Course Name	Course number	Academic Year	Student Learning Outcomes (SLOs)
Human Biology	111	First Year	1- This course enables students to understand the human body composition, types of cell structures, types of tissues, bone, skeleton, joints and muscle as well as the nutrition. 2-Human biology also explains in details the different body systems and human genetics. 3-At the end of the course the student should be able to describe the human body composition, body systems structure and function, and human genetics
Histology	127	First Year	1-Histology is one of the most useful courses that the first-class student in college of pharmacy will take in the department of clinical laboratory sciences. It brings together a lot of the information the student has already acquired about cells and organs, and it points him in the fascinating direction of development and differentiation. 2- Histology is the core subject in the study of microscopic anatomy, and cell and together with ultrastructural study of subcellular histology.
Human Anatomy	127	First Year	Study the position of different organs in the thoracic and abdominal cavity including:

			digestive system, circulatory system, lymphatic system, respiratory system, urinary system, reproductive system, endocrine system, nervous system and skin
Medical Microbiology I	**212**	**Second Year**	Provide a basic understanding of the morphology, anatomy, physiology and genetics of bacteria in addition, the methods of handling, visualizing, characterizing
Medical Microbiology II	**212**	**Second Year**	1-Provide a basic understanding of the morphology, anatomy, physiology and genetics of Protozoa and parasites in addition, the methods of handling, visualizing, characterizing 2- Comparison between viruses and Bacteria and other microbes; origin of viruses and classification of viruses
Pathophysiology	**315**	**Third Year**	1- This course enables students to describe the basic concepts of pathophysiology at the cellular level related to injury, the self-defense mechanism, mutation, and cellular proliferation. 2-Outline basic pathological factors that influence the disease process. 3- Describe the impact and abnormal functions upon the organ (s) associated with the disease process of targeted body systems.

			4- Describe clinical manifestations associated with the diseased organ(s).
Biochemistry I	**314**	**Third Year**	1- This course enables students to integrate key concepts describing the traditional core topics of Biochemistry: structure and metabolism. 2- At the end of the semester the students should be able to understand the chemical structure, and function of all biomolecules present in the living organisms.
Biochemistry II	**329**	**Third Year**	1-To provide a condensed curriculum of strong basic biochemistry and molecular biology. 2- At the end of the semester the students should be able to understand all metabolic processes occurring in the living cell.
Clinical Chemistry	**514**	**Fifth Year**	1- To exhibit knowledge of human body chemistry levels under healthy and abnormal conditions. 2- At the end of the semester the students should be familiar with the basic and advanced information in clinical laboratory chemistry and how it relates to patient health and care

Clinical Laboratory Training	**515**	**Fifth Year**	1-It provides general information about the biochemical basis of disease and about the principles of laboratory diagnosis; 2- It supplies specific guidance on the clinical value of chemical investigations, indicating their range of application and limitations as well as relating results of laboratory tests to the process of clinical diagnosis and management as these might applied to individual patients.
Principles of Pharmacy Practice	**112**	**First Year**	1- This course enables students to understand the kinds of numbers, abbreviations that are commonly used in prescriptions and their meanings. 2-In this course the students will understand the components of typical prescription, the different unit systems and the relation between these systems. 3- Students will also be familiar with the methods and tools of measuring weights and volumes, and how to calculate doses on different bases and know how to reduce or enlarge formulas; 4- They will be able to describe values in percentage and ratio strength.
Pharmaceutical Calculations	**128**	**First Year**	It involves computation of pharmaceutical ingredients, dosage forms, pharmaceutical formulations of extemporaneous

			compounding, and biological parameters of drug substances. The course teaches calculations for dilution and concentration of different types of liquids and those involved in preparing isotonic solutions, electrolyte solutions and intravenous admixtures.
Physical Pharmacy I	**213**	**Second Year**	1- This course enables students to understand the application of quantitative and theoretical principles of the physical characters of matter in the practice of pharmacy. 2- It aids the students in their attempt to predict the solubility, compatibility and biological activity of drug products
Physical Pharmacy II	**228**	**Second Year**	This course provides a basic understanding of solubility, distribution phenomena, complexation, kinetics rate and order of reactions, interfacial phenomena, micrometrics and rheology
Pharmaceutical Technology I	**313**	**Third Year**	1- This course enables students to learn theoretical bases for the technology of preparing different dosage forms with respect to their raw mterials, compositions, methods of preparation, stability, storage and uses. 2- The knowledge of different dosage forms composition, method of preparation, and selection of the

