

**PHY 1331 - INTRODUCTION TO MEDICAL PHYSIOLOGY (HUMAN PHYSIOLOGY I)**

The aim of this course is to teach the student to understand the human body, the composition of a cell, communication within a cell and how the normal internal body environment is maintained.

*Pre-requisites: PHY 1331*

*Credit Units: 4.5*

**PHY 1332 - MUSCLE AND SENSORY PHYSIOLOGY (HUMAN PHYSIOLOGY II)**

The aim of this course is to teach the student the composition, outline transmission of impulses in the body and describe reflexes and their importance of muscles and neurons.

*Pre-requisites: PHY 1331*

*Credit Units: 4.5*

**PHY 1333: RESPIRATORY AND GASTROINTESTINAL PHYSIOLOGY (HUMAN PHYSIOLOGY III)**

This course aims to teach the student the organization and functions of respiratory and gastrointestinal systems and also outline the role of the liver and pancreas.

*Pre-requisites: PHY 1331*

*Credit Units: 4.5*

**PHY 2334: CARDIOVASCULAR AND RENAL PHYSIOLOGY (HUMAN PHYSIOLOGY IV)**

The objective of this course is to teach the student the organization and functions of cardiovascular and renal systems. He/she will learn the composition, functions of blood and blood grouping and also to discuss shock, edema and hemorrhage.

*Pre-requisites: PHY 1331*

*Credit Units: 4.5*

**PHY 2335: ENDOCRINE AND REPRODUCTIVE PHYSIOLOGY (HUMAN PHYSIOLOGY V)**

This course aims to teach the student the role of hormones, discuss gestation, parturition, lactation and the aging process. And also teach the organization and functions of endocrine and reproductive systems.

*Pre-requisites: PHY 1331*

*Credit Units: 3*

**PHY 2336: NERVOUS SYSTEM PHYSIOLOGY (HUMAN PHYSIOLOGY VI)**

This course is a combination of cellular neurophysiology and receptor physiology. It is designed to provide students with a deeper understanding of organization and functions of the nervous system; electrical and chemical signaling in the nervous system; and molecular and cellular aspects of receptor mechanisms, signaling pathways, effector systems, and chemotherapeutic approaches.

*Pre-requisites: HAN 1321; PHY 1331; BCM 1341*

*Credit Units: 4.5*

**HAN 1321: HUMAN ANATOMY I**

This course aims to teach the student historical perspectives of anatomy, the terminologies used and levels of the structural complexity of the body. This will involve the development, general organization and gross features of cardiovascular, respiratory, musculoskeletal and lymphatic systems.

*Pre-requisites: None*

*Credit Units: 3*

**HAN 1322: HUMAN ANATOMY II**

The objective of the course is to teach the student the general organization, development, histological features and gross features of digestive, reproductive and urinary systems.

*Pre-requisites: HAN 1321*

*Credit Units: 4.5*

**HAN 1323: HUMAN ANATOMY III**

This course aims to teach the student the general organization, development, histological features and gross features of the nervous system and special sensory organs.

*Pre-requisites: HAN 1321*

*Credit Units: 4.5*

**BCM 1341: CELLULAR BIOLOGY (BIOCHEMISTRY I)**

This course aims to teach the student the structures and purposes of basic components of prokaryotic and eukaryotic cells, especially macromolecules, membranes and organelles and to understand how these cellular components are used to generate and utilize energy in cells.

*Pre-requisites: None*

*Credit Units: 3*

**BCM 1342: BIOCHEMISTRY OF BIOMOLECULES (BIOCHEMISTRY II)**

This course aims to teach the student the nature of biological forms, the mechanisms of life and the mechanisms of life processes in terms of chemistry and biology. It explains the nature and chemistry of bio-molecules and macromolecules; the biochemical factors that commonly cause disease; the bases of biochemical disorders and the diagnosis of diseases.

*Pre-requisites: None*

*Credit Units: 4.5*

**BCM 1343: METABOLIC PROCESSES & DISORDERS (BIOCHEMISTRY III)**

To teach the student the nature of biological forms, the mechanisms of life and the mechanisms of life processes in terms of chemistry and biology. The students will also acquire the metabolic pathways of different bio-molecules in the body, list and explain the metabolic disorders of medical importance,

Perform some biochemical analyses and use this knowledge in the diagnosis of diseases.

