. This fosters collaboration among students, stresses the development of problem solving skills within the context of professional practice, promotes effective reasoning and self-directed learning, and is aimed at increasing motivation for life-long learning.

#### **Self-directed learning**

Self-directed learning is fostered library services providing an extensive range of textbooks and access to electronic journals and other online resources.

#### **Office Hours**

Office hours are available where a face-to-face exchange of information between student and course coordinator/instructor. Students can clarify their doubts which they feel reluctant to speak up in class.

#### **Dissertation**

Third and Fourth semester of the program are devoted to dissertation work. The student's research supervisor holds the primary responsibility for providing the appropriate guidance and counsel essential to the scholarly development of the student.

#### **Clinical Clerkship**

During third and fourth semester of MPharm (clinical pharmacy and pharmacy practice), students will be assigned primarily to clinical rotations in different hospital departments of Dubai Health Authority (DHA) approved facilities supervised by clinical preceptors.

## 7. Academic Offences

Students must share the responsibility for creating and maintaining an atmosphere of honesty and integrity. Students should be aware that personally completing assigned work is essential to learning. Students who are aware that others in a course are cheating or otherwise committing academic dishonesty have a responsibility to bring the matter to the attention of the faculty.

**Academic dishonesty** include,

- **Plagiarism:** *The adoption or reproduction of ideas or words or statements of another person without due acknowledgment.*
- **Fabrication:** *The falsification of data, information, or citations in any formal academic exercise.*
- **Deception:** *Providing false information to an instructor concerning a formal academic exercise—e.g., giving a false excuse for missing a deadline or falsely claiming to have submitted work.*
- **Cheating:** *Any attempt to give or obtain assistance in a formal academic exercise (like an examination) without due acknowledgment.*
- **Sabotage:** *Acting to prevent others from completing their work. This includes cutting pages out of library books or willfully disrupting the experiments of others.*

**Academic Misconduct** include,

- a) The actual or attempted tampering or misuse of academic records or materials such as transcripts and examinations.
- b) *Stealing, buying, or otherwise obtaining all or part of an unadministered test or academic exercise;*
- c) *Selling or giving away or engaging in bribery to get all or part of an unadministered academic exercise or any information about it;*
- d) *Changing or altering a grade book, test, or other official academic records of the College;*
- e) *Entering an office without authorization for the purpose of changing a grade or tampering in any way with grades or examinations.*

Instances of academic dishonesty and misconduct will be reported to the Dean. The Dean will form a Disciplinary Committee comprising of senior faculty members of the College who will investigate the type of academic honesty and misconduct committed by the student. Depending upon the level of each mentioned above the penalty will be imposed by the Disciplinary committee which is subjected to Dean's approval. The decision of the Dean will be final. The report of academic dishonesty or misconduct will be filled in the student's advisory file.

Penalties that can be imposed by the Disciplinary committee include In the case of taught modules:

- Setting aside the component or assignment concerned and requiring you to complete it as if for the first time
- Failure of the component. You will be reassessed and the mark capped if appropriate and not disproportionate in effect
- Failure of the component and the module. You will be reassessed in the module.
- Expulsion, to incorporate failure of any and all assessments or examinations taken during that session.
- Failure of that academic year (or specified part thereof) and the student to retake its assessments, with or without attendance.
- No marks to be awarded in relation to the specific material which is the subject of the academic offence (thus leading to a reduced overall mark for the piece of course work, dissertation,

examination question or examination script in which the specific material appears).

- A mark of zero for the entire piece of course work, dissertation, examination question or examination script in which the academic offence has occurred.
- A mark of zero for the entire course in which the academic offence has occurred.
- Award a mark of zero for all the assessments in the semester.
- award a mark of zero for the whole year
- require the student to take reassessments (as a result of being awarded zero marks) in the following session before being allowed to progress or complete their course
- require the student to enroll on courses in which they need to take reassessments (as a result of being awarded zero marks) in the following session before being allowed to progress or complete their course

In case of research work:

- Require a research student to resubmit a dissertation.
- Require a research student to register for a period of supervision before being allowed to resubmit a dissertation.
- Withdraw the award of a degree or other qualification from, and issue an amended transcript.

## 8. Assessment

Assessment on the MPharm degree program is a mixture of formative assessments (in form of coursework) and summative assessments (written & practical examinations).