			appropriate dosage forms for medicinal agents
Pharmaceutical Technology II	**328**	**Third Year**	1-To teach theoretical bases for the technology of preparing different dosage forms with respect to their raw materials, compositions, methods of preparation, stability, storage and uses 2- To define and characterize the possible incompatibilities that may occur in dosage forms.
Biopharmaceutics	**414**	**Fourth Year**	1-The course deals with the physical and chemical properties of drug substance, dosage form and the biological effectiveness of the drug or drug product upon administration, including drug availability in the human or animal body from a given dosage form. 2-The pharmacokinetic part of the course deals with the time-course of the drug in the biological system, and quantification of drug concentration pattern in normal subjects and in certain disease states.
Industrial Pharmacy I	**4210**	**Fourth Year**	1-The subject aim to teach pharmacy students the steps and lines upon which the preformulation processing of pharmaceutical dosage forms. 2-This fundamental course provides the required principles to integrate knowledge of Pharmaceutical Technology in

			preformulation of perfect dosage form. It includes milling, mixing, drying and filtration, besides sterilization to achieve a proper processing of dosage forms.
Industrial Pharmacy II	**512**	**Fifth Year**	1-The course enables technical setup for coordination of standards for formulation of typical dosage forms and the principles needed to learn mass production of different pharmaceutical dosage forms. 2-The syllabus includes different dosage forms like tablets, capsules, aerosols, emulsion, etc, besides the advanced techniques like enteric coating and micro-encapsulation.
Dosage Form Design	**5212**	**Fifth Year**	This course enables students to understand the principles and factors that influence design dosage forms; and the applications of these principles in the practice of pharmaceutical industry.
Pharmaceutical Biotechnology	**5213**	**Fifth Year**	This course enables students to understand the principles of biotechnology products, Route of administration and Pharmacokinetic of peptides and proteins
Analytical Chemistry	**113**	**First Year**	1-To provide students with a sound theoretical back ground in chemical principles that is essential to practice chemical analysis.

			2- It enables students to understand the importance of judging the accuracy and precision of experimental data and techniques of quantitative analysis, and also to show that theory frequently serves as a useful guide to the solution of analytical problems.
Organic Chemistry I	**1210**	**First Year**	1-To enable students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. 2-It includes understanding the basic structure and properties of alkanes, alkenes and alkynes, in addition to the principles of stereochemistry and features of aromatic compounds.
Organic Chemistry II	**211**	**Second Year**	This course enables students to understand the chemistry of carbon, and the classification, properties and reactions of organic compounds. It includes understanding the basic structure and properties of organic halides, carboxylic acids, aldehydes, ketones and amines, in addition to the principles and application of stereochemistry on these compounds.
Organic Chemistry III	**226**	**Second Year**	This course enables students to understand the principles of heterocyclic chemistry including the fundamental principles and the

			features, classes and reactions of heterocyclic compounds; it enables students to apply these principles in complicated reactions that involve heteroatoms.
Inorganic Pharmaceutical Chemistry	**311**	**Third Year**	1-This course enables students to understand the principles of inorganic chemistry that applied to medicinal and /or pharmaceutical chemistry. It includes understanding atomic and molecular structures, and explanation of atomic structures and the relationship with binding forces and complexation. 2- It also describes inorganic products used as pharmaceutical preparations or diagnostic tools.
Organic Pharmaceutical Chemistry I	**326**	**Third Year**	1-To enable understanding mechanisms of drug action at level, molecular 2- This course enables students to understand the role of medicinal chemistry in the discovery and development of synthetic and structure- therapeutic agents. 3- It also enables students to understand the concept of of new compounds activity relationship and its application in design and synthesis or derivatives.
Organic Pharmaceutical Chemistry II	**412**	**Fourth Year**	This course enables students to understand the principles of drug discovery and development of new agents

			it focuses on the methods of preparation for some effective agents.
Organic Pharmaceutical Chemistry III	**427**	**Fourth Year**	This course enables students to understand the antibacterial and antifungal agents and its applications.
Organic Pharmaceutical Chemistry VI	**511**	**Fifth Year**	To give the students the knowledge and experience in pro-drug and hormones as part of their medicinal and pharmaceutical field. It includes classification, synthesis, biotransformation and/or formulation of certain drugs to improve their action as well as to avoid some side effect.
Advanced Pharmaceutical Analysis	**5210**	**Fifth Year**	1-To study spectrometric methods used for identification and characterization of organic compound including UV, IR, MASS and NMR spectroscopy; 2- It enables students to understand the applications of these techniques for qualitative and quantitative analysis of organic compounds.
Medical Terminology	**116**	**First Year**	1-In this course, students will learn to pronounce, spell, and define medical and pharmaceutical terms used in health care settings. It will use a word-building strategy that helps them discover connections and relationships among word roots, prefixes, and suffixes.