*Pre-requisites: BCM 1341*

*Credit Units: 4.5*

**BCM 2344: BIOCHEMISTRY OF SPECIALIZED TISSUES (BIOCHEMISTRY IV)**

To teach the student the nature of biological forms, the mechanisms of life and the mechanisms of life processes in terms of chemistry and biology of certain specialized tissues of the body. The students will perform some biochemical analyses and use this knowledge in the diagnosis of diseases.

*Pre-requisites: BCM 1341; BCM 1342*

*Credit Units: 4.5*

**BCM 2345: ENZYMOLOGY (BIOCHEMISTRY V)**

The objective of this course is to teach the student the nature of biological forms, the mechanisms of life and the mechanisms of life processes in terms of chemistry and biology. It will explain the mechanisms of biochemical reactions; the nature and functions of enzymes; the role of enzymes in the metabolic pathways of different bio-molecules in the body; the enzymatic disorders of medical importance and their bases in the diagnosis of diseases.

*Pre-requisites: BCM 1341*

*Credit Units: 3*

**BCM 2346: MOLECULAR BIOLOGY (BIOCHEMISTRY VI)**

This course aims to teach the student the composition and life processes of cells at the molecular level, including the effects of drugs at that level. It will help the student to understand the principles of gene organization, replication and expression in both prokaryotic and eukaryotic

organisms; mechanisms of DNA damage and their repair; gene regulation and protein function including signal transduction and cell cycle control and relate properties of cancerous cells to mutational changes in gene function.

*Pre-requisites: BCM 1331; PHY 2333*

*Credit Units: 3*

### **BCM 3347: INTRODUCTION TO PHARMACEUTICAL BIOTECHNOLOGY (BIOCHEMISTRY VII)**

The objective of this course is to provide the student with a working knowledge of the preparation, stability, formulation, Interpretation, analysis, quality control and regulation of biotechnology pharmaceutical products and also to evaluate different techniques for separation, purification, cell turnover, growth and cytotoxicity of cell type.

*Pre-requisites: BCM 1331; BCM 1341; BCM 2346*

*Credit Units: 3*

### **CHE 1305: INORGANIC CHEMISTRY 1 (Basic Chemistry)**

The objective of the Inorganic Chemistry Course is to introduce the student to the basic principles and methodologies of Chemistry, to create a sound starting point for the study and comprehension of the correlation between structure and the properties of materials which students will have to study in more detail in their years in pharmacy school.

*Credit units 4.5*

### **CHE 1306: INORGANIC CHEMISTRY II (Atomic Structure and Chemical Bonding)**

The objective of this course is to study the atomic structure and chemical bonding in details and study their application in pharmaceutical sciences. It includes the study and application of transition metal and coordination chemistry.

Credit Units 3

### **CHE 2303: ORGANIC CHEMISTRY**

The aim of the course is to train the student on fundamentals of carbon chemistry, the classification, sources and uses of organic compounds, and also to provide knowledge on the structure, functionality, reactivity, synthetic methods, purify, estimate, assay and identify important organic compounds.

*Pre-requisites: CHE 1305*

*Credit Units: 4.5*

### **CHE 2307: PHYSICAL CHEMISTRY**

The main objective of the course is to teach the student modern theories and techniques in physical and nuclear chemistry that are applied to many areas of pharmaceutical research and development.

This course introduces students to nuclear chemistry and its related techniques and application to many areas of pharmaceutical research and development.

Topic covered include

**Discovery, Theory and Types of decay.** Decay kinetics. Radioactivity, types of nuclear reactions and Detectors. **Radiation chemistry:** atomic nucleus, subatomic particles, properties of isotopes (isotope effects), ionizing radiation (properties, measurement, chemical and biological effects). **Radioactive decay Mass:** condition, energy, laws, types. Electron capture. **Compound nucleus. Fission energy and reactions. Safety and radiation protection: Application of radioisotopes.**

#### **CHE 2304: CHROMATOGRAPHIC & VOLTAMETRIC METHODS**

This course aims is to introduces the student to principles and mechanisms of Chromatographic separations and Electro-analytical methods which study an [analyte](#) by measuring the [potential \(volts\)](#) and/or [current \(amperes\)](#) in an [electrochemical cell](#) containing the analyte. These methods are central in analysis and/or purification of organic compounds.

