جامعة حائل
University of Ha'il

PHARM D ACADEMIC PROGRAM GUIDE

2021

Contents

Introduction

Profession of pharmacy is consideredas the basis of health sciences where ancient pharmacists were involved in many health care aspects. The pharmacist at the time is the one who knows the diseases and prepares the medicines; the most famous of these scientists are Alrazi and Jaber Ibn Hayyan and Ibn Sina. The pharmacy profession was developedclearly, until it reached what it is now. It was turned out from dispensing prescription and making sure it was safe and free from Drug Interactions and their compatibility with the diagnosis of the disease to the new model of the pharmacy profession in which the pharmacist participate with the integrated health team in the care of diseases and the treatment plan and urgent intervention to ensure its validity for the patient in accordance with his age and other diseases, and the medication he is dealing with and other important factors. Not all of these neglects the other aspects of the pharmacist roles, such as the discovery, synthesis, and manufacture of medicines, whether from plants, animals or other sources. Here comes the role of laboratories and research in the field of discovery and development of pharmaceutical compounds. This development in the pharmacy profession has led the new trend in teaching Pharmacy what is known as Doctor of Pharmacy, (Pharm.D.)

Program Vision

Leadership in clinical pharmacy and applied pharmaceutical researches to ensure local and regional competition.

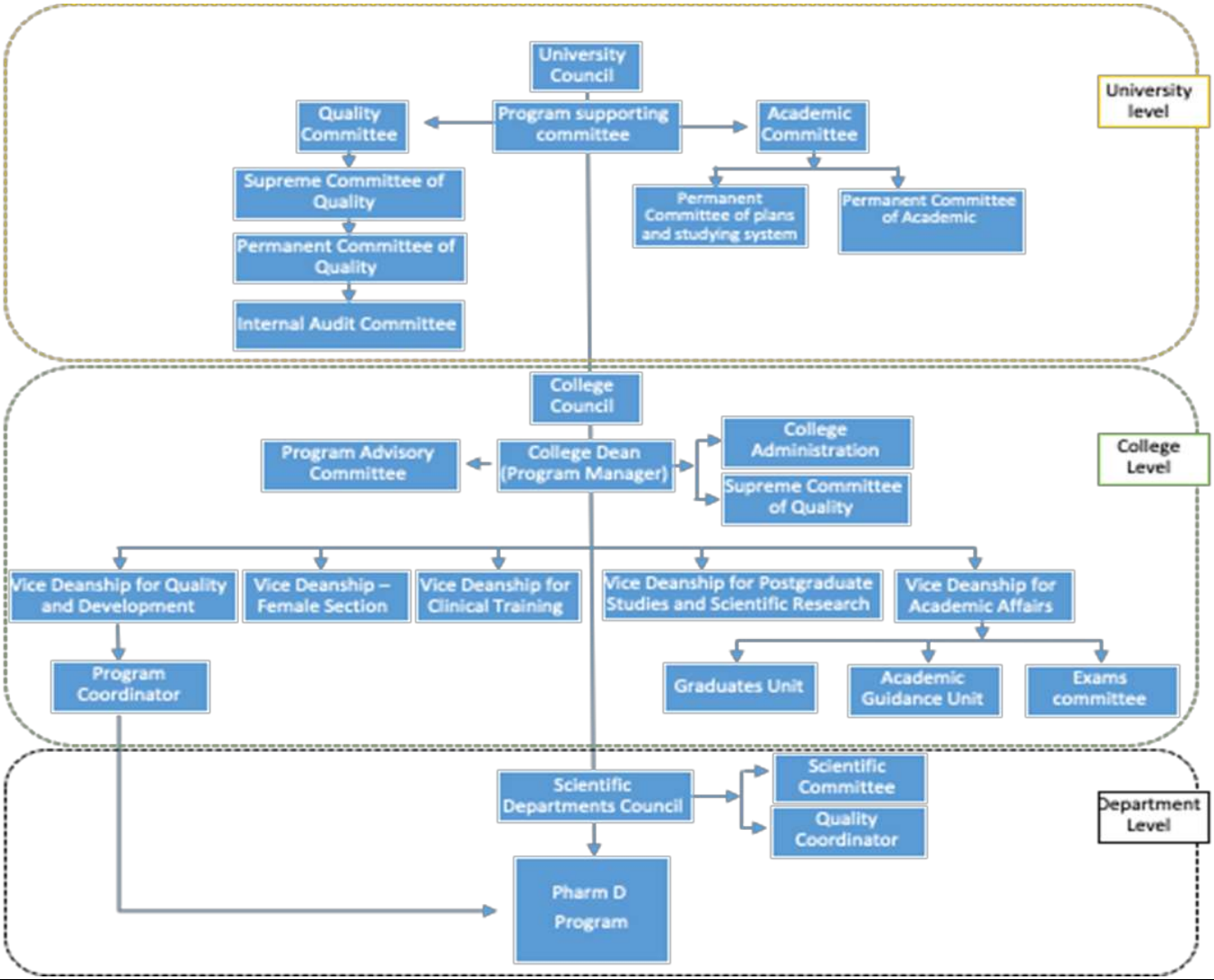
Program Mission

Preparing scientifically and professionally qualified graduates in clinical pharmacy capable of competing in the labor market and providing high quality pharmacy education, innovative pharmaceutical researches, and effective community service.

Program Objectives

1. Prepare qualified graduates for pharmaceutical practice in the labor market.
2. Conduct innovative pharmaceutical researches compatible with national research priorities.
3. Enhance community services related to pharmaceutical practices.
4. Develop pharmacy ethical and professional behavior.

Organization chart of program



Admission requirements

Acceptance criteria:

1. The applicant must apply a request of enrolment to the Deanship of Admission and Registration (electronic registration). Deadlines are announced in each academic year.
2. Must be a Saudi citizen.
3. Must meet the general admission requirements of Hail University.
4. The applicant should have a modern secondary school certificate.
5. All students passed the health sciences' preparatory year should be medically fit before selecting a major.
6. Students should list their interested field of studies in prioritizing order. Admission will base on the ratio, 75 is the minimum ratio for admission in health studies field.
7. Pass the preparatory year at a cumulative average of not less than 3 out of 4 according to the University of Ha,il grading system.
8. Passing the medical examination is mandatory prior taking a major for students competed the preparatory year in health science
9. Pass the English language test with a minimum grade of (A).

