COURSE OUTCOMES

PROGRAMME: PHARM D

FIRST YEAR

Course Name: HUMAN ANATOMY AND PHYSIOLOGY (Theory)

Course Code: 17T00101, I/VI PHARM.D

Upon completion of the course student will be able to

CO 1	Describe the structure (gross and histology) and functions of various organs of the human body.
CO 2	Describe the various homeostatic mechanisms and the ir imbalances of various systems.
CO 3	Identify the various tissues and organs of the different systems of the human body.
CO 4	Perform the hematological tests and also record blood pressure, heart rate, pulse and respiratory volumes.
CO 5	Appreciate coordinated working pattern of different organs of each system.
CO 6	Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

Course Name: HUMAN ANATOMY AND PHYSIOLOGY (Practical)

Course Code: 17T00107, I/VI Pharm D

Upon completion of the course student will be able to

CO 1	Identify the various tissues and organs of different systems of human body.
CO 2	Study of appliances used in hematological experiments.
CO 3	Determine the W.B.C, R.B.C, differential count of blood, ESR, HB, BT & CT.
CO 4	Determine the Blood pressure and blood group and study of various systems like Skeletal, Cardiovascular, Respiratory, Digestive, Urinary, Nervous, Special senses and Reproductive systems with the help of charts, models & specimens.
CO 5	Appreciate coordinated working pattern of different organs of each system.

Course Name: PHARMACEUTICS (Theory)

Course Code: 17T00102, I/VI Pharm D

Upon completion of the course student will be able to

CO 1	Outline the classification of dosage forms, summarize importance of prescription and posology. To define the profession of pharmacy and pharmacopoeias.
CO 2	Develop monophasic and biphasic liquid dosage forms. To simplify the preparation of suppositories and powders.
CO 3	Explain the concepts of surgical aids, galenicals and pharmaceutical calculations.
CO 4	Elaborate the importance of pharmaceutical incompatibilities and solve calculations.

Course Name: PHARMACEUTICS (Practical)

Course Code: 17T00108, I/VI Pharm D

Upon completion of the course student will be able to

CO 1	Remember the principles used in the preparation of liquid, semisolid and solid dosage forms.
CO 2	Illustrate monophasic internal and external liquid dosage forms.
CO 3	Experiment with biphasic liquid dosage forms.
CO 4	Take part in formulation of powder dosage forms and suppositories.
CO 5	Solve the prescriptions having the incompatibility problems.

Course Name: MEDICINAL BIOCHEMISTRY (Theory)

Course Code: 17T00103, I Pharm D

Upon completion of the course student will be able to

CO 1	Attain knowledge of the biomolecules and their mechanism of action in the living system.
CO 2	Understand the catalytic activity of the enzymes in biochemical pathways.
CO 3	Correlate the biochemical reactions, their pathways and several metabolic disorders.
CO 4	Gain knowledge at the molecular and genomic level.
CO 5	Attain the knowledge of the various functional tests of the organs.
CO 6	Gather the knowledge in the common clinical biochemistry laboratory and to know to utilize the laboratory equipment and to analyze the data.

Course Name: MEDICINAL BIOCHEMISTRY (Practical)

Course Code: 17T00109, I Pharm D

Upon completion of the course student will be able to

CO 1	Identify the qualitative analysis of normal, abnormal constituents of a urine sample.
CO 2	Quantitatively estimate the sugar, chloride, creatinine, and calcium in urine sample.
CO 3	Estimate serum cholesterol, blood creatinine, and blood glucose.
CO 4	Estimate SGOP, SGPT, urea, proteins, and bilirubin.
CO 5	Enzymatic determination of glucose and enzymatic hydrolysis of glycogen.
CO 6	Identify the lipids samples by qualitative analysis.

Course Name: PHARMACEUTICAL ORGANIC CHEMISTRY (Theory)

Course Code: 17T00104, I Pharm D

Upon completion of the course student will be able to

CO 1 Recall the nomenclature, properties and isomerism in organic compounds.

CO 2 Explain the preparation, reactions and stability of alkanes and alicyclic compounds.

CO 3 Study the kinetics, mechanism, stereochemistry of free radical, electrophilic, nucleophilic addition reactions and theory of resonance.

CO 4 Compare reactivity, orientation and factors influencing aliphatic nucleophilic substitution with aromatic nucleophilic substitution.