*Pre-requisites: CHE 2302; CHE 2303;*

*Credit Units: 4.5*

#### **PHM 3401: INTRODUCTION TO ANALYTICAL CHEMISTRY**

The main objective of this course is to teach the student to the common techniques used in contemporary analytical chemistry and covers the science of chemical separation, identification, and measurement. The student will learn the principles and applications of analytical methods, with emphasis on advanced separation science, dynamic electrochemistry, spectroscopy and mass spectrometry.

*Pre-requisites: CHE 2302; CHE 2303; PHY 2333; CHE 2304*

*Credit Units: 3*

#### **PHM 3402: INSTRUMENTAL METHODS OF ANALYSIS**

The aim of the course is to introduces the student to basic laboratory techniques in analytical chemistry, spectroscopy, explain solutions conductivity, fundamentals of conductometric analysis, methods of electrochemical analysis, their classification and instrumentation, potentiometric analysis, instrumentation and electrode types, classify amperometric methods and explain their fundamentals, the principles of coulometric and electrogravimetric methods.

*Pre-requisites: CHE 2302; CHE 2303; PHY 2333*

*Credit Units: 3*

#### **HSC 2391: HEALTH ECONOMICS**

The main objective of this course is to teach the students on health economics concepts, methods used in economic evaluations, health care priority setting, critical issues on health systems strengthening, expenditure tracking tools, and how to relate them to the evaluation of health care in an integrated and complex healthcare environment, and how these lead to effective policy and decision-making.

*Pre-requisites: None*

*Credit Units: 3*

**MIC 2361: BACTERIOLOGY AND MYCOLOGY (MEDICAL MICROBIOLOGY I)**

This course aims to train the student on identification, reproduction, mode of transmission, pathogenesis, and classification of bacteria and fungi according to morphology, anatomy and physiology. It also describes the mechanism of action of antibacterial and antifungal drugs and outlines methods of sterilization and disinfection and also explains microbial resistance and threats; and appropriate remedial measures.

*Pre-requisites: BCM 1341*

*Credit Units: 4.5*

**MIC 2362: PARASITOLOGY AND ENTOMOLOGY (MEDICAL MICROBIOLOGY II)**

The objective of the course is to train the student on the different types of parasites and vectors; how to make diagnoses, mode of transmission, pathogenesis clinical signs and symptoms and complications of parasitic infections, treatment, and prevention and how to manage the diseases they cause.

*Pre-requisites: MIC2361*

*Credit Units: 4.5*

**MIC 2363: VIROLOGY AND IMMUNOLOGY (MEDICAL MICROBIOLOGY III)**

This course aims to teach the student the different types of viruses and how to diagnose and manage diseases they cause. The course will teach students how to study the mode of transmission, pathogenesis, identify, control of viruses, classification, mechanism of action of antiviral drugs, functional of the immune systems and its disorders.

*Pre-requisites: BCM 1341*

*Credit Units: 3*

**PAT 3371: GENERAL PATHOLOGY (HUMAN PATHOLOGY I)**

The main objective of the course is to introduce the students to the etiology, pathogenesis, morphologic changes and functional derangements and clinical significance of diseases.

*Pre-requisites: HAN 1323; PHY 2336; BCM 2344; MIC 2363*

*Credit Units: 3*

**BOT 3351: BOTANICAL TECHNIQUES**

This course is meant to provide the students with an overview of natural products, especially ethno botany and identification techniques for different types of natural products, their occurrence, structure, biosynthesis and properties. They will also be taught the use of natural products as starting materials for medicines through genera plants of medical impotence and will study methodology of plants collection, identification and preservation of herbs.

*Pre-requisites: BCM 1341; CHE 22302; CHE 2303;*

*Credit Units: 7.5*

**PHM 3481: INTRODUCTION TO CLINICAL PHARMACY (CLINICAL PHARMACY I)**

This course aims to give the students an understanding of the intricacies of the hospital and community pharmacy practice environments. He/she will learn how to formulate a pharmaceutical care plan, identify the components of rational prescribing, and manage poisoned patients. He/she will also learn how to set up and manage hospital and community pharmacy practice.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 3*

**PHM 3471 Basic Pharmacology & Toxicology**

**PHM 3471: BASIC PHARMACOLOGY AND TOXICOLOGY (PHARMACOLOGY I)**

The objective of this course is to train the student on how drugs enter the body, get distributed, act and eventually get eliminated. Specifically, the student will learn potential targets of drug action, their mechanisms of action and effects on disease processes, the concepts of drug-receptor interactions and poisoning and its management.