Graduation requirements

1. Meet the general graduation requirements of Hail University
2. Complete all credit hours for the academic program
3. Complete all summer training hours
4. The cumulative average is not less than (1) at graduation
5. Passing the concession year

Academic Reference Standards of the Program

1) Knowledge and Understanding

Pharm. D. graduates use their knowledge, skills and professional judgement to provide pharmaceutical care and can apply the core knowledge and skills required to be a medication expert.

1.1. Indication of the influence of Islamic economy and culture, professional ethics, pharmacy law and regulatory bodies and Arabic and English languages in the professional practice.

1.2. Description of evidence based herbal and complementary therapies, stereochemistry, chemical reactions, physicochemical properties, structure activity relationship, pharmaceutical analysis, pharmacoinformatics, drug design and targeting.

1.3. Recognition of biomedical, pharmacokinetics, pharmacodynamics, genetics, toxicological and clinical sciences related to human body structure, function, disease state diagnosis, therapy and treatment guidelines.

1.4. Outlining pharmaceutical calculations, biopharmaceutics, biotechnology and quality assurance in designing, manufacturing of biological and pharmaceutical products.

1.5. Memorizing research principles, drug information resources, concepts of marketing & management, pharmaco-economics and clinical guidelines in various pharmacy practice settings.

2) Skills

Pharmacy graduates use their knowledge and cognitive skills gained during the Pharm. D. program to apply skills that maintain and facilitate professional practice, management of patient's medication and overall health needs.

2.1. Utilization knowledge and technology in developing, manufacturing and quality control of pharmaceutical formulations in accordance with quality assurance and safety regulations.

2.2. Application of knowledge and technology in developing, manufacturing and quality control of pharmaceutical formulations in accordance with quality assurance and safety regulations.

2.3. Employment of pharmacokinetics and pharmacodynamics concepts in evaluating drug dose, efficacy, safety and toxicity.

2.4. Designing patient centered care plan to ensure efficacy, safety, and prevent medication errors, harmful drug interaction, and adverse drug effects.

2.5. Interpretation of laboratory results, patient history, physical assessments via effective documentation and communication with patients and health care professionals to provide and dispense appropriate medication therapy.

2.6 Appraisal of scientific literature, research and professional skills, critical thinking and pharmaco-economic data to enhance practice-related activities.

2.7. Handling different chemicals, pharmaceuticals and animals for use or disposal in research effectively, safely, and ethically.

3) Values

Pharmacy graduates communicate with diverse audiences, using a variety of strategies that take into account the situation, intended outcomes of the communication and the target audience as well as the values *gained during the Pharm. D. program.*

3.1. Performing an active role and effective self-management in pharmacy profession and community services.

3.2. Demonstration of a professional attitude, ethical behavior, social and cultural awareness and proper judgment in clinical practices.

Pharm. D. Graduates Attributes

Upon successful completion of the program, the graduate should be able to:

- Provide patient centered care and be a valuable member of a healthcare team.
- Formulate, preparing of pharmaceutical products from different sources and participate in systems for dispensing, storage and distribution of medications.
- Manage pharmacy operations in hospitals, community pharmacies, and industrial settings.
- Perform different types of quantitative and qualitative analysis related to drugs, food, and water.
- Perform and encourage scientific research based on the actual needs of KSA especially in Hail region.
- Perform responsibilities in accordance with legal, ethical and professional rules.
- Cooperate with government agencies and community organizations to provide the necessary information and consultancy as a professional in the fields of health care to foreigners and citizens of Hail as well as The Kingdom in general.

Program intended learning outcomes (PLO's)

Knowledge and Understanding

K1. Recall the influence of Islamic economy and culture, pharmacy laws and professional ethics, Arabic and English languages in the practice of pharmacy profession.

K2. Describe evidence based herbal and complementary therapies, stereochemistry, chemical reactions, physicochemical properties, structure activity relationship, pharmaceutical analysis, pharmacoinformatics, drug design and targeting.

K3. Explain fundamental knowledge of biomedical, pharmacokinetics, pharmacodynamics, genetics, toxicological and clinical sciences related to human body structure, function, disease state diagnosis, therapy and treatment guidelines.

K4. Define the basis of pharmaceutical calculations, biopharmaceutics, biotechnology and quality assurance in designing, manufacturing of biological and pharmaceutical products.

K5. Outline research principles, drug information resources, concepts of marketing & management, pharmaco-economics and clinical guidelines in various pharmacy practice settings.

Skills

S1. Utilize knowledge and technology in developing, manufacturing and quality control of pharmaceutical formulations in accordance with quality assurance and safety regulations.

S2. Apply physical, chemical and biological techniques for drug isolation, synthesis and analysis.

S3. Employ pharmacokinetics and pharmacodynamics concepts in evaluating drug dose, efficacy, safety and toxicity.

S4. Apply patient centered care plan to ensure efficacy, safety, and prevent medication errors, harmful drug interaction, and adverse drug effects.

S5. Evaluate laboratory results, patient history, physical assessments via effective documentation and communication with patients and health care professionals to provide and dispense appropriate medication therapy.

S6. Appraise scientific literature, research and professional skills, critical thinking and pharmaco-economic data to enhance practice-related activities.

S7. Implement effective, safe handling, disposal and ethical manipulation of different chemicals, pharmaceuticals and animals in research and development.

Values

V1. Appraise active role and effective self-management in pharmacy profession and community services.

V2. Demonstrate professional attitude, ethical behavior, social and cultural awareness and proper judgment in clinical practices.