			2-They will learn the meaning of each part of a complex medical and pharmaceutical term and be able to put the parts together and define the term.
Medical Ethics	**3211**	**Third Year**	The course will provide an overview of ethical issues facing practicing pharmacists in order to enable the student to understand the basic concepts of ethics which formulate the relationship of pharmacist with the patient and other health personnel in order to deliver his pharmaceutical services in good way.
Communication Skills	**215**	**Fourth Year**	Communication skill is one of the missions of pharmacy care practice, aims to develop a conventional relationship between pharmacist and patients, in which information is exchanged, hold in confidence and used to optimize patient care through appropriate drug therapy
Clinical Pharmacy I	**413**	**Fourth Year**	The main aim of clinical pharmacy is to provide basic information and general principles and give the student the scientific information that qualifies him to deal with medical cases in pharmacies and hospitals and to know the basic diseases, their causes and the best solution for their treatment. Course number:413

Clinical Pharmacy II	**428**	**Fourth Year**	The student will be introduced to the heart diseases, respiratory diseases, inflammatory diseases, diabetes, anemia, digestive, urinary and the various medications used in the treatment of these diseases
Public Health	**415**	**Fourth Year**	This course enables the students to understand the principles of public health and the art of preventing disease, promoting health and prolonging life, through organized effort of society.
Applied Therapeutic I	513	**Fifth Year**	The main aim of therapeutics is to introduce the students how to deal with basic diseases and their common symptoms, as well as providing basic information and general principles on which the optimal use of drugs in treating various diseases.
Applied Therapeutic II	**528**	**Fifth Year**	This course is complementary to the therapeutic I and aims to develop the student's skills in treating various medical conditions
Therapeutic Drug Monitoring	**529**	**Fifth Year**	It enables students to understand the basic concepts in evaluating drug doses
Hospital training	**568**	**Fifth Year**	The main aim objective of this course is to introduce the students how to deal with the medical cases in hospital wards related to surgical operations and as well as

			dealing with gynecological and internal diseases.
Physiology I	**214**	**Second Year**	To enable students understanding the basic principles of physiological functions of different tissues and organs of the human being, and how to evaluate these functions and correlate them with the normal and abnormal conditions.
Physiology II	**229**	**Second Year**	It emphasizes on the role of homeostatic and hemodynamic changes in the integration of physiological status.
Pharmacology I	**327**	**Third Year**	To introduce the pharmacy students to the basis of general pharmacology. The student will learn about various body systems and drugs used to affect them in health and disease. Moreover, the course will cover the drugs used to treat microbial infections.
Pharmacology II	**411**	**Fourth Year**	1-To introduce the pharmacy students to the general pharmacology of the central nervous system and to the various drug groups used in the treatment of CNS diseases or drugs altering its function. 2-The student will be introduced to the various drugs used in the management of cardiovascular diseases.

			This course will cover the drugs affecting the gastrointestinal and respiratory systems.
Pharmacology III	**426**	**Fourth Year**	To introduce the pharmacy students to various drug groups affecting endocrine systems and their use in correcting abnormalities in the endocrine functions. Moreover, the course will cover the drugs used in the management of neoplastic diseases, bone disorders, obesity and erectile dysfunction. Inflammatory agents and the anti-inflammatory drugs will also be covered during this course.
General Toxicology	**429**	**Fourth Year**	To study the principle of exposure to different chemicals and environmental factors, their sources, mechanisms of toxicity and their risk to human being; it enables students to understand the required measures to protect living organisms against the suspected toxic hazards.
Clinical Toxicology	**516**	**Fifth Year**	The course aims to provide students with the principles and skills required to deal with the toxicity of chemicals and drugs in clinical settings; it enables students to correlate signs and symptoms of toxicity with the analytical data, and to know how to establish preventive and therapeutic measures for poisoning cases.

Pharmacognosy I	**2210**	**Second Year**	The student will be introduced to the scope of pharmacognosy and medicinal plants, definitions and basic principles, natural sources of drugs, crude drugs, official and non-official drugs.
Pharmacognosy II	**312**	**Third Year**	This course is intended to study chemistry of glycosides, Resins and resin combination, fixed oils, waxes, Volatile oils, Vitamins and Amino acids.
Pharmacognosy III	**3210**	**Third Year**	1-This course is intended to study chemistry of other natural products namely alkaloids and antibiotics. 2- This course also includes studying phytotherapy and tissue culture techniques utilized for production of natural products.