*Pre-requisites: PHY 1331; BCM 2344;*

*Credit Units: 3*

**PHM 3411: INTRODUCTION TO PHARMACY (PHARMACEUTICS I)**

Pharmacy is the art and science of preparing and dispensing medications and the provision of drug related information to the public. This course will cover the history of pharmacy and the scientific domain, applied realm and subject's connection of the following subjects: human biology, plant biology, pharmacology, pharmaceutical chemistry, pharmaceutical analysis, pharmaceuticals, bio-pharmaceuticals, pharmaceutical administration, pharmaco-economics, medicine and forensic pharmacy. It will also give an overview of the role in society and the employment opportunities for the pharmacist.

*Pre-requisites: PHY 2336, BCM 2346, CHE 2303, MIC 2362*

*Credit Units: 3*

**HSC 3492: LAW AND ETHICS IN RESEARCH**

The course involves different ethical issues, such as bias, fraud, plagiarism, conflicts of interest, falsification of research results, informed consent, and attribution of authorship and adequacy of peer review publication processes. The course intends to equip the students with the technical capacity to identify an ethical research project. Also assist students to manage and evaluate a research project, from design to publication, from an ethical standpoint and to regulate research activity.

*Pre-requisites: HSC 3492*

*Credit Units: 3*

### **PAT 3372: HAEMATOLOGY (HUMAN PATHOLOGY II)**

To train the student on the importance of blood and how its components are used in the diagnosis, treatment and monitoring of diseases, teach students different components of blood, clinical significance of blood transfusion. Students also to learn the role of homeostasis, Identify the etiology and pathogenesis of fluid, electrolyte, and acid/base imbalances.

*Pre-requisites: PAT 3371*

*Credit Units: 4.5*

### **PHM 3451: GENERAL PHARMACOGNOSY**

This course is meant to provide the students with an overview of the field of natural product chemistry, especially identification of different types of natural products, their occurrence, structure, extraction and isolation, biosynthesis and properties. They will learn the set up of and record keeping in a herbarium; and plant metabolites and toxicity. They will also be taught the use of natural products as starting materials for synthesis of medicines.

*Pre-requisites: BCM 1341; CHE 2302; CHE 2303;*

*Credit Units: 4.5*

### **PHM 3412: BIOPHARMACEUTICS (PHARMACEUTICS II)**

This course aims to teach the student the routes of drug administration, distribution, metabolism, elimination and also outline the zero, first order and second order kinetics. He/she will also learn the application of this knowledge in designing drug therapy especially in chronic illness, pediatrics and geriatrics and in people with liver or kidney disease.

*Pre-requisites: PHM 3411*

*Credit Units: 3*

### **PHM 3482: INFECTIOUS DISEASES (CLINICAL PHARMACY II)**

This course aims to give the students an understanding of how to manage infectious diseases in the hospital and community pharmacy practice settings. He/she will learn how formulate a pharmaceutical care plan and identify the components of rational prescribing for infectious diseases.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 7.5*

### **PHM 3472: ANTI-INFECTIVE DRUGS (PHARMACOLOGY II)**

This course aims to provide the student with the knowledge of the properties, effects, and therapeutic values of anti-infective agents. He/she will learn the classification, modes of action, indications, dose, formulations, adverse effects, contraindications and interactions of anti-infective drugs. The student will also learn to identify trade and generic names of the major anti-infective drugs.



*Pre-requisites: PHM 3471*

*Credit Units: 6*

**PHM 3483: RESPIRATORY AND GASTROINTESTINAL DISORDERS (CLINICAL PHARMACY III)**

This course aims to give the students an understanding of how to manage respiratory and gastrointestinal diseases in the hospital and community pharmacy practice settings. He/she will learn how formulate a pharmaceutical care plan and identify the components of rational prescribing for respiratory and gastrointestinal diseases.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 4.5*

**PAT 3373: CLINICAL CHEMISTRY (HUMAN PATHOLOGY III)**

To train the student on how the serum levels of hormones, fluids and electrolytes are used for diagnosis pathogenesis of fluid, acid/base imbalances and to monitor treatment of diseases

*Pre-requisites: PAT 3371*

*Credit Units: 4.5*

**PHM 3473: RESPIRATORY AND GASTROINTESTINAL PHARMACOLOGY (PHARMACOLOGY III)**

This course is a continuation of the study of properties, effects, and therapeutic values of the major systemic pharmacological agents. In particular, the student will learn the activities, clinical applications and side effects of drugs for respiratory and gastrointestinal diseases.