STUDY PLAN FOR THE PHARM. D. DEGREE

(FACULTY OF PHARMACY)

FIRST YEAR (PREPARATORY YEAR)

FIRST SEMESTER				
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**
PENG 001	Prep. English 1	3	20	0
PENG 002	Prep. English 2	3	20	0
PBIO 121	Preparatory Biology	3	2	2
PCOS 001	Prep. Computer Skills	2	2	0
PHYS 121	Medical Physics	3	2	2
TOTAL (CREDIT)		**14**		

SECOND SEMESTER				
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**
PENG 003	Prep. English 3	3	20	0
PENG 008	Prep. English 4	3	20	0
PHCM 121	Preparatory Chemistry	3	2	2
PMDC 101	Medical Foundations	2	2	0
PCSK 001	Communication Skills	2	2	0
TOTAL (CREDIT)		**13**		

SECOND YEAR

FIRST SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
ANAT 211	General Anatomy for Pharmacy	3	2	1	PMDC 101	
PSOL 213	Physiology for Pharmacy-I	2	2	-	PMDC 101	
PHCA 211	Pharmaceutical Analytical Chemistry-I	3	2	1	PCHM 121	
PHTC 211	Introduction to Pharmaceutics	2	2	-	PCOS 001	
PHCO 212	Pharmaceutical Organic Chem.-I	3	2	1	PCHM 121	
IC 101	Intro. to Islamic Culture	2	2	-	-	
ENG 110	English Language	3	3	-	PENG 008	
TOTAL (CREDIT)		**18**				

SECOND SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
PBCH 222	Biochemistry for Pharmacy-I	2	2	-	PCHM 121	
PSOL 223	Physiology for Pharmacy-II	2	2	-	PSOL 213	
PHCO 222	Pharmaceutical Organic Chem-II	2	2	-	PHCO 212	
PHCH 224	Evidence-Based Herbal Medicine	3	2	1	-	
PHTG 222	Pharmaceutics-I	3	2	1	PHTC 211	
CLNP 221	Introduction to Pharmacy Profession	2	2	-	-	
ARAB 101	Arabic Language Skills	2	2	-	-	
IC 102	Islamic and Society Building	2	2	-	-	
TOTAL (CREDIT)		**18**				

THIRD YEAR

FIRST SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
PBCH 312	Biochemistry for Pharmacy-II	3	2	1	PBCH 222	
PCOL 314	Pharmacology-I	3	2	1	ANAT 211, PSOL 223	
PHTG 312	Pharmaceutics-II	3	2	1	PHTG 222	
PHTM 314	Clinical Microbiology-I	3	2	1	-	
IC 103	Economic System In Islam	2	2	-	-	
ARAB 102	Arabic Composition	2	2	-	-	
TOTAL (CREDIT)		**16**				

SECOND SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
PCOL 324	Pharmacology-II	3	2	1	PCOL 314	
CLNP 321	Pharmacy Profession Ethics	2	2	-	CLNP 221	
PHTI 323	Industrial Pharmacy	3	2	1	PHTG 312	
PHTM 324	Clinical Microbiology-II	3	2	1	PHTM 314	
CLNT 323	Introduction to Pathophysiology	2	2	-	PCOL 314, PSOL 223	
PHCM 323	Medicinal Chemistry-I	2	2	-	PHCO 222, PCOL 314	
IC 104	Basics of Political System	2	2	-	-	
TOTAL (CREDIT)		**17**				

SUMMER TRAINING

CODE	COURSE TITLE	CRED
PHTR 320	Introductory Pharmacy Practice Experience (IPPE) = (160 Actual Training Hours)	6
TOTAL (CREDIT)		**6**

FOURTH YEAR

FIRST SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
PCOL 414	Pharmacology-III	3	3	-	PCOL 324	
PHTM 414	Clinical Microbiology- III	2	2	-	PHTM 324	
PHTT 415	Biopharmaceutics & Pharmacokinetics	2	2	-	PHTG 312	
PHCM 413	Medicinal Chemistry-II	2	2	-	PHCM 323	
CLNT 413	Pathophysiology & Therapeutics-I	3	2	1	CLNT 323	
CLNP 411	Pharmacy Care & OTC Drugs	2	1	1	CLNP 321	
CLNE 414	Pharmacy Information Systems	2	2	-	CLNP 221	
PHCH 414	Complimentary Medicine	2	2	-	PHCH 224	
TOTAL (CREDIT)		**18**				

SECOND SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
PCOL 424	Pharmacology-IV	2	2	-	PCOL 414	
PHTG 422	Sterile & Parenteral Preparations	2	1	1	PHTM 414 & PHTG 312	
CLNA 425	Clinical Immunology	3	2	1	PHTM 414	
PHTT 425	Pharmaceutical Biotechnology	2	2	-	PHTM 414	
PHCA 421	Pharmaceutical Analytical Chem.-II	3	2	1	PHCA 211	
CLNP 421	Pharmacy Law & Regulatory Affairs	1	1	-	-	
CLNT 423	Pathophysiology & Therapeutics-II	3	2	1	CLNT 413	
PHCM 423	Medicinal Chemistry-III	2	2	-	PHCM 413	
TOTAL (CREDIT)		**18**				

SUMMER TRAINING

CODE	COURSE TITLE	CRED
PHTR 420	Advanced Pharmacy Practice Experience (APPE) = (160 Actual Training Hours)	6
TOTAL (CREDIT)		**6**

FIFTH YEAR

FIRST SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
PTOX 515	Toxicology & Drugs Abuse	2	2	-	PCOL 424	
PHTG 512	Pharmaceutical Quality Assurance & Control	2	2	-	PHTG 422	
PCOL 514	Pharmacogenomics	2	2	-	CLNA 425	
CLNT 513	Pathophysiology & Therapeutics-III	3	2	1	CLNT 423	
CLNA 515	Applied Pharmacokinetics	2	1	1	PCOL 424 & PHTT 415	
CLNI 512	Research Methodology & Scientific Writing	2	2	-	-	
CLNS 516	Biostatistics	1	1	-	-	
ELCT- 01	Elective –I	3				
TOTAL (CREDIT)		**17**				

SECOND SEMESTER						
CODE	**COURSE TITLE**	**CRED**	**LECT**	**LAB**	**PRE-REQUISITE**	**CO-REQUISITE**
CLNA 525	Pharmacoinformatics	2	2	-	-	
CLNP 521	Community Pharmacy	2	2	-	CLNP 421 & CLNP 411	
CLNI 522	Drug & Poison Information	2	2	-	PTOX 515	
CLNT 523	Pathophysiology & Therapeutics-IV	3	2	1	CLNT 513	
CLNM 528	Pharmacy Management & Marketing	2	2	-	CLNE 414	
CLNS 526	Project & Seminar	3	2	1	CLNS 516 & CLNI 512	
ELCT- 02	Elective-II	3	*	*	*	
TOTAL (CREDIT)		**17**				