### **Didactic Course Assessment:**

Each taught course is assessed by 30-40 per cent coursework, 60-70 per cent exam (mid-term exam, final written, and lab exam) with exceptions for the courses required different evaluation format.

The coursework mark is derived from a series of assignments which assess your ability to synthesize information from various sources into reasoned reports. Coursework varies from course to course and comprises a mix of Practical write-ups, Patient profiles, written reports and essays, small group projects, oral presentations, quizzes etc. Coursework submission guidelines & grading criteria (usually in form of rubric) will be provided by course coordinator.

Mid-term exam scheduled during the semester and final written and Lab examinations are scheduled at the end of first and second semester. Exams are normally closed book, though a calculator is permitted in some exams. In order to assess all learning outcomes, all the questions are compulsory in exams.

Exams usually combine MCQ section, short answers, and longer essay-type questions.

### **Dissertation & Defense Assessment:**

The assessment of the dissertation work is based on dissertation and defense at the end of the fourth semester. Dissertation is assessed based on the dissertation and defense with 80% and 20% marks respectively.

### **Clerkship Assessment:**

Clerkship is assessed based on clerkship evaluation (continuous) and final evaluation (case presentation and written report) with 60% and 40% marks respectively.

## 9. Grading System

Grading at the graduate level is intended to offer feedback to students on their performance in a given course, including once students reach the dissertation and dissertation stage. Faculties are encouraged to specify course requirements and grading expectations for students.

Students are assigned grades (letters) for each course which reflects the student's achievement in the course. The minimum grade for passing a course is letter (C) and grades are written in letters according to the following table:

Range of Marks	Grade Point	Evaluation	Grade Symbol
95 - 100	4	Outstanding	A+
90 - 94.99	3.75	Excellent	A
85 - 89.99	3.50	Very Good	B+
80 - 84.99	3.00	Good	B
75 - 79.99	2.50	Satisfactory	C+
70 - 74.99	2.00	Pass	C
65 - 69.99	1.5	Unsatisfactory	D+
Below 65	Failed	Failed	F
Administrative Codes			
Incomplete		I	
Withdraw		W	

### Computation of the Cumulative Grade Point Average (CGPA) and Grade Point Average (GPA)

The GPA is calculated by multiplying the grade of each course by the number of its credit hours and dividing the total by the number of total credit hours taken in a semester. The CGPA is calculated by multiplying the grade of each course by the number of its credit hours and dividing the total of all courses by the number of total credit hours taken for all semesters. Both GPA and CGPA are rounded to the nearest decimal units. GPA and CGPA are calculated according to the following formula:

$$\text{GPA} = \frac{\text{Total (credit hours per course x grades received per course) for all courses taken in one semester}}{\text{Total credit hours for all courses taken in one semester}}$$

$$\text{CGPA} = \frac{\text{Total (credit hours per course x grades received per course) for all the courses in all semesters}}{\text{Total credit hours for all the courses taken in all semesters}}$$

GPA / CGPA	Evaluation
3.75 - 4.00	Outstanding
3.74 - 3.60	Excellent
3.00 - 3.59	Good
2.50 - 2.99	Satisfactory
2.00 - 2.49	Unsatisfactory

### Incomplete Grades

A student who is unable to attend the final exam of any course because of extenuating circumstances such as serious illness, accident or death of a family member during the final examination period seeks an incomplete grade "I" for the course. **9.1. Teaching Pedagogy and Scheme of Assessment appended**

## 10. Progress Policy Guidelines

### Satisfactory Progress

- A student must maintain a semester GPA of 3.00 to be considered making satisfactory progress.