*Pre-requisites: PHM 3471;*

*Credit Units: 4.5*

**PHM 3403: MEDICINAL CHEMISTRY I**

This course focuses on the fundamental aspects and current methodologies involved in the drug discovery process. These include the chemical structure, design, synthesis, development process and physicochemical characterization of thermodynamically active molecules. This course will contribute significantly to the professional pharmacy curricula.

*Pre-requisites: CHE 2302; CHE 2303; BCM 1342; PHM 3351; PHM 3471*

*Credit Units: 7.5*

**PHM 3413: PHYSICAL PHARMACEUTICS (PHARMACEUTICS III)**

This course aims to teach the student the laws and factors that affect flow and mixing of liquids. He/she will learn about the physical and chemical properties of fluids that affect formulation and the laws that govern mixing of fluids in drug formulations.

*Pre-requisites: PHM 3411*

*Credit Units: 4.5*

#### **PHM 4491: SOCIAL AND BEHAVIORAL PHARMACY**

This course gives students the foundations and intervention strategies for promoting the health of individuals, their families, workplaces and communities by taking a multi-level approach to the design of public healthcare. Students learn how to address a range of health and social issues and how to develop basic health promotion initiatives for populations across the ages (from children to elderly) in diverse settings globally. The students will learn to find, understand, analyze, evaluate, and synthesize Health information. This will prepare them for patient counseling roles.

*Pre-requisites: HSC 3493*

*Credit Units: 6*

#### **PHM 4484: CARDIOVASCULAR AND RENAL SYSTEM DISORDERS (CLINICAL PHARMACY IV)**

This course aims to give the students an understanding of how to manage cardiovascular and renal systems disorders in the hospital and community pharmacy practice settings. He/she will learn how formulate a pharmaceutical care plan and identify the components of rational prescribing for cardiovascular and renal system disorders.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 3*

#### **PHM 4474: CARDIOVASCULAR AND RENAL PHARMACOLOGY (PHARMACOLOGY IV)**

This course is a continuation of the study of properties, effects, and therapeutic values of the major systemic pharmacological agents; drugs for cardiovascular and renal diseases. The course also involves mechanism of action of drugs that act on cardiovascular and renal systems to identify trade and generic names of the cardiovascular and renal drugs.

*Pre-requisites: PHM 3471;*

*Credit Units: 4.5*

#### **PHM 4404: MEDICINAL CHEMISTRY II**

This course focuses on the fundamental aspects and current methodologies involved in the drug discovery process. The fundamental aspects include the design, synthesis, development process, Identification, assay, and physicochemical characterization of Chemotherapeutic agents and related molecules. This course will contribute significantly to the professional pharmacy curricula.

*Pre-requisites: MIC 2361; PHM 3403*

*Credit Units: 7.5*

#### **PHM 4414: UNIT OPERATIONS (PHARMACEUTICS IV)**

This course aims to teach the student regulatory and pre-marketing steps that determine the degree of success for every new drug in the market. It also covers different methods of extraction.

*Pre-requisites: PHM 3411*

*Credit Units: 4.5*

#### **PHM 4485: ENDOCRINE AND REPRODUCTIVE SYSTEM DISORDERS (CLINICAL PHARMACY V)**

This course aims to give the students an understanding of how to manage endocrine and reproductive systems disorders in the hospital and community pharmacy practice settings. He/she will learn how to formulate a pharmaceutical care plan and identify the components of rational prescribing for endocrine and reproductive systems disorders.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 4.5*

#### **PHM 4475: ENDOCRINE AND REPRODUCTIVE PHARMACOLOGY (PHARMACOLOGY V)**

This course is a continuation of the study of properties, effects, and therapeutic values of the major systemic pharmacological agents; drugs for endocrine and reproductive diseases. The course will involve the mechanism of action of drugs that act on endocrine and reproductive systems, to identify trade and generic names of the endocrine and reproductive drugs.

*Pre-requisites: PHM 3471;*

*Credit Units: 4.5*

#### **PHM 4452: ELEMENTS OF PHYTOCHEMISTRY**

This course aims to give the student an overview of the field of natural product chemistry in relation to extraction of active compounds from herbs, their cleaning, isolation, and chemical analysis (using sublimation, distillation, fractional crystallization, chromatographic and spectrometric methods) but also biogenetical investigations and biosynthesis of main primary and secondary metabolites (enzymes, carbohydrates, fats and fatty acids, aromatic compounds, amino acids, peptides and proteins, isoprenoids).