SUMMER TRAINING

CODE	COURSE TITLE	CRED
CLNR ….	Rotation-1	3
CLNR ….	Rotation-2	3
TOTAL (CREDIT)		**6**

SIXTH YEAR

FIRST SEMESTER		
CODE	**COURSE TITLE**	**CRED**
CLNR ….	Rotation-3	3
CLNR ….	Rotation-4	3
CLNR ….	Rotation-5	3
CLNR ….	Rotation-6	3
TOTAL (CREDIT)		**12**

SECOND SEMESTER		
CODE	**COURSE TITLE**	**CRED**
CLNR ….	Rotation-7	3
CLNR ….	Rotation-8	3
CLNR …	Rotation-9	3
CLNR ….	Rotation-10	3
TOTAL (CREDIT)		**12**

ELECTIVE COURSES (6 HOURS)

Student has to select Elective-I & Elective-II from the following topics if offered semesterly

CODE	COURSE TITLE	CRED	LECT	LAB	PRE-REQUISITE	CO-REQUISITE
CLNE 504	Pharmacoeconomics	3	3	-	PHTC 211	
PHTG 502	Cosmetics	3	2	1	PHTG 312	
CLNM 508	Hospital Pharmacy Practice	3	3	-	CLNE 414	
PCOL 504	Drug Discovery & Evaluation: Pharmacological Assays	3	2	1	PCOL 424	
PTOX 505	Forensic Toxicology	3	2	1	PTOX 515 & PHCA 421	
PHTR 506	Radio-Pharmacy & -Therapy	3	3	-	PHTG 422	
PHTT 505	Advanced Drug Delivery Systems	3	3	-	PHTG 312	
CLNN 509	Total Parenteral Nutrition	3	3	-	CLNT 513	
CLNP 501	Pharmacoepidemiology	3	2	1	CLNS 516	
TOTAL (CREDIT)		**3 X 2 =6**				

ROTATIONS (30 HOURS) Student will select 10 rotations from the following list			
CODE	**ROTATION TITLECOURSE TITLE**	**CRED**	**PRE-REQUISITE**
CLNR 640	Drug Information	3	Completion of all didactic courses and PHTR 320 & PHTR 420
CLNR 641	Cardiology	3	
CLNR 642	Orthopedics	3	
CLNR 643	Critical Care *	3	
CLNR 644	Internal Medicine I *	3	
CLNR 645	Internal Medicine II *	3	
CLNR 646	Ambulatory Care *	3	
CLNR 647	Internal Medicine III	3	
CLNR 648	Nutritional Support	3	
CLNR 649	Infectious Diseases*	3	
CLNR 650	Pain Management	3	
CLNR 651	Organ Transplant	3	
CLNR 652	Nephrology	3	
CLNR 653	Neonatal Intensive Care	3	
CLNR 654	Pediatric Medicine	3	
CLNR 655	Hematology/Oncology	3	
CLNR 656	Psychiatry	3	
CLNR 657	Hospital Pharmacy Administration*	3	
CLNR 658	Toxicology (Clinical Rotation)	3	
CLNR 659	Geriatrics	3	
CLNR 660	Patient Counseling	3	
CLNR 661	Informatics	3	
CLNR 662	Medication Safety	3	
CLNR 663	Academic Teaching	3	

***Required (Obligatory) Rotations**

Course Description

General Anatomy for Pharmacy, ANAT 211

This course aims to introduce concise data about the body structures as well as the morphology of the viscera of the thoracic and abdominal cavity. The course covers the theoretical and the practical aspects of the introduced topics. Throughout this module the students should gain complete details about the structures of the muscular system of the body and body systems. The students will demonstrate the ability to assimilate and integrate information from lectures, practical, and independent activities on the anatomy of the human body and different organs. By the end of this module, the students will have the ability to correlate between the anatomical structure and its relation.

Pharmaceutical Analytical Chemistry-I, PHCA 211

The course discusses various analytical methods used in drug analysis in order to identify and determine structure, purity and action, including titrimetric methods of analysis; theory of neutralization; titrations; precipitation titration; complex-formation titrations and oxidation reduction titration. It has different applications throughout industry, medicine and all the science.

Introduction to Pharmaceutics, PHTC 211

This course is designed to introduce the quantitative and basic principles of pharmaceutical calculations to pharmacy students, which can be applied to pharmacy practice and pharmaceutical sciences. The following subjects will be covered: interpretation of prescription, fundamentals of measurement and calculation, calculation of (doses, concentrations, calculations, pH and buffer, and isotonicity), and on introduction to reaction kinetics.

Physiology for Pharmacy I, PSOL 213

This is an essential academic course to get the required knowledge about functions of various systems in human body. It has been designed to provide the basic scientific concepts of physiology in a group of selected topics which include: the respiratory system, cardiovascular system, special senses, hematology & immunity, skeletal & smooth muscles and neuromuscular junction. A good understanding of this course will help in further understanding of several related courses such as, pharmacology and pathophysiology

Pharmaceutical Organic Chemistry I, PHCO 212

This course covers the significance of organic chemistry with particular emphasis on the synthesis, reactions, and mechanism of reactions of organic compounds. The importance of different chemical classes of organic compounds in nature and in pharmaceutical industries will be outlined. The laboratory period deals with the identification of different classes of organic compounds based on differences in their physiochemical properties

Physiology for Pharmacy II, PSOL 223

This is an essential academic course to get the required knowledge about functions of various systems in human body. In fact, it has been designed to provide the basic scientific concepts of physiology in a group of selected topics which include: the nervous, endocrine, gastro-intestinal tract and urogenital systems. The good understanding of this course will help in further understanding of several related courses such as, pharmacology and pathophysiology. Lecture 2 hours a week.

Pharmaceutics-I, PHTG 222

The course studies the preparation of some liquid dosage forms, such as aqueous and non-aqueous Pharmaceutical solutions, the pharmaceutical principles for disperse systems; suspension, emulsion, colloids, aerosols. The course also studies the preparation and characterization of colloidal systems as liposomes, niosomes and nanoparticles.