### Probation

- Students who fail to achieve GPA of 3.0 (80%) in taught semesters (first and second) will be put on probation and will be allowed to appear in the supplementary exams held in February and September each year for first and second semester. Students need to repeat the courses with grades lower than C. If she again fails to obtain the GPA 3.0 (80%), then second and last attempt will be given. Failing to improve the grades even after repeating the course(s) will lead to the dismissal from the program.
- Students are allowed to take second semester with condition that no prerequisite courses have grades lower than C. No students are promoted to second year (dissertation work and/or clinical clerkships) unless she secures minimum GPA of 3.0 in both first and second semester.
- Students who fail to secure at least 80% marks in clerkships, have to repeat the respective clerkship during next six months. If the student again fail to secure at least 80% marks in clerkship, she will be withdrawn from the college.
- Students who fail 80% marks for their research project will not graduate. However, the student has the option to revise and resubmit a failed dissertation. If the student does not contact Graduate Program Director requesting to revise and resubmit the dissertation within the designated 4 weeks' time period or, once approved to revise the dissertation, does not re-submit the revised dissertation by the 6 months deadline, the dissertation will be deemed to have failed and the student will be withdrawn from the university. Should the re-examination fail to pass the dissertation, the dissertation will be deemed to have failed the examination process and the student will be withdrawn from the college.

## 11. Student Appeals Policy

Every student has right to put across her appeal within fifteen days. The appeal is addressed to the Dean. If it is not resolved properly then the student can appeal to higher authorities of the College Administration. The decision given by them will then be considered as the final decision. Appeals are limited to requests to continue in the MPharm program after being dropped from the program for academic reasons and dissatisfied course grades.

## 12. Students Grievance Policy

### Informal Resolution:

Any student in DPC who believes that she has been treated inequitably is encouraged to resolve the matter informally. The student should first talk with the person or group at whom the grievance is directed in an attempt to resolve the issue informally.

### Grievance Procedure:

The grievance procedure is described below.

1. To initiate the formal grievance procedure, the student must submit her grievance, in writing, to the Dean of DPC.
2. The written grievance shall include:
  - a. a statement that the student wishes a review of the situation by a Grievance Committee.

- b. the identification of the person or group at whom the grievance is directed;
  - c. the specifics of the perceived inequitable treatment;
  - d. evidence in support of the student's belief that she has been treated inequitably.
3. A grievance must be initiated no later than 15 calendar days from the time the student knew or could reasonably have been expected to have known of the circumstances giving rise to the grievance.
  4. After receiving the grievance the Dean will study the case with the Disciplinary Committee of the College.
  5. After inquiry, the report shall be notified to the Student about the action on the grievance and the grounds for the action taken.
  6. If the grievance is not resolved properly then the student can appeal to higher authorities of the College Administration. The decision given by them will then be considered as the final decision.

### 13. Student Rights & Responsibilities

#### Statement of Student Rights and Responsibilities

Every student who enrolls at DPC has a right to a student-centered education, research and services. Students should positively contribute to the safe learning environment by maintaining high standards of integrity and academic honesty at the same time familiarizing themselves with and adhere to all policies and regulations of the College.

#### Student Rights

For a registered student in Dubai Pharmacy College for Girls the rights are:

1. To obtain pharmacy education according to a well-established educational program and in a suitable educational environment.
2. To attend theory and practical classes regularly and to participate in scientific discussions held in the class as directed by the faculty.
3. To participate in all students activities sponsored by Student Union.
4. To benefit from facilities offered by the College such as library, hostel, transportation and others.
5. To get the identity card issued annually from the College after payment of its fees in order to prove that she is a student in the College.
6. To appear in all examinations and evaluations conducted according to the regulations of the College.
7. To get health care facility in case of emergency and first aid only. The College will not be responsible for expenses of treatment in any case and only transportation can be provided to and from medical clinics in Dubai.
8. To get social care services offered by the College.
9. To have a residence visa sponsored by the College for hostel students as per the rules. The student will bear all expenses for her residence visa.
10. To get the following certificates from the College:
  - a. An annual certificate to prove that she is studying in the College
  - b. A certificate to prove her academic level which she obtained as per the College records
  - c. A certificate for the expenses required for her College study
  - d. A certificate for her good behavior and discipline in the College
  - e. A graduation certificate after she fulfills all the requirements needed for graduation as per College rules
  - f. A release certificate from the College

**Note:** All the certificates mentioned above in (10 a to f) should be issued as per the College rules and also according to the requirements of the student. The first copy of all certificates issued will be free of charge. If the student needs another copy then it will be given by charging a nominal fee fixed by the College. But photocopies (like the original) of certificates will be given free of charge.

### **Student's Responsibilities**

The duties of the students are:

1. To do her best to achieve the goals set by the College as mentioned in the regulations of the College.
2. To do her best to achieve high level of scientific and educational standard. To achieve the desired level, she should not hesitate in taking help from the administration, the Dean and staff members of the College so that there is no hindrance in her way.
3. To follow all the rules and regulations of the College for academic and scientific activities.
4. To participate positively in evaluating the College development and performance by giving advice and written suggestions to the College administration in the questionnaire annually or by other means.
5. To handle all the properties of the College like instruments, equipment etc., carefully.
6. To be cooperative in adopting all the College principles especially the following:
  - (a) To wear the legal Islamic *Hejab*
  - (b) To be punctual in offering prayers
  - (c) To maintain good relationship with her colleagues
7. To inform the College administration or the Dean about misbehavior or any mistakes committed by any student, which may give bad reputation to the College.
8. To pay the fees regularly as required by the College.

## **14. Education Support Facilities**

Dubai Pharmacy College for Girls (DPC) provides all educational support facilities to its students. The students get the best scientific training and knowledge which will make them eligible as pharmacists to boost the vast scientific and industrial development of U.A.E.

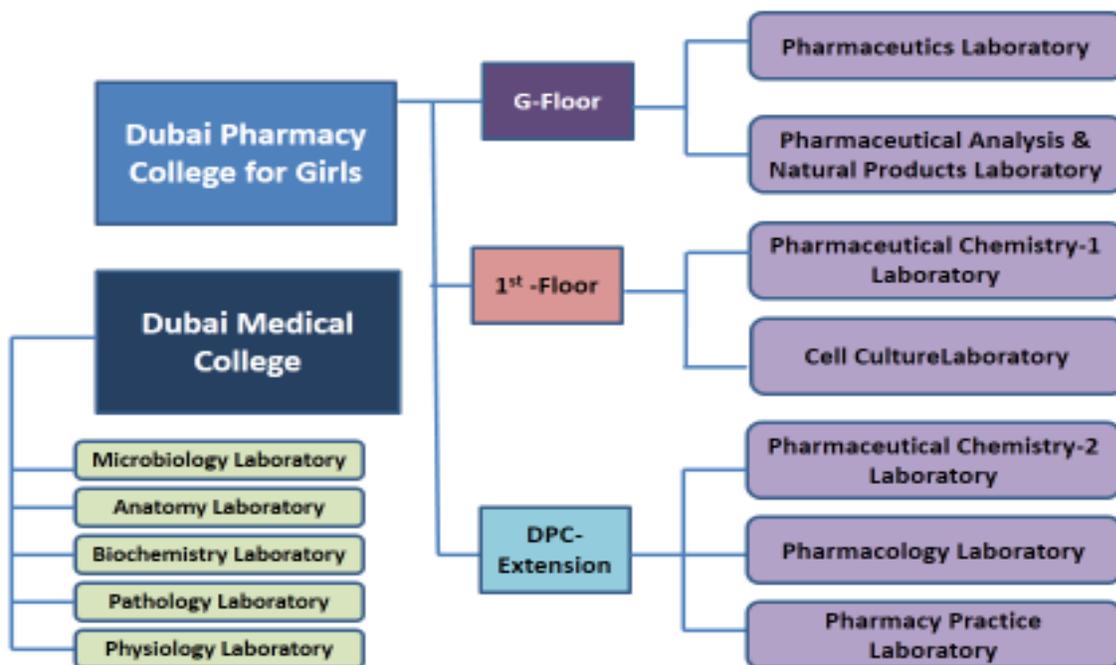
### **COLLEGE BUILDING**

The College building, on the ground floor has five laboratories, a model pharmacy with a drug information center, administrative and faculty offices, a meeting room and a reception section. On the first floor, are housed three laboratories, four lecture rooms, student's union office, students' common room, and chemical and glassware store. The animal house is located in a building adjacent to the College.

Besides the above facilities, the College is supported by a Machine Room (Industrial unit) situated in the Lootah's Educational Campus for conducting training and practical in Pharmaceutics-I & II and Pharmaceutical technology courses.

### **LABORATORY AND INSTRUMENTATION FACILITIES**

DPC possesses well-equipped laboratories for each discipline. There are eight laboratories in the College premises equipped with scientific apparatus and equipment required for practical and scientific investigations. Some laboratories are in Dubai Medical College and are common to both the Colleges. The laboratories are:



## AUDITORIUM

A well-furnished auditorium, located in DMCG, is spacious and suitable for any cultural occasion. It has become a regular venue for all social and cultural activities of DPC.

## STUDY ROOMS

DPC provides study room facilities for its students, which may be utilized by them in their break hours and also by hostel students after the class hours. These study rooms are located in DMCG and are well furnished with all required facilities. The students have an easy access to these study rooms and are free to use all facilities present there like computers with Internet and Journals.

## LIBRARY

The Library, housed in DPC offers an excellent environment for study. It is available to students at various stages of study. The library working hours are arranged as far as possible to meet students' need. The library has subscribed e -Journals in various areas of Pharmacy and Medical Sciences.

The physical facilities in the library are excellent where adequate space is given for housing the collection of books, journals, and audiovisuals. There is also a large reading room to facilitate learning.

Students have access to computer terminals to search on-line catalogs, databases, and other information systems. The library is also equipped with photocopying machines.

## COMPUTER LABORATORY

The Computer Laboratory is helpful in teaching of English language, computer science, pharmacy practice, pharmaceutical care and clinical pharmacy courses. The Computer Laboratory, well equipped with thirty three computers, have Internet connections along with thirty three auditory systems. Besides this Computer Laboratory, the College enjoys full technical guidance, support and know- how from the Information

Technology (IT) department, which is its sister organization and is adjacent to DPC campus.

The mission of the I.T. department is to provide computer support, awareness and training services throughout the year to faculty, administrative staff and students. It also has a laboratory which is well equipped and is freely available for use. It is monitored by well qualified staff to render help and assistance.

### **DRUG INFORMATION CENTER (DIC)**

The Drug Information Center has been established along with Model Pharmacy in the College to acquaint the students with the role of DIC for answering questions of health care team and also to acquaint them with the needs required to initiate self-community pharmacy or hospital pharmacy DIC. It also provides information to students on pharmaceutical or medical topics which help them to write projects, essays, review articles for seminars and research.

The DIC of the College has thirty three computers, internet, primary literature, CD-ROMS and also reference books like USPDI, Martindale, PDR and Internal Medicine, and BNF.

### **ACCOMMODATION FACILITIES**

DPC provides hostel facility for students who apply for it. The hostel is close to the College. It has well-furnished bedrooms, dining room, study room and all the required facilities. Besides these facilities, internet connection is available in each room to aid them in preparing their notes and seminars. On each floor of the hostel there is a provision for praying and a gymnasium club. Students can obtain advice on accommodation from the hostel Supervisor.

### **HEALTH CARE FACILITIES**

The College arranges to provide health care facilities to students living in the hostels. DPC has a contract for health care with its sister organization Dubai Medical Centre (DMC). DMC doctors do periodical checkup for all the students. Those found ill are taken care of by them. In severe cases the hostel authorities send the resident students to Dubai Government hospitals.

### **STUDENT COUNSELING SERVICES**

Many students sometimes experience personal, emotional and social difficulties and may need counseling or support. DPC provides students with counseling services through a trained student counselor who helps them to cope up with a wide variety of student matters.

### **TRANSPORTATION FACILITIES**

DPC has special minibuses for transporting students from Sharjah, Ajman, Dubai and hostel. These buses are fully air-conditioned and quite comfortable. They are used for field trips and educational tours too.

### **MOSQUES**

The College has mosques inside its campus for faculty, staff and female students which sustains the Islamic atmosphere in the College.

### **CAFETERIA**

Cafeteria adjoining the College is spacious and hygienic. It offers food and beverages of students' choice. Thus it's a rendezvous for students to relax and enjoy during breaks.

## **RECREATIONAL FACILITIES**

In the campus there is a swimming pool, basketball court and gymnasium club. These facilities help the students in maintaining proper physical fitness.

## **BOOKSHOP**

There is a bookshop in the College which sells textbooks at subsidized rates of various subjects taught in the College. The bookshop also provides services on photocopying at a minimal charge.

## **15. Students' Support Services**

### **STUDENTS COUNSELING SERVICES**

DPC provides students with counseling services through a trained student counselor. She provides personal counseling to the students concerning their personal, social and moral problems, which may cause hindrance in the way to the students' success. The personal counseling to students is provided by prior appointment with the Counselor during the College working hours.

Periodically, group counseling sessions are also arranged in each academic year. The announcement of such sessions, giving the time, date and venue, is made via the college bulletin boards. Make it a habit to attend these counseling sessions on the due dates.

### **ACADEMIC ADVISING AND MENTORING**

Students are allotted a faculty member for academic advising / mentoring. The Faculty-Advisor who is assigned to a study-group of students; guides in matters pertaining to their study plan, student development, the curriculum and other academic affairs. The advisor helps the student to organize her study plan and supervises its implementation and assists her in overcoming any difficulties related to it.

Faculty-Advisor identifies students making unsatisfactory progress in each class and remedial classes are arranged to improve their GPA. He/She also advises the student about the introduction of credit hour system and its requirements for graduation to obtain Degree in Pharmacy.

Faculty Advisors will maintain a student record based on student's dress code, attendance in classes, academic performance (GPA/ CGPA) and conduct in College.

They also provide information about programs, services, facilities and involvement opportunities that support academic success and lifelong learning, which facilitate responsible life choices, and promote awareness of self and community. It has specific mission but one common goal: to provide academic advising, outreach and support.

### **STUDENTS CAREER PLANNING SERVICES**

DPC provides career counseling to its students regarding career information and planning, career development, testing and prospective job placement. DPC also provides assistance to develop different skills necessary to start a career in various Pharmaceutical settings.

Career Guidance sessions at DPC are provided to the 4th year BPharm and 2nd year MPharm students on individual basis with prior appointment with one of the personnel; Dean, Head of Alumni Affairs / Head of Professional Practice Experience Unit. They guide the students about the availability of the opportunities to help them decide on their future plans. They will serve to ensure the:

1. Preparation for MOH exams.
2. Self-improvement program for career development.
3. Availability of Jobs in different fields of Pharmacy practice.
4. Counseling for postgraduate and further studies.

In addition, Career guidance or counseling in groups is also provided regularly.

### **STUDENT UNION**

There is a "Students' Union" consisting of members from student community elected from all years of BPharm and MPharm. The elections are held regularly at the beginning of each academic year. The Student Union serves as the principal student programming organization at DPC. It is responsible for providing a balanced program of social, religious, recreational and cultural activities for the College, aiming to make free time activity a cooperative facet with study. The Student Union also helps to maintain close links between the College administration, faculty, and the students which are essential for efficient functioning of the College.

## **16. Glossary of Terms**

### **Program**

The set of courses and other formally established learning experiences which together lead to a qualification

### **Specialization**

Specializations or concentrations are a grouping of courses which represent a sub-specialization taken within the major field of study. A student of MPharm program has specialization in Clinical Pharmacy and Pharmaceutical Product Development and is specified in the student's academic record.

### **Curriculum**

The term refers to a set of related courses constituting an area of specialization, such as the MPharm (Clinical Pharmacy) curriculum and MPharm (Pharmaceutical Product Development) curriculum.

### **Credit hour and the credit system**

The academic credit provides a basis to measure the amount of engaged learning time expected of a typical student. A credit, or credit hour, is a unit of measurement defining the student's overall effort towards attaining a qualification.

1 credit hour equals approximately 1 hour of time in class per week over a semester of 15 weeks or longer. It is assumed that a student spends two hours outside of class in independent learning or specific course assignments for every hour in class. For laboratory and case studies, 1 credit hour equals 2 hours of case discussions and lab work respectively.

### **Pre-requisite**

It refers to each course which is found necessary for each student to complete successfully before being allowed to register in a subsequent one.

### **Semester**

A semester is a period of time, typically a minimum of 15 weeks, during which an institution offers courses.

### **Course**

A course consists of a number of instructional activities over a prescribed period of time. It deals with a single subject and is commonly described by title, number, credits, and expected learning outcomes.

**Electives**

Electives are the courses which are not compulsory for students. Electives may be free—selected by the student from any course offerings, or restricted—chosen from a pre-determined list of options. For example, students of MPharm (Clinical Pharmacy) program have to select two clinical clerkships out of five areas.

**Clinical Clerkship**

A course of clinical medical training in a specialty (Internal Medicine, Infectious Diseases, Pediatric care, Intensive Care, Surgery, Obstetrics & Gynecology) that usually lasts a minimum of four weeks each compulsory clerkship and minimum of two weeks elective clerkship and takes place during the third and fourth semester of MPharm (Clinical Pharmacy) program established by cooperation between college and local hospitals

**DPC Academic Calendar- Academic Year 2018-2019 (1439-1440)**

**First Semester**

<b>Event</b>	<b>Day</b>	<b>Dates</b>	<b>Date / Hijri</b>
Beginning of 1st Semester for 2 <sup>nd</sup> , 3 <sup>rd</sup> and 4 <sup>th</sup> years	Sunday	2/09/2018	21/12/1439
Orientation & Beginning of M. Pharm 1st Semester classes	Friday	07/09/2018	26/12/1439
Beginning of 1st Year classes and Welcome Ceremony	Sunday	9/09/2018	29/12/1439
Mid- Semester Exams; 1st ,2nd and 3rd years	Sunday	21/10/2018	12/02/1440
Beginning of Final Exams of 4th year	Sunday	03/12/2018	25/03/1440
Winter Vacation	Sunday to Saturday	23/12/2018 to 05/01/2019	16/04/1440 to 29/04/1440
Beginning of Final Exams for M. Pharm 1st & 3rd Semester	Friday	04/01/2019	28/04/1440
Beginning of Final Exams for 1st, 2nd and 3rd years	Sunday	06/01/2019	30/04/1440
Beginning of Re-sit Exams for 1st, 2nd and 3rd years	Sunday	03/02/2019	28/05/1440

**Second Semester**

Beginning of 2nd Semester for 4th Year	Sunday	06/01/2019	30/04/1440
Commencement of Classes for 1st, 2nd and 3rd years	Sunday	3/02/2019	28/05/1440
Commencement of Classes for M. Pharm 2nd Semester	Friday	08/02/2019	03/06/1440
Beginning of Final Examination of 4th year	Sunday	17/03/2019	10/07/1440
Beginning of Mid- Semester Exams; 1st,2nd and 3rd year	Sunday	17/03/2019	10/07/1440
Spring Vacation	Sunday to Saturday	31/03/2019 to 6/04/2019	24/07/1440 to 01/08/1440
Beginning of Hospital Training for 4 <sup>th</sup> year	Sunday	7/04/2019	02/08/1440
Beginning of Final Examinations for 1st, 2nd and 3rd years	Sunday	09/06/2019	06/10/1440
Beginning of Final Exams for M. Pharm 2nd Semester	Friday	07/06/2019	04/10/1440
Announcement of all results	Saturday	06/07/2019	03/11/1440
Beginning of Re-sit Exams	Sunday	07/07/2019	04/11/1440
Summer Vacation Begins	Sunday	21/07/2019	18/11/1440

Events	
Event	Date
Islamic New Year (1440)	Tuesday or Wednesday, 11 <sup>th</sup> or 12 <sup>th</sup> September, 2018*
Prophet's Birthday	Tuesday 20 <sup>th</sup> November, 2018 (12 <sup>th</sup> Rabi- Al Awal)*
Student Leisure Trip- 1	3 <sup>rd</sup> or 4 <sup>th</sup> week of November, 2018
Martyr's Day	Friday, 30 <sup>th</sup> November, 2018
UAE National Day	Sunday 2 <sup>nd</sup> December & Monday 3 <sup>rd</sup> December, 2018
New Year's Day	Tuesday, 1 <sup>st</sup> January, 2019
Global Day	3 <sup>rd</sup> week of February
End of Year Ceremony	1 <sup>st</sup> or 2 <sup>nd</sup> week of March, 2019
Isra Wal Miraj	Tuesday 3 <sup>th</sup> April, 2019 (27 <sup>th</sup> Rajab)*
Student Leisure Trip- 2	2 <sup>nd</sup> or 3 <sup>th</sup> week of April, 2019
Eid Al Fitr Holiday	Tuesday 4 June 2019 to Friday 7 <sup>th</sup> June, 2019*
* <b>Note:</b> Islamic holidays are determined after sighting of the moon. Thus actual dates may not coincide with the dates in the calendar	
<b>** Beginning of Academic Year 2018-2019 will be on: Sunday 01/09/2019</b>	

Teaching Pedagogy and Scheme of Assessment [MPharm- CP]

Semester	Code	Courses	Lecture	Practical	Clerkship	Research	Total Units	Teaching Pedagogy								Assessment Tools																		
								Lectures	Practical	Tutorial	Seminar	Computer Lab	Class Activity	PBL	Video demonstrations	Case Study	Small Group Discussion	Self-directed learning	Quizzes	OSCE	PBL assessment	Attitude & Behaviour	Case based assessment	Assignment	Presentation	Project Report	Mid Semester	Practical		Final Exam				
																												work	oral					
First Semester	CP901	Clinical Pharmacy Practice	2	-			2	√		√			√		√		√		√			20			05		15							60
	CP902	Pharmacovigilance	1	-			1	√		√	√		√		√		√		√		10				05		15	10						60
	CP903	Clinical Pharmacokinetics	2	-			2	√		√	√	√	√		√		√		√															
	CP904-1	Pharmacotherapeutics-I	3	1			4			√		√	√	√	√	√	√	√	√	√	20		30											50
Second Semester	CP904-2	Pharmacotherapeutics-II	3	1			4	√		√		√	√	√	√	√	√	√	√	20		30												50
	CP904-3	Pharmacotherapeutics-III	2	-			2	√		√	√		√		√	√	√	√	√	10				05		15	10							60
	CP905	Clinical Pharmacology	2	-			2	√		√			√		√			√		20				05		15							60	
	CP906	Pharmacoeconomics	1	-			1	√		√			√		√			√		20				05		15							60	
	CP907	Clinical Research Methodology & Biostatistics	2	-			2	√		√	√						√	√		40				10		30	20							-
Second Year Major Clerkships	CPC-IM-C	Internal Medicine					2		√							√	√	√							10			20	10		60			
	CPC-ID-C	Infectious Diseases					2		√								√	√	√						10			20	10		60			
	CPC-PD-C	Pediatrics					2		√								√	√	√						10			20	10		60			
	CPC-ICM-C	Intensive Care Medicine					2		√								√	√	√						10			20	10		60			
	CPC-S-C	Surgery					2		√								√	√	√						10			20	10		60			
	CPC-O&G	Obstetrics and Gynaecology					2		√								√	√	√						10			20	10		60			
Second Year Minor Clerkships	CPC-PSY-E	Psychiatry					1		√								√	√	√						10			20	10		60			
	CPC-TDM-E	Therapeutic Drug Monitoring					1		√									√	√	√					10			20	10		60			
	CPC-DIS-E	Drug Information Service					1		√									√	√	√					10			20	10		60			
	CPC-TPN-E	Total Parenteral Nutrition					1		√									√	√	√					10			20	10		60			
	CPC-AC-E	Ambulatory Care/ Community Pharmacy					1		√									√	√	√					10			20	10		60			
	CP-RP	Research project				√	6											√								40	60							

**Teaching Pedagogy & Assessment Tools [MPharm-PPD]**

Semester	Code	Courses	Lecture	Practical	Research work	Total Units	Teaching Pedagogy											Assessment Tools											
							Lectures	Practical	Tutorial	Seminar	Computer based	Exercises	Problem solving	Case Study	Group Discussion	Video demonstrations	Lab demonstrations	Self-directed Learning	Workshops	Quizzes	Assignment	Presentation	Project Report	Problem Solving	Practical			Final Exam	
																									Practical Performance	oral	Lab reports		
First Semester	PPD901	Instrumental Analysis of Drugs and Formulations	3	1		4	√	√								√										15		15	60
	PPD902	Principles of Pharmacokinetics and drug delivery disposition	2	0		2	√			√	√	√						√											60
	PPD903	Dosage Form Design & Technology	2	1		3	√	√						√	√			√								15	10	5	50
Second Semester	PPD904	Pharmaceutical Quality Control and Assurance	3	-		3	√																						60
	PPD905	Advance Drug Delivery Systems	3	1		4	√	√	√	√			√	√	√	√									20		10	50	
	PPD906	Pharmaceutical Product Development	2	-		2	√																						60
	PPD907	Research Methodology and biostatistics	3	-		3	√					√		√		√									40				30
Third Semester	PPD908	Biotechnology based products	2	-		2	√																						60
	PPD909	Drug Regulatory Affairs	3	-		3	√										√	√											60
	PPD910	Seminars and Journal Club	1	-		2				√																	100		
Third & Fourth Semester	PPD-RP	Research Project & Dissertation			10	10	√		√	√		√					√												