*Pre-requisites: PHM 3451*

*Credit Units: 6*

#### **PHM 4405: PHARMACEUTICAL ANALYSIS I**

The aim of this course is to introduce the student to the analysis (both qualitative and quantitative) of pharmaceutical agents and metabolites as well as the fundamental techniques used for patient testing in clinical laboratories.

*Pre-requisites: PHM 3402; PHM 3401; PHM 4404*

*Credit Units: 4.5*

### **PHM 4415: POWDER TECHNOLOGY (PHARMACEUTICS V)**

The objective of the course is to teach the student the properties, methods of measuring particle size and surface area of powders and methods used when preparing them.

*Pre-requisites: PHM 3411*

*Credit Units: 3*

### **HSC4493: RESEARCH METHODS &BIOSTATISTICS**

This course aims to provide the students with a comprehensive introduction to research, including its theoretical foundation and fundamental protocols. It enrolls students majoring in the social sciences, humanities, natural and physical sciences, and professional fields.

*Pre-requisites: HSC 3492*

*Credit Units: 3*

### **PHM 4476: NERVOUS AND MUSCULOSKELETAL DISORDERS**

This course gives the students an understanding of the functions of clinical pharmacy and the hospital and community pharmacy practice in management of nervous and musculoskeletal diseases.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 4.5*

### **PHM 4406: PHARMACEUTICAL ANALYSIS II**

This course aims to give the students deeper and more comprehensive knowledge in technical aspects of dosage form design, basic dosage forms and their therapeutic applications. It focuses on dispensing techniques, dosage regimens and document retrieval

*Pre-requisites: PHM 4405;*

*Credit Units: 6*

### **PHM 4416: DISPENSING AND PHARMACY PRACTICE (PHARMACEUTICS VI)**

This course aims to give the students deeper and more comprehensive knowledge in technical aspects of dosage form design, basic dosage forms and their therapeutic applications. It focuses on dispensing techniques, dosage regimens and document retrieval. Specifically, the students will learn the steps involved in dispensing, packaging materials, appropriate labeling of medicines and calculation of dosages.

*Pre-requisites: PHM 3411;*

*Credit Units: 4.5*

### **PHM 5494: ELECTIVE INDUSTRIAL & HOSPITAL ATTACHMENT**

This course has two components that will provide the student with an overview of the operations of the main practice areas of pharmacy. The **Hospital & Pharmacy Practice component** will prepare students with the clinical skills and attitudes required to deliver effective patient care within the healthcare sector, sound knowledge to compound extemporaneous preparations, practical dispensing skills, and to provide an understanding of healthcare systems. The **Industrial Pharmacy** will provide students with a strong foundation in the practice and application of current Good Manufacturing Practice and Good Laboratory Practice in the pharmaceutical industry.

*Pre-requisites: PHM 4416*

*Credit Units: 8*

### **PHM 5492: PHARMACEUTICAL MARKETING MANAGEMENT**

This course provides the student with an overview of marketing activities and players in pharmaceutical industry. It describes the need for marketing, the types of marketing positions and the role of marketers, as well as how they interact with other internal and external stakeholders to achieve their goals. It also defines how promotional materials are created for various segments and the regulatory rules that govern marketing, plus how to measure success in marketing

*Pre-requisites: None*

*Credit Units: 3*

### **PHM 5493: PHARMACY MANAGEMENT**

The objective of this course is to train the student on basic managerial skills essential for effective pharmacy practice. The student will learn the basic principles of management, the functions of human resource departments, drug supply cycle, basic financial management and how to effect change in an organization.

*Pre-requisites: HSC 2391*

*Credit Units: 3*

### **PHM 5494: ELECTIVE INDUSTRIAL & HOSPITAL ATTACHMENT**

This course has two components that will provide the student with an overview of the operations of the main practice areas of pharmacy. The **Hospital & Pharmacy Practice component** will prepare students with the clinical skills and attitudes required to deliver effective patient care within the healthcare sector, sound knowledge to compound extemporaneous preparations, practical dispensing skills, and to provide an understanding of healthcare systems. The **Industrial Pharmacy** will provide students with a strong foundation in the practice and

application of current Good Manufacturing Practice and Good Laboratory Practice in the pharmaceutical industry.

*Pre-requisites: PHM 4416*

*Credit Units: 8*

### **PHM 5486: NERVOUS AND MUSCULOSKELETAL DISORDERS (CLINICAL PHARMACY VI)**

This course aims to give the students an understanding of how to manage nervous and musculoskeletal systems disorders in the hospital and community pharmacy practice settings. He/she will learn how formulate a pharmaceutical care plan and identify the components of rational prescribing for nervous and musculoskeletal systems disorders.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 4.5*

### **PHM 5487: NEOPLASTIC DISORDERS (CLINICAL PHARMACY VII)**

This course aims to give the students an understanding of the functions of clinical pharmacy, formulation of pharmaceutical care plan for management, manage patients poisoned with drugs for treatment, and describe rational use of drugs for neoplastic disorders in paediatrics and geriatrics.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 4.5*

### **PHM 5477: SPECIAL TOPICS IN PHARMACOLOGY (PHARMACOLOGY VII)**

This course introduces the student to a collection of concepts including: Cancer, Ocular and Dermatological therapies; Peripartum, Pediatric and Geriatric pharmacologies; Drug development. He/she will learn the classification, modes of action, indications, dose, formulations, adverse effects, contraindications and interactions of drugs that are used to treat these conditions. The student will also be taught the pharmacology of radiopharmaceuticals and the adverse effects of polypharmacy.

*Pre-requisites: PHM 3471;*

*Credit Units: 3*

### **PHM 5417: DOSAGE FORMS (PHARMACEUTICS VII)**

This course aims to teach the student the properties, ingredients, process of preparing and also outline the methods of controlling the process of preparing dosage forms.

*Pre-requisites: PHM 3411*

*Credit Units: 4.5*

### **PHM 5496: PHARMACY LAW & ETHICS**

This course focuses on the application of pertinent ethics, laws, rules, and regulations to the practice of pharmacy. Students will learn: where to find information regarding pharmacy law that they will continue to use through their professional life; the Kenyan laws that impact the practice of pharmacy, while emphasizing the legal and ethical principles applied by pharmacists in their daily decision-making; the governmental framework within which pharmacy is practiced, normative principles in the ethical tradition of Pharmacy, as well as acquire an understanding of the laws, regulations, and the ethical responsibilities applicable to pharmacists so that they will be able to protect the public and ensure patients' wellbeing.

*Pre-requisites: HSC 3493, PHM 5494*

*Credit Units: 3*

### **PHM 5495: RESEARCH PROJECT AND THESIS**

The major focus of this course is to provide students with a strong research focus, training and skills in order to prepare them for careers in academia, pharmaceutical industry, or public/private research institutions. Students will Use research techniques and methodology to apply computer technology in the solution of research problems and design and use an appropriate questionnaire.

*Pre-requisites: HSC 3492; HSC 3493*

*Credit Units: 6*

### **PHM 5488: OCULAR, EAR AND SKIN DISORDERS (CLINICAL PHARMACY VIII)**

The objective of course is to teach the students the functions of clinical pharmacy and the hospital and community pharmacy practice in management of ocular, ear and skin disorders.

*Pre-requisites: PAT 3371; PHM 3471;*

*Credit Units: 4.5*

### **PHM 5478: VETERINARY PHARMACOLOGY (PHARMACOLOGY VIII)**

This course aims to provide the student with an overview of the drugs used to treat animal infections and pesticides used in the control of animal diseases. Specifically, the student will learn the classification, indications, doses, formulations, adverse effects, contraindications and interactions of drugs that are used to treat infections in animals. He/she will also learn the classification, mechanisms of action, indications, adverse effects, contraindications and toxicity of pesticides used in animals.

*Pre-requisites: PHM 3471;*

*Credit Units: 3*

### **PHM 5418: PHARMACEUTICAL MICROBIOLOGY (PHARMACEUTICS VIII)**

This course introduces the students to the concepts of sterile products and formulations. The content includes introduction to sterile products; facilities, garb and equipment; aseptic

calculations; properties of sterile products; aseptic techniques; sterile product preparations such as total parenteral nutrition (TPN). They will be taught how to formulate, handle, admix and reconstitute sterile products. They will also learn the principles and application of solubility, stability, and shelf life of sterile products.

*Pre-requisites: MIC 2361; PHM 3411*

*Credit Units: 4.5*