Evidence-Based Herbal Medicine, PHCH 224

This course is designed to be delivered into two major parts entitled of Fundamentals of pharmacognosy and important natural products and phyto- medicines used in pharmacy and medicine. The Fundamentals of pharmacognosy is dealing, with: the history and importance of pharmacognosy and phyto-therapy in pharmacy and medicine; characterization and standardization of phyto-medicines and nutra-ceuticals. Natural products and phyto-medicines used in pharmacy will be covered through discussion of phytomedicines used in various therapeutic categories, such as: gastrointestinal and biliary systems cardiovascular system, Respiratory system, CNS infectious diseases. An experimental part will run together with theoretical part of the course. 2 credit hours for traditional (online) lectures and 1 credit hour for experimental work (Lab work).

Introduction to pharmacy profession, CLNP 221

This course is designed to provide students with a broad perspective on pharmacy as a profession in a changing health care environment. It provides the basis for beginning pharmacy students to develop an accurate view of the profession they are entering. It helps the students to understand the basic principle of the profession as well as to understand the critical issues the profession is facing. Students will learn about health and health care from the patient's perspective and about the historical and philosophical contexts of the profession as it continues to evolve toward patient centered care.

Pharmaceutical Organic Chemistry II, PHCO 222

This course covers in details the significance of organic chemistry with emphasis on the synthesis, stereochemistry, and bioorganic molecules (Amino acids & Carbohydrates). The chemistry of heterocyclic compounds will be discussed in depth. The importance of different organic classes in nature and in pharmaceutical and chemical industries will be outlined.

Biochemistry for Pharmacy I, PBCH 222

This course gives an overview of fundamental concepts of the various chemical processes and the biomolecules (such as amino acids, proteins, enzymes, nucleic acids, nucleotides, and vitamins) that regulate the various living processes in all kingdoms of life. This course allows in understanding the biochemical events in a normal cell and how biochemical changes in it affect the normal physiological alteration in the body leading to various diseases.

Biochemistry for Pharmacy-II, PBCH 312

This course provides a firm foundation in biochemistry. It involves the study of the structure and function of biological macromolecules. In this semester we will concentrate on the structures of carbohydrates, lipids, porphyrins, bioenergetics, and mechanisms of electron transfer by mitochondrial respiratory chains. The course also focuses on the major metabolic pathways that regulate their synthesis and catabolism. Special attention is paid to the biochemical basis of human diseases related to these biomolecules. The laboratory work concerns mainly with the determination of blood and urine biochemical parameters. Clinical correlations are to be also highlighted whenever possible

Pharmaceutics-II, PHTG 312

This course deals with the principles and techniques involved in the formulation and preparation of semisolid and solid dosage forms with brief introduction to the quality control of these preparations. The following main subjects are going to be covered: ointments, creams, gels, pastes, powders, effervescent granules, tablets, capsules, and suppositories

Clinical Microbiology-I, PHTM 314

This course deals with different bacterial groups with respect to classification, morphology, ultra-structure, nutrition, growth conditions and bacterial genetics and its contribution to resistance to anti-microbial agents. It also deals with different antimicrobial agents regarding their mechanisms of action, resistance of microbes to them as well as their combinations. It also focuses on bacteria causing human infections with respect to their general characteristics, pathogenesis, Laboratory diagnosis, epidemiology, and treatment.

Pharmacology I, PCOL 314

This course is designed to cover the fundamentals of pharmacology for pharmacists. Initially, it starts by introducing the students to the principles of pharmacokinetics including various routes of drug administration the advantages and disadvantages. The course then will cover the principles of pharmacodynamics, drug-receptor interactions, signal transduction, and graded dose-response relationships. The focus then shifts to introduce various drugs affecting the autonomic nervous system, mechanism of action, pharmacokinetic properties and the adverse effects associated with various drug groups. The course concludes by covering the drugs affecting the cardiovascular and renal systems. The course integrates practical hands on basics of animal handling and various routes of administration in mice. The lab includes utilizing various drugs to demonstrate the therapeutic actions of the drug on various experimental animals. Lectures 2 hours a week, lab 3 hours a week.

Medicinal Chemistry-I, PHCM 323

In this course students will gain an appreciation for the drug development process, together with brief introduction to the drug discovery and designing methods, and also deals with the Chemistry, Structure Activity Relationship (SAR) and Mechanism of Action of certain important drugs such as those acting on central nervous system.

Pharmacology II, PCOL 324

This course is designed to be a continuation in the pharmacology series for pharmacists. The focus of this series is on the drugs that affect the central nervous system including CNS stimulants, drugs used in attention deficiency disorder, antidepressants, antipsychotics, antimanic, drugs used in movement disorders and Parkinson's disease, drugs used to treat Alzheimer and memory disorders, sedatives, hypnotics and anxiolytics. Apart from that, it also contains the role anti-inflammatory agents including opioid pharmacology. In each category, the primary drugs are covered in terms of the drug's mechanism of action, pharmacokinetic properties therapeutic value and adverse effects

Pharmacy Professional Ethics, CLNP 321

This course is designed to provide students with a broad perspective on ethics with related values for both health care professional and their target audience. Pharmacy as a profession providing health care increasingly poses ethical choices because it imposes ethical standards and obligations on its practitioners. Through lectures and case scenarios, students will learn statutes, regulations, legal and ethical issues relevant to pharmacy practice, as well as civil liability including malpractice. Pharmacists may be held accountable for their actions according to their professional code of ethics, such as the Code of Ethics for Pharmacists of the American Pharmacists Association.

Introduction to Pathophysiology, CLNT 323

This course introduces the students to the basic principles and mechanisms of disease including inflammation and infectious disease. It also deals with the pathophysiology of the diseases that affect the cardiovascular, respiratory, renal, gastrointestinal systems together with liver, pancreas, gall bladder and metabolic disorders

Industrial Pharmacy, PHTI 323

This course introduces basic engineering principles that are involved in the commercial manufacture of pharmaceutical dosage forms. Discussions will focus on the design and operation of equipment used for each unite operation in the factory; and how such principles as blending, mixing, heat and mass transfer are utilized to design and specify equipment used in producing powders, tablets, capsules and other dosage forms.

Clinical Microbiology-II, PHTM 324

This course deals with different viruses groups especially those causing human infection with respect to classification, morphology, ultra-structure, pathogenesis, Laboratory diagnosis, epidemiology, and treatment. It also deals with different sources of microbial contamination and different techniques used to control or destroy microorganisms including sterilization and disinfection in addition to the preservation of pharmaceuticals

Medicinal Chemistry-II, PHCM 413

This course is designed to be a continuation of the medicinal chemistry series for pharmacists. In this course, particular emphasis is given to antimicrobial agents, whereby students would be introduced to the SAR of various antimicrobial agents in addition to their mechanisms of action and specific reactions that occur between them and their relevant targets. The antimicrobial agents that are supposed to be covered in this course include: antibacterial, anti-mycobacterial, anthelminthic, and antifungal drugs. Further advanced concepts are also introduced in this course, such as simplification and drug multistep synthesis

Complementary Medicine, PHCH 414

This course describes a group of diagnostic and therapeutic disciplines that are used together with conventional medicine for treatment of diseases. Different types of Complementary and alternative medicine (CAM) are discussed in this course such as biologically based therapies – mind body medicine – energy based medicine. CAM alone or in conjunction with mainstream medicine is often used to treat an increasing variety of diseases such as headache, migraine, asthma and diabetes, and this course would attempt to cover these topics as well.

Pathophysiology and Therapeutics-1, CLNT 413

This course is a foundation in the series of Pathophysiology and Therapeutics. The focus of this series is about pathophysiology of management of therapy and medication therapy, interpretation of clinical laboratory tests, anaphylaxis and drug allergies, nausea and vomiting, pain management, acid-base disorders, and fluids and electrolytes disorders

Pharmacy Care & OTC Drugs, CLNP 411

This course enables pharmacy students to follow health care practitioners, and consumers by making available comprehensive, convenient and easy-to-use compilation of information on nonprescription drugs and drug products. Students practice interviewing and counseling skills, and continue to develop their skills in over the counter drugs (OTC) counseling with new topics, including some alternative medicine. Emphasis will be placed on mechanism(s) of action of the various drug classes, body system(s) affected, clinical manifestations of problems and the resulting adverse effects.

Pharmacy Information Systems, CLNE 414

To equip students with communication skills required to retrieve, analyze, and interpret professional, scientific literature to make informed, rational, and evidence-based decisions. Students will be able to design and conduct research projects and improve their ability to understand, evaluate, and use reports of research in future coursework.

Pharmacology III, PCOL 414

This course is a continuation in the series of pharmacology for pharmacists. The focus of this series is on the drugs that affect the endocrine system. The course will cover the principles of hormone actions, endogenous regulation of hormone production and actions. The indications of various hormone replacement therapies including bone and GIT Pharmacology, their mechanism of action, pharmacokinetic properties, contraindications and adverse effects. The second half of the semester shifts the focus to principles of antiviral, antimicrobial, and antiprotozoal therapies. The major drugs in each category are covered with the emphasis on mechanism of action, routes of administration, drug target, chemotherapeutic spectrum and modes of drug resistance by the pathogens. Lecture 3 hours a week.

Clinical Microbiology- III, PHTM 414

This course covers the basics of immunology regarding Knowledge of the immune system's components those help to protect the body against infections, the mechanisms through which the immune system acts. It also deals with fungi and parasites with regard to their classification, structure, morphology, pathogenicity, clinical picture, diagnosis and treatment

Biopharmaceutics and Pharmacokinetics, PHTT 415

This course introduces students to the basic concepts and principles of biopharmaceutics, regarding the role of dosage form in absorption and disposition of drugs in the body. It gives an overview of fundamental pharmacokinetic concepts regarding rate and order of processes, parameters usually utilized in classical pharmacokinetic. Concepts and principles of dosage regimen, bioavailability & bioequivalence are also covered

Medicinal Chemistry-III, PHCM 423

This course is designed to be a continuation of the medicinal chemistry series for pharmacists. In this course further advanced concepts are introduced whereby students would have a deeper understanding of protein and enzyme structure and their interactions with drugs. The course shall also cover the different types of drug design and provide an introduction to the use of computational chemistry in drug design. Finally, application of medicinal chemistry concepts such as SAR, mode of action and synthesis would be explored *via* discussing different classes of drugs such as diuretics, Cardiovascular drugs, gastrointestinal drugs and drugs for brain-related diseases.

Pharmaceutical Analytical Chemistry-II, PHCA 421

This course covers the design, operational principles and practical applications of modern instrumental methods used in chemical analysis. These methods are used in separation, identification and quantification of the chemical components of natural and artificial materials. Using a combination of problem-based learning approaches, practical sessions and traditional lectures, the student will develop critical thinking skills in the areas of instruments selection, method development and data interpretation.

Pathophysiology and Therapeutics-II, CLNT 423

This course is a continuation in the series of pathophysiology and therapeutics. The focus of this series is about pathophysiology of cardiovascular and respiratory disorders and their management approaches. The course will cover cardiovascular disorders like hypertension, dyslipidemia, myocardial infarction, angina, congestive heart failure and arrhythmia. Similarly, the focus of the next topic is concerned with respiratory disorders which include asthma, COPD and rhinitis.

Pharmacology IV, PCOL 424

Pharmacology IV is the final course in the series of pharmacology for pharmacists. It is designed to cover the various therapeutic agents that affect other systems that were not covered in the previous series. It focus on the principle of anticancer therapies, drugs used to treat various stages of different cancers and modes of chemo-resistance. The drugs that affect immune system including immunosuppressant and immunomodulatory drugs. In the second half of this course, blood related disorders will be covered

Clinical Immunology, CLNA 425

This course will provide students with a broad understanding of the immune system and its regulation and the immunological aspects of infections, hypersensitivity reactions, autoimmune diseases and organ transplantation. The students will also gain knowledge about the different immunological techniques and serological testing used in practice for the diagnosis of immunological diseases

Pharmaceutical Biotechnology, PHTT 425

This course covers the basics of recombinant DNA technology and the production of bio-pharmaceuticals, in addition to nucleic acid therapeutics as gene therapy. It also covers microbial fermentation with regard to instrumentation and product purification

Sterile &Parentral Preparations, PHTG 422

This course provides an introduction & basic understanding to different types of sterile products, including total parenteral nutrition. Emphasis on manufacturing area for formulation of sterile products as per international standards are included. Topics include formulation, aseptic techniques, facilities, equipment, and evaluation of sterile products like parenteral & ophthalmic Preparation.