CO 5 Explain the mechanism and applications of selected named reactions.

CO 6 Discuss the method of preparation, test for purity, assay and medicinal uses of selected organic compounds.

Course Name: PHARMACEUTICAL ORGANIC CHEMISTRY (Practical)

Course Code: 17T00110, I Pharm D

Upon completion of the course student will be able to

CO 1 Synthesize the specific organic compounds.

CO 2 Calculate the percentage yield of synthesized organic compounds.

CO 3 Identify unknown organic compounds using systematic qualitative analysis.

CO 4 Get knowledge on stereo models of organic structures.

Course Name: PHARMACEUTICAL INORGANIC CHEMISTRY (Theory)

Course Code: 17T00105, I Pharm D

Upon completion of the course student will be able to

CO 1	Understand the principles and procedures for analysis of inorganic pharmaceuticals their applications.
CO 2	Explain different pharmaceutical buffers, their preparations and uses in pharmaceutical system.
CO 3	Understand the medicinal importance of inorganic pharmaceuticals.
CO 4	Have basic knowledge about various impurities in pharmaceuticals and also principles and methods of limit tests to control common impurities in pharmaceutical substances.
CO 5	Highlight the domain of radiopharmaceuticals used in the diagnostics and therapy.

Course Name: PHARMACEUTICAL INORGANIC CHEMISTRY(Practical)

Course Code: 17T00111, I Pharm D

Upon completion of the course student will be able to

CO 1	Be familiar with different classes of inorganic pharmaceuticals and acquire knowledge about the sources of impurities and methods to determine the impurities in pharmaceuticals.
CO 2	Understand the medicinal importance of pharmaceutical inorganic compounds and their analysis.
CO 3	Acquire knowledge and skills on volumetric analytical methodologies.
CO 4	Knowledge identify/confirm the unknown inorganic anions and cations.
CO 5	Acquire basic knowledge regarding general methods of preparation of inorganic compounds of pharmaceutical importance.

Course Name: REMEDIAL MATHEMATICS (THEORY)

Course Code: 17T00106, I/VI Pharm D

Upon completion of the course student will be able to

CO 1	Recall the importance of mathematics in pharmacy and using mathematical equations in doing problems.
CO 2	Take part in solving problems by applying the concepts.
CO 3	Appraises the important applications of mathematics.
CO 4	Solve and convert elementary functions using Laplace transform.
CO 5	Solve and convert elementary functions using Laplace transform.

Course Name: REMEDIAL BIOLOGY (Theory)

Course Code: 17T00106, I/VI Pharm D

Upon completion of the course student will be able to

CO 1	Understand Plant cell, tissues and inclusions
CO 2	Study about plant kingdom classification and morphology of plant parts and its modifications.
CO 3	Understand the basic components of anatomy and physiology of plant, Taxonomy of plant families.
CO 4	Study about fungi, yeast, penicillin and bacteria.
CO 5	Study about animal cell and its tissues.
CO 6	Gain knowledge about frog, pisces, reptiles, aves, mammals and poisonous animals.

Course Name: REMEDIAL BIOLOGY (Practical)

Course Code: 17T00112, I/VI Pharm D

Upon completion of the course student will be able to

CO 1 Gain knowledge on plant cell, cell wall constituents and cell inclusions.

CO 2 Study plant parts like stem, root etc. with their modifications.

CO 3 Gain knowledge on preparation of permanent slides.

CO 4 Understand the procedures involved in transverse sections of crude drugs.

CO 5 Identify plant parts, animals and detailed study of frog systems.

SECOND YEAR

Course Name: PATHOPHYSIOLOGY (Theory)

Course Code: 17T00201, II/VI Pharm D

Upon completion of the course student will be able to

CO 1	Explain the concept of cell injury, inflammation, immunityand cancers.
CO 2	Know the signs and symptoms of the diseases.
CO 3	Describe the etiology and pathogenesis of the selected disease states.
CO 4	Explain the concept of biological effects of radiation, environmental and nutritional diseases.
CO 5	Explain age-related differences in physiologic and pathophysiologic processes and their clinical manifestations.

