Courses of Pharmaceutics

Clinical Program

A. Credit Hours Program:

PT 201 Physical Pharmacy

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

PT 202 Pharmacy Orientation

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

PT 403 Pharmaceutical Dosage Forms (1)

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

PT 404 Pharmacy Legislation

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

PT 505 Pharmaceutical Dosage Forms (2)

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

PT 506 Pharmacy Administration

Capital requirements, purchasing and financing a new pharmacy, location analysis, pharmacy layout design, space management for pharmacy practice, inventory purchasing and control, OTC merchandising, advertising, interpersonal communication, inter-professional relations, and patient consultation.

PT 607 Pharmaceutical Technology

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

PT 609 Biopharmaceutics and Pharmacokinetics

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

PP 701 Radiopharmaceuticals

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

PT 704 Controlled Drug Delivery

Controlled and Modulated release drug delivery systems, theory, methods.eg. microcapsules, bioadhesives.

PT E10 Quality Assurances and GMP

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

PT E11 Applied Industrial Pharmacy

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

E12 Good Manufacturing Practices

Concepts, objectives and applicability, general provisions, organization and personal, Building and facilities, materials, equipment, production and process controls, packing and labeling, control, distribution, laboratory controls, records

and reports, returned and salvaged drug products, repacking, inspections and recalls.

PT E13 Cosmetic Preparations

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

PP 703 Hospital Pharmacy

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

PP 806 Drug Marketing

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

HU 201 Human Rights

This course covers the following topics: human rights in criminal law, the human right to change his nationality or relinquish one of his nationalities, international conventions related to the protection of human rights, the relationship of globalization and development with economic, social, and cultural rights, economic and cultural rights for humans, human rights in Islamic law, Women rights in labor and social security laws, human rights in litigation, civil and political rights of man.

B. Pharm-D Program:

PT 101 Pharmacy Orientation (1+0)

This is a course to acquaint the beginning pharmacy student with the multiple aspects of the profession of pharmacy, including the mission of pharmacy, role of pharmacist in society and pharmacy careers, classification of medications, interpretation of prescriptions and medication orders, general dispensing procedure and factors affecting drug dosage, sources of drugs, different dosage forms and various routes of administration. In addition to the history of pharmacy practice in
various civilizations.

PT 202 Physical Pharmacy (2+1)

This course provides students with knowledge of physical and chemical principles essential for the design and formulation of pharmaceutical products. Students are introduced to the fundamental concepts of states of matter, Phase equilibrium, colligative properties, isotonicity solubility, dissolution, partition coefficient, surface and interfacial phenomena, surface active agents, adsorption and its application in pharmacy and rheological behavior of dosage forms.

PT303 Pharmaceutical Legislations and Practice ethics (1+0)

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

PT304 Pharmaceutical Dosage Forms I (2+1)

This course is a study of the system of weights, measures, mathematical expertise and pharmaceutical calculations requisite to the compounding, dispensing, and utilization of drugs in pharmacy practice. It is also concerned with all manufacturing formulations aspects, packaging, storage, and stability of liquid dosage forms including solutions (aqueous and non-aqueous), suspensions, emulsions, and colloids with emphasis on the technology and pharmaceutical rationale fundamental to their design and development. The incompatibilities occurring during dispensing are also considered.

PT 405 Pharmaceutical Dosage Forms II (2+1)

This course covers the structure and function of the skin, target area of treatment after topical application to skin, basic principles of diffusion through membranes and factors affecting percutaneous absorption, enhancement of skin penetration, transdermal drug delivery systems (TDDS). It also describes the principles and techniques involved in the formulation and manufacturing of traditional dermatological semisolid dosage forms (creams, ointments, gels, and pastes) and cosmetic products.

PT 506 Pharmaceutical Dosage Forms III (2+1)

The course introduces the students to the kinetics of drug decomposition including rate and order of the reaction, determination of the half-life, expiry date and shelf-life by different methods, stability testing, and in-vitro possible drug/excipients interactions. It also describes the principles and techniques involved in the formulation, and manufacturing of solid dosage forms including powders, granules, tablets, capsules, and suppositories.

PT 607 Pharmaceutical Technology (2+1)

The course provides students with an introduction to industrial pharmacy. It deals with the principles of various unit operations such as heat transfer, evaporation, drying, distillation, filtration, centrifugation, crystallization, extraction, size reduction, size separation, size analysis and size enlargement. It focuses on the application of these unit operations in pharmaceutical industry with emphasis on the equipment and machines used during the production of different dosage forms.

PT 608 Biopharmaceutics and Pharmacokinetics (2+1)

The course is concerned with the exploration and examination of the physicochemical properties of drugs in the physiological environment and their impact on product performance. It explores the principles of biopharmaceutics and strategies for enhancing drug delivery and bioavailability. Also, it introduces the students to basic pharmacokinetic parameters and mathematical aspects. General principles of pharmacokinetic models are presented as they pertain to the process of absorption, distribution, and elimination of drugs in humans and the significance of these processes in drug therapy. Topics also emphasize linear and nonlinear metabolic clearance kinetics, drug-drug interaction mechanisms and kinetics, in vitro-in vivo predictions, pharmacogenetics, and other sources of inter-individual variability.

PT 709 Advanced Drug Delivery Systems (2+0)

A continued study of pharmaceutical dosage forms with emphasis on novel and targeted drug delivery systems. Discussions focusing on transforming proteins, genes, and other biotechnology driven compounds into therapeutic products including the role of molecular modeling and new drug therapies in fabricating rational drug delivery systems are included. The course covers targeted nanocarrier based delivery Systems and other advanced therapy medicinal products such as gene therapy medicinal products (GTMPs), somatic cell therapy medicinal products (sCTMPs), and tissue-engineered products (TEPs). In addition to formulation aspects of biotechnology derived pharmaceuticals, it also covers the application of polymers and excipients to solve problems/issues concerning the optimization of absorption, selective transport, and targeting.

UR 2 Human Rights and Corruption Fighting (1+0)

This course covers the following topics: human rights in criminal law, the human right to change his nationality or relinquish one of his nationalities, international conventions related to the protection of human rights, the relationship of globalization and development with economic, social, and cultural rights, economic and cultural rights for humans, human rights in Islamic law, Women rights in labor and social security laws, human rights in litigation, civil and political rights of man.