Pharmacy law & Regulatory Affairs, CLNP 421

This course is meant to provide students with information in Saudi Arabian law, and regulations of pharmacy practice and pharmaceutical products Issued by the Council of Ministers letter number 335 and dated 7/3/1398 H and Its various explanations. The course is one credit hour, during which the students will be exposed to: pharmacy practice including, definitions, legal and administrative system, registration of pharmacists and their assistants, pharmacies, wholesale drug distribution warehouses, pharmaceutical companies and Industries, medicines registration, pharmaceutical companies registration and their scientific offices, transitional provisional rules, penalties, and regulations of poisons, narcotics, and psychiatric medications under control.

Pathophysiology and Therapeutics-III, CLNT 513

This course is a continuation in the series of pathophysiology and therapeutics. The focus of this series is about pathophysiology of endocrine and infectious diseases and their management approaches. The course will cover endocrine disorders like thyroid disorders and diabetes mellitus. Similarly, the focus of the next topic is concerned with infectious diseases which include bacterial infections (principles and prophylaxis of infectious diseases, RTI, TB, infectious diarrhea, UTI), fungal infections, parasitic infections, and viral hepatitis and infection

Applied Pharmacokinetics, CLNA 515

This course introduces the student to principles of monitoring drug therapy for those involved in the interpretation of drug levels in a patient care setting. Pharmacokinetics of commonly used and low-therapeutic-index drugs is emphasized in this course

Research Methodology & Scientific Writing, CLNI 512

The course is taught by interactive lectures. It involves the discussion about research, research problem, hypothesis, research methodology, literature review and data collection and research types. It also encompasses topics about various scientific communication methods.

Biostatistics, CLNS 516

Provides students with an understanding of probability concepts, distributions of random variables, nonparametric methods, and other statistical methods in biomedical, pharmaceutical, and health care research. Allow candidates to have experience and practice new technologies in the field of research conduction, and to demonstrate competences in data presentation, statistical analysis, and interpretation.

Pharmaceutical Quality Assurance & Control, PHTG 512

The course provides students with knowledge and skills in the fields of pharmaceutical analysis, quality assurance, and regulatory affairs. It brings to students basic principles of pharmaceutical GMP (Good Manufacturing Practices), GLP (Good Laboratory Practices), GDP (Good Documentation Practices), SOPs (Standard operating procedures), and ICH (International council for harmonization) guidance. At the end of the course students should manage GMP and quality related issues as well as various regulatory requirements

Toxicology and drug abuse, PTOX 515

This course is designed to give the student a broad appreciation of the field of toxicology and drug abuse through Outlining the mechanisms by which toxicants enter the body and the biotransformation processes that result in the disease-producing entities. Understanding knowledge relating to drug-related health effects, issues related to social and psychological effects of drug use and abuse, and drug control policies. Covering a broad array of drugs including licit drugs, illicit drugs and drugs liable for addiction and the progression from occasional use to addiction.

Scoping threats to children and adults posed by common therapeutic drugs, and prevention and treatment strategies for overdoses.

Pharmacogenomics, PCOL 514

This course is designed to introduce the theory and practice of pharmacogenomics. The genetic basis of variability in drug response can contribute to drug efficacy and toxicity, adverse drug reactions and drug-drug interaction. As such, pharmacists need a thorough understanding of the genetic component of patient variability to deliver effective individualized pharmaceutical care. Understanding of the basics of pharmacogenomics will enable pharmacy students to better understand and manage the new genomics based diagnostic tools as they become available as well as make best treatment choices.

Community Pharmacy, CLNP 521

In the changing scenario of pharmacy practice, Community Pharmacists are expected to offer various pharmaceutical care services. In order to meet this demand, students will be learning various skills such as dispensing of drugs, responding to minor ailments by providing suitable safe medication, patient counseling, health screening services for improved patient care in the community set up. Emphasis on where pharmacy "fits in" Saudi Arabia health care system and how pharmacy can be the solution to some health care problems.

Pharmacy Management and Marketing, CLNM 528

The course provides students with skills and knowledge required to understand basic principles of pharmacy practice management and marketing

Drug and Poison information, CLNI 522

This course is designed to introduce the students to the concept of drug and poison information services, their functions, the role of a pharmacist as drug information provider and the required processes and materials to establish drug and poison information centers. After finishing this course, the students will recognize the emergency role of DPIC and the types of antidotes. They can evaluate the drug use and the related adverse effects and medication safety

Pathophysiology and Therapeutics -IV, CLNT 523

This course is a continuation in the series of pathophysiology and therapeutics. This course introduces the students to the basic mechanisms of diseases of GIT, renal, neurologic, Psychiatric and neoplastic disorders, and pediatrics and geriatrics therapies and their management approaches.

Project and Seminar, CLNS 526

This course is continuation of research methodology and scientific research with more focus on practical aspects of research skills. This course will covers various topics such as to plan, conduct, analyze, and present the findings of pharmaceutical research. Course will also focus on research process, formulating a research problem, identifying variables and constructing hypothesis and research design

Pharmaco-informatics, CLNA 525

Pharmacoinformatics course is one of the most important courses because it provides the student with the fundamentals knowledge to understand computerized and network based pharmaceutical and health care information resources.

Drug Discovery & Evaluation: Pharmacological Assay PCOL 504

During this semester students will learn about the key issues involved in developing a candidate drug from late stage pre-clinical drug discovery through to clinical implementation, covering the clinical components of target validation and disease linkage, the use of pharmacodynamic biomarkers in early clinical trials and the development of companion diagnostics to enable personalized medicine strategies. Recent advances in the use of computational and combinatorial chemistry in drug design will also be presented. At the end of this course student will learn the pharmacological screening methods on various organs like CNS, CVS, GIT, urinary system, endocrine system etc

Advanced Drug Delivery System PHTT 505

The course has been designed to provide students with knowledge of advanced drug delivery systems, different mechanisms of drug release. Also, the course will be focused on the method of preparation of these novel drug delivery systems. The controlled delivery systems include delayed release, sustained release, particles. The course of advanced drug delivery, it is intended that the student has knowledge of how to modify the administration of a drug by using different delivery systems and how this change affects their bioavailability and therefore their therapeutic properties.