Course Name: PHARMACEUTICAL MICROBIOLOGY (Theory)

Course Code: 17T00202, II/VI Pharm D

Upon completion of the course student will be able to

CO 1	Explain the methods of identification, cultivation and preservation of various microorganisms.
CO 2	Apply the principles of sterilization in pharmaceutical processing and sterility testing.
CO 3	Compare different types of immunological reactions, antigens, vaccines and their role in immunity.
CO 4	Evaluate microbiological standards of pharmaceuticals and presence of pathogens.
CO 5	Elaborate the characteristics, mode of infection, diagnosis, prophylaxis and treatment of bacterial, fungal and viral infectious agents.

Course Name: PHARMACEUTICAL MICROBIOLOGY (Practical)

Course code: 17T00207, II/VI Pharm D

Upon completion of the course student will be able to

CO 1	Recall different techniques of sterilization and equipment used in microbiology laboratory.
CO 2	Interpret characteristics of microbes using staining techniques, isolation methods and quantitative estimation.
CO 3	Construct standard graphs for estimating antibiotics and vitamins using microbes.
CO 4	Test for possible microbial contamination in a given sample.
CO 5	Estimate qualitatively and quantitatively the amount of microbes in a sample.

Course Name: PHARMACOGNOSY& PHYTOPHARMACEUTICALS (Theory)

Course Code: 17T00203, II/VI Pharm D

Upon completion of the course student will be able to

CO 1	Define and introduce the history, scope and classification of crude drugs and explain about the cultivation, collection, processing and storage of crude drugs.
CO 2	Apply the knowledge of microscopical for studying properties of Cell constituents and classify the natural pesticides.
CO 3	Determine and evaluate the importance of carbohydrates, Proteins, lipids and fibers along with their pharmacognostic study.
CO 4	Estimate and predict the types of adulteration of crude drugs.

Course Name: PHARMACOGNOSY& PHYTOPHARMACEUTICALS (Practical)

Course Code: 17T00208, II/VI Pharm D

Upon completion of the course student will be able to

CO 1	Gain knowledge on plant cell, cell wall constituents and cell inclusions.
CO 2	Identify crude drugs based on macro, powder and microscopical characters.
CO 3	Gain knowledge on principles and procedures involved indetermination of analytical constants.
CO 4	Identify the crude drugs by chemical test.
CO 5	Identify the lipid containing drugs by chemical test.

Course Name: PHARMACOLOGY – I (Theory)

Course Code: 17T00204, II/VI PHARM.D

Upon completion of the course student will be able to

CO 1	Define the basic terms of Medical Pharmacology and Describe the pattern of absorption, distribution, metabolism and excretion of various drugs.
CO 2	Gain more knowledge on drugs acting on ANS, Cardiovascular disorders, mydriatics, miotics, myasthenia gravis and Parkinsonism.
CO 3	Improve the comprehension on local general anaesthetic agents and drugs acting on psychological disorders and cognition enhancement.
CO 4	Carefully understand the physiology of respiration and drugs targeting respiratory disorders like asthma and COPD.
CO 5	Assess the release of Thyroid, pancreas, sexual hormones and drugs targeting on their disorders.
CO 6	Gain more understanding on kinetics and dynamics of autacoids and their antagonists.

Course Name: COMMUNITY PHARMACY (Theory)

Course Code: 17T00205, II/VI Pharm D

Upon completion of the course student will be able to

CO 1	Provide patient-centered care to diverse patients using the best available evidence.
CO 2	Educate patients through counseling and provide health screening services in public.
CO 3	Identify symptoms of minor ailments and provide appropriate medication.
CO 4	Participate in prevention programs of communicable diseases.
CO 5	Demonstrate knowledge of the entrepreneurial and management skills in community pharmacies.

Course Name: PHARMACOTHERAPEUTICS-I (Theory)

Course Code: 17T00206, II/VI Pharm D

Upon completion of the course student will be able to

CO 1	Understand the etiopathogenesis of selected disease states.
CO 2	Know about the various methods involved in the diagnosis of selected disease states.
CO 3	Interpret and analyze the selected laboratory results ofspecific disease states.
CO 4	Describe the therapeutic approach to manage the selected diseases.
CO 5	Discuss the rationale for drug therapy.
CO 6	Understand the individualized therapeutic plans basedon diagnosis.

Course Name: PHARMACOTHERAPEUTICS-I (Practical)

Course Code: 17T00209, II/VI Pharm D

Upon completion of the course student will be able to

CO 1 Describe the pathophysiology and management of cardiovascular, respiratory and endocrine diseases.

CO 2 Develop the patient case-based assessment skills.

CO 3 Describe the quality use of medicines issues surrounding the therapeutic agents in the treatment of diseases.

CO 4 Develop clinical skills in the therapeutic management of disease conditions.

CO 5 Develop communication skills.

CO 6 Provide patient-centered care to diverse patients using the evidence-based medicine.

THIRD YEAR

Course Name: PHARMACOLOGY – II (Theory)

Course code: 17T00301, III/VI Pharm D

Upon completion of the course student will be able to

CO 1	Identify and explain the pharmacodynamics and pharmacokinetic properties of drugs of various categories.
CO 2	Recognize the adverse effects of drugs.
CO 3	Avoid adverse drug reactions.
CO 4	Recognize indications of different drugs and avoid contraindications.
CO 5	Provide vital information to patients about drugs during patient counseling.
CO 6	Design & execute animal experiments to identify the pharmacological properties of known drugs and unknown samples.

Course Name: PHARMACOLOGY – II (Practical)

Course Code: 17T00307, III/VI Pharm D

Upon completion of the course student will be able to

CO 1	Define the basic concepts of experimental pharmacology.
CO 2	Identify the commonly used laboratory animals and apparatus in pharmacology
CO 3	Calculate the dose and decide the route of administration of drugs.
CO 4	Design experiments to test the safety and efficacy of experimental drugs.
CO 5	Design and execute a bioassay to determine the potency of experimental drugs.

Course Name: PHARMACEUTICAL ANALYSIS (Theory)

Course Code: 17T00302, III/VI Pharm D

Upon completion of the course student will be able to

CO 1 Recall the principle and theory of instrumental analytical techniques.

CO 2 Outline the instrumentation of spectroscopic, chromatographic and thermal techniques.

CO 3 Apply the knowledge of spectroscopic, chromatographic and thermal methods in analysis of drugs. To analyze API's and formulation by using elements of interpretation of data.

CO 4 Explain theory, instrumentation and applications of electrometric methods of analysis.

CO 5 Maximize knowledge on concepts of validation, calibration, ICH, GLP, ISO9000, TQM and quality variation concepts.

Course Name: PHARMACEUTICAL ANALYSIS (Practical)

Course Code: 17T00308, III/VI Pharm D

Upon completion of the course student will be able to

CO 1 Recall the separation and identification of compounds by chromatographic techniques.

CO 2 Explain the qualitative and quantitative analysis of drugs by spectroscopic techniques.

CO 3 Experiment with instrumental analysis of selected drugs as per pharmacopoeia.

CO 4 Compare and characterize compounds by using analytical techniques.

CO 5 Determine concentration of ions by electrometric analysis.

CO 6 Discuss the instrumentation, applications of advanced analytical techniques and to interpret spectral data.

Course Name: PHARMACOTHERAPEUTICS-II (Theory)

Course Code: 17T00303, III/VI Pharm D

Upon completion of the course student will be able to

CO 1 Describe the pathophysiology and management of infectious, cancer, renal failure and diseases.

CO 2 Develop the patient case-based assessment skills.

CO 3 Describe the quality use of medicine issues surrounding the therapeutic agents in the treatment of diseases.

CO 4 Develop clinical skills in the therapeutic management of these conditions. Continue to develop communication skills.

CO 5 Provide patient – centered care to diverse patients using the evidence based medicine.

Course Name: PHARMACOTHERAPEUTICS-II (Practical)

Course Code: 17T00309, III/VI Pharm D

Upon completion of the course student will be able to

CO 1 Write the SOAP notes for the given case.

CO 2 Prepare Treatment Chart Review to ensure the appropriateness of medication orders.

CO 3 Apply the pharmacotherapeutic treatment guideline and its related knowledge to evaluate the health outcomes of treatment plan and services.

CO 4 Critically evaluating and identifying the drug related problems, adverse drug reactions and making appropriate therapeutic interventions.

CO 5 Provide systematic patient education to the patient/care givers on drug, disease and lifestyle related information.

Course Name: PHARMACEUTICAL JURISPRUDENCE (Theory)

Course Code: 17T00304, III/VI Pharm D

Upon completion of the course student will be able to

CO 1	Define the concepts of the pharmaceutical legislation in India.
CO 2	Practice the professional ethics in pharmacy field and ethics involved in Prevention of Cruelty to animals.
CO 3	Define the concepts of Drug Policy, Drug Price Control Order, Patent and Design Act, Drugs and Magic Remedies Act.
CO 4	Critically interpret the various schedules involved the Drugs and Cosmetics Act, Narcotics and Psychotropic Substances Act
CO 5	Apply the basic concepts of labeling and packaging of drugs.
CO 6	Define the concepts of Pharmacy Act, Medicinal and Toilet Preparation Act.

Course Name: MEDICINAL CHEMISTRY (Theory)

Course Code: 17T00305, III/VI Pharm D

Upon completion of the course student will be able to

CO 1	Help in correlating between pharmacology of a disease and its mitigation or cure.
CO 2	Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs.
CO 3	Know the structural activity relationship of different class of drugs.
CO 4	Well acquainted with the synthesis of some important class of drugs.
CO 5	Knowledge about the mechanism pathways of different class of medicinal compounds.
CO 6	Understand the chemistry of drugs with respect to their pharmacological activity.

Course Name: MEDICINAL CHEMISTRY (Practical)

Course Code: 17T00310, III/VI Pharm D

Upon completion of the course student will be able to

CO 1	Understand nomenclature of simple organic compounds in different classes and make 3D Stereo models easily.
CO 2	Determine some important physical properties like melting point, boiling point and solubility, etc.
CO 3	Gain knowledge on purification of organic compounds.
CO 4	Do synthesis of organic compounds and study about principles, reactions and mechanism.
CO 5	Do synthesis of organic compounds with named reactions and study about mechanisms.
CO 6	Know systemic qualitative analysis of some unknown organic compounds.

Course Name: PHARMACEUTICAL FORMULATIONS (Theory)

Course Code: 17T00306, III/VI Pharm D

Upon completion of the course student will be able to

CO 1	Recall the basic concepts of pharmaceutical dosage forms.
CO 2	Explain formulation, coating and evaluation of tablets.
CO 3	Develop and examine capsule dosage forms.
CO 4	Simplify the formulation, evaluation and stability considerations of liquid orals. The preparation and quality control of parenteral preparations.
CO 5	Appraise parenteral, ophthalmic, semisolids products and packaging material.
CO 6	Design various sustained and controlled drug delivery systems.

Course Name: PHARMACEUTICAL FORMULATIONS (Practical)

Course Code: 17T00311, III/VI Pharm D

Upon completion of the course student will be able to

CO 1 Recall the preparation and evaluation of compressed tablets and capsules.

CO 2 Develop parenteral formulations.

CO 3 Take part in formulation of liquid orals.

CO 4 Justify the use of excipients and formulate of semisolid dosage forms.

CO 5 Develop various cosmetic preparations.

FOURTH YEAR

Course Name: PHARMACOTHERAPEUTICS-III (Theory)

Course Code: 17T00401, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Describe Pathophysiology and management of diseases.
CO 2	Develop the patient case based assessment skills.
CO 3	Describe the quality use of medicines issues surrounding the therapeutic agents in the treatment of these diseases.
CO 4	Develop clinical skills in the therapeutic management of these conditions
CO 5	Continue to develop communication skills.
CO 6	Provide patient – centered care to diverse patients using the evidence based medicine.

Course Name: PHARMACOTHERAPEUTICS-III (Practical)

Course Code: 17T00407, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Follow proper protocols for patient assessment, including history-taking, physical examination, and reviewing relevant laboratory data to identify the patient's medical condition accurately.
CO 2	Carry out drug dosage calculations with precision, ensuring accurate medication preparation and administration, considering factors such as patient weight, age, and disease state.
CO 3	Complete comprehensive medication reconciliations for patients with complex medication regimens, minimizing the risk of drug interactions and adverse effects.
CO 4	Apply critical thinking and clinical reasoning skills to formulate evidence-based pharmacotherapeutic recommendations, considering patient-specific factors and current guidelines.
CO 5	Determine the suitable pharmacotherapeutic options for patients with multiple co-morbidities, incorporating a good approach to patient care, including non-pharmacological interventions and patient education.

Course Name: HOSPITAL PHARMACY (Theory)

Course Code: 17T00402, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Understand the importance of various Drug distribution methods.
CO 2	Be acquainted with Professional Practice Management Skills in Hospital Pharmacies.
CO 3	Understand the professional responsibilities of hospