وصف المواد الدراسية لبرنامج الماجستير في العلوم الصيدلانية

I- Compulsory Requirements

05017141 Research Methodology: (3 cr.)

This course is about how to do research in an organized system. It highlights the conceptualization of a research design, the selection of a study design and information gathering and analytical strategies, including case studies, experimental design, survey methods, and observation. It also deals with how to create and use a theoretical framework that will declare that the information collected is pertinent and useful to answer the questions that may be addressed.

05027121 Advanced Drug Delivery: (3 cr.)

This course aims to deepen the technological aspects of advanced drug delivery systems, with particular emphasis on understanding the transport of a drug and how this is affected by their physicochemical properties and the physiological barriers in the human body. The latest advances in drug delivery and targeting will be addressed within this module. The aim is to develop the concept of drug targeting with drug carriers and provide an in depth appreciation of the strategies available and utilized for a particular drug. Site-specific drug delivery systems and targeting to specific tissues will be discussed.

05027111 Advanced Medicinal Chemistry: (3 cr.)

The course deals with new trends in medicinal chemistry and drug discovery. Stereospecific reactions, rearrangements, and enzymes in drug synthesis will be discussed. Methods for the resolution of racemic mixtures: classical resolution and enzymatic resolution are studied in detailed. Detailed discussion of case studies of drug discovery, development and evolution of synthetic routes will be covered.

05027122 Advanced Drug Analysis and Characterization: (3 cr.)

The course aims to deal with various advanced instrumental techniques for identification, characterization, and quantification of drugs.

05027131 Advanced Clinical Pharmacology and Therapeutics: (3 cr.)

This course includes advanced topics on molecular pharmacology. The focus will be on top selling drugs particularly chemotherapy. Mechanisms of action and techniques employed to facilitate targeted drug delivery at a molecular level is covered. Further, the course discusses the current therapeutic guidelines for treatment of selected acute and chronic disorders commonly seen in clinical practice. It covers the pharmacotherapy for various diseases/disorders in relation to the pathophysiologic conditions of the patient.

II- Elective Requirements

05027132 Advanced Biopharmacy and pharmacokinetics (3 cr.)

Comprehend the interrelationship between different physicochemical properties of the drug, formulation factors, physiologic factors and anatomic of site of application on the bioavailability of drugs.
Find and calculate the relevant pharmacokinetic parameters in determining drug's kinetic using different pharmacokinetic models. It includes design a and evaluation of bioavailability and bioequivalence study. Plan and design a dosage regimen for iv and oral drug application. Demonstrate physiologic physicochemical properties and anatomic factors related to drug absorption.

05027123 Advanced Pharmaceutical Microbiology: (3 cr.)

The course includes studies on the microbiological quality assurance where the students will study how to handle pharmaceutical preparation samples and will be familiar with the conventional and rapid microbiological methods used for identification of bacteria and fungi. They will also study how to evaluate different sterilizing processes. During the course, students will be exposed to the effect of the material and design of the container and closures on the activity and stability of pharmaceutical preparation, with special emphasis on microbiological point of view. They will also be familiar with modern biotechnology in production of substances from microorganisms such as antibiotic and insulin. A section on the genetic and biochemical basics of resistance of microorganisms to biocides is included.

05027124 Advanced Drug Design: (3 cr.)

The course covers new approaches to rational drug design and their applications. Drugs design of selected examples will be discussed in detail. Students are exposed to current and emerging trends in drug discovery, drug design and regulatory sciences

05027122 Advanced Phytochemistry: (3 cr.)

This course is directed towards master students to identify natural products and their probable biosynthetic pathways. Study of preparation of crude drugs, evaluation of crude drugs, their sources and quality control. Further, isolation and characterization of natural products, structure elucidation of natural products and how to enhance the understanding of biological and biochemical sciences are to be covered.

05027135 Advanced Pharmacy Practice: (3cr.)

This course covers advances in pharmacy practice and mechanisms of their efficient applications. It entails covering to the use of evidence based medicine in decision making. The course covers teaching how to conduct rapid and accurate assessment of cases. It covers communication skills

needed for effective pharmacy practice. Cover topics to deal with issues related to managed care.

05027125 Advanced Medical Biotechnology (3cr.)

This course covers special topics in medical biotechnology, including: recombinant DNA technology and other specific molecular techniques that involved in genetic engineering and gene therapy. Animal biotechnology; cells and tissue engineering. Microbial biotechnology related to pharmaceutical biotechnology. Probiotics as pharmaceutical supplement. The economic consideration in medical biotechnology.

05027113 Advanced organic Synthesis: (3 cr.)

The course aims to provide a deep understanding of advanced organic synthesis. The course material covers the theoretical principles behind organic reactions and their practical applicability with a strong focus on mechanism of reaction. After successfully completing the course the student should be able to plan and evaluate the synthesis of complex drug and drug-like molecules.

05027114 Advanced Pharmacognosy: (3 cr.)

This course insight into dosage forms of application and effect of the most important herbal remedies and fields of applications. It also includes medical plants, phytophrmaceuticals and their effects on CNS, Cardiovascular system, Respiratory system, Digestive system and Urinary tract. Quality control of herbal medicines and poisonous plants are included.

05027126 Advanced Cosmetics: (3 cr.)

This course covers the science of cosmetics. The course will initially cover the legal requirements and considerations for cosmetics. Then the focus will be on skin and hair cosmetic preparations. This will include skin and hair structure and functions followed by main formulations to manage skin and hair disorders mandating the use of cosmetic products

05027127 Special Topics in Industrial Pharmacy: (3 cr.)

This course aims to deepen the technological aspects of industrial pharmacy, with particular emphasis on understanding the underpinning physical pharmacy principles and how this is affected by their physicochemical properties. The provision of pharmaceutical care to patients requires an understanding of physical and chemical properties of medicines. The course covers intermolecular forces, solubility, dissolution, micrometrics, principles of quality by design (QbD), and some of latest advances in industrial pharmacy.

05017142 Advanced Biostatistics (3 cr.)

This course will provide overview of fundamental statistical and pharmaceutical medical statistical principles. A series of workshop sessions

will be interwoven with lectures and discussions using different type computer programs to serve as foundation for reading and interpreting statistical materials and terms such as p-value, hypothesis testing, confidence intervals, power, sample size, and variability. At the conclusion of the course, students should be able to effectively communicate with statisticians and better understand statistical material in medical research, reports, journals and clinical trials.

0502713 Biochemical Pharmacology (3 cr.)

This course will introduce postgraduate students to the specialist field of pharmacology, with a strong emphasis on the underlying biochemical principles of drug action. The course will describe protein structure enzyme kinetics and will relate these to clinical pharmacology. Students will explore the application of drugs/drug therapy used to treat inflammation, hypertension, thrombosis, cancer and bacterial infection. This course will include the following main subject areas: Use of the Michaelis-Menten equation & Lineweaver-Burk plot, Oxidative stress and reactive oxygen species, ACE inhibitors as first-line therapy for the control of hypertension, Hypothalamus- Pituitary-Adrenal axis and its role in glucocorticoid production, Anti-platelet, anti-thrombotic drugs, Peripheral and central monoamine transmitters, including noradrenaline, serotonin and dopamine, Drugs used to treat cancer, Drugs used to manipulate bacterial cell wall protein synthesis for therapeutic benefit, Drugs used to treat viral infections. Techniques used in discovery and development of new therapeutics, Drugs to manage patients with anxiety or depression.