Cosmetics, PHTG 502

The course aims to provide the students the basic knowledge regarding the properties, formulation, and applications of various cosmetic products. Also, introducing students to different cosmetic products relating to skin, hair and oral cavity

Forensic Toxicology PTOX 505

This course is designed to provide students with a comprehensive knowledge on the principles and practice of forensic toxicology. This course will introduce various methodologies and applications used in the forensic context. This course will also study the general principles and fundamentals of forensic toxicology, poisons, action, toxicity, post-mortem characteristics, samples required for toxicological analysis and methods of collection, methods of preservation and analysis. Chemical, toxicological and pathological characteristics of commonly abused drugs, including the following: ethanol, barbiturates, narcotics, stimulants, xenobiotics, and hallucinogens. Details of the methods employed for analysis, such as color test, chromatography (GC, GLC, HPLC), mass spectrometry (MS), GC-MS

Pharmacoeconomics CLNE 504

Pharmacoeconomics is designed to develop the knowledge and skills necessary to evaluate the economic, clinical and humanistic outcomes of medical treatment. The subject focuses on producing graduates for positions that emphasizes quality research, administration and management skills with effective cost management system.

Total Parentral Nutrition CLNN 509

TPN course has been designed to provide current conceptual and operational knowledge to the students interested in the provision of parenteral nutrition therapy. The understanding and use of TPN has evolved since its entry into mainstream healthcare several decades ago. This course contains current practices for best patient outcomes. This course provides elective 3 contact hours.

Radio-Pharmacy & Therapy, PHTR 506

This course will introduce to the nuclear pharmacy. The course is taught through interactive lectures. This will also discuss about the preparation and dispensing of radiopharmaceuticals in various therapeutic indications

Hospital Pharmacy Practice, CLNM 508

In today's evolving pharmacy practice scenario, the students are required to learn various skills including policies and procedures, infection control, hospital formulary, inventory control, and inpatient and outpatient hospital pharmacy services

Pharmaco-epidemology, CLNP 501

The concept of pharmacoepidemiology and related terminologies will be thoroughly discussed. All basic epidemiology / pharmacoepidemiology theories will be explained because they are critical to comprehending this subject. Additionally, the methods used in pharmacoepidemiology investigations will also be addressed

Program key performance indicator (KPI's)

KPI-P-01. Percentage of achieved indicators of the program operational plan objectives.

KPI-P-02. The awareness and support of the teaching staff and administrators of the mission of the program/institution.

KPI-P-03. Students' Evaluation of quality of learning experience in the program.

KPI-P-04. Students' evaluation of the quality of the courses.

KPI-P-05. Completion rate.

KPI-P-06. First-year student's retention rate.

KPI-P-07. Students' performance in the professional and/or national examinations.

KPI-P-08. Graduates' employability and enrolment in postgraduate programs.

KPI-P-09. Average number of students in the class.

KPI-P-10. Employers' evaluation of the program graduates proficiency.

KPI-P-11. Student evaluation of the Value and Quality of Field Activities.

KPI-P-12. Students' satisfaction with the offered services.

KPI-P-13. Ratio of students to teaching staff.

KPI-P-14. Percentage of teaching staff distribution.

KPI-P-15. Proportion of teaching staff leaving the program.

KPI-P-16. Percentage of publications of faculty members.

KPI-P-17. Rate of published research per faculty member.

KPI-P-18. Citations rate in refereed journals per faculty member.

KPI-P-19. Relevance of the qualifications and experience of faculty members to the courses they teach.

KPI-P-20. The percentage of full-time teaching staff members and the others of administrative staff that participate in community services activities.

KPI-P-21. Satisfaction of beneficiaries with the learning resources.

Facilities

Classrooms

Male Branch: There are 8 classrooms for giving traditional lectures in addition to 2 video-conference rooms

Female Branch: There are 8 classrooms for giving traditional lectures in addition to 2 video-conference rooms

Laboratories

Male Branch: There are 10 specialized laboratories as follows:

[1] One chemistry lab and one research lab

[2] One pharmaceutics lab and one research lab

[3] One microbiology lab

[4] One pharmacology lab and one research lab

[5] One clinical simulation lab

[6] Central research lab

[7] Clinical Pharmacy lab

Female Branch: There are 8 specialized laboratories as follows:

[1] Two chemistry labs

[2] Two pharmaceutics lab

[3] One microbiology lab

[4] One pharmacology labs

[5] One clinical simulation lab

[6] Research lab


College of Pharmacy
Laboratories

Specialized Equipment

Male Branch: There are 386 specialized equipment used in the program, which are distributed as follows:

[1] 20 specialized equipment in chemistry lab

[2] 22 specialized equipment in pharmaceutics lab

[3] 24 specialized equipment in microbiology lab

[4] 26 specialized equipment in pharmacology lab

[5] 294 specialized equipment in clinical simulation lab

Female Branch: There are 352 specialized equipment used in the program which are distributed as follows:

[1] 15 specialized equipment in chemistry lab

[2] 13 specialized equipment in pharmaceutics lab

[3] 21 specialized equipment in microbiology lab

[4] 9 specialized equipment in pharmacology lab

[5] 294 specialized equipment in clinical simulation lab


DOV53A
Drying Oven


SOTAX
DI2

Technical Devices

Male Branch: There are 53 technical devices distributed as follows:

[1] 25 desktop computers in a separate computer lab.

[2] 2 videoconference devices

[3] 14 data show devices (in both classrooms and labs)

[4] 10 smart boards (in both classrooms and labs)

[5] 2 photocopying machines

Female Branch: There are 41 technical devices distributed as follows:

[1] 24 desktop computers in a separate computer lab.

[2] 12 data show devices (in both classrooms and labs)

[3] 4 smart boards (in both classrooms and labs)

[4] 1 photocopying machines

Graduates employment opportunities

- Regarding the professional classification by Saudi commission for health specialties (SCFHS), graduate should be qualified and licensed to work as a pharmacist.
- Upon completion of the program, graduate should be qualified and licensed to work as a clinical pharmacist in the following pharmaceutical fields:
  1- Hospital Pharmacy.
  2- Community pharmacies.
  3- Governmental agencies like Saudi Food and Drug Authority (SFDA).
  4- Biotechnological and pharmaceutical industries
  5- Research institutes and centers.
  6- Pharmaceutical sales and marketing.
  7- Academic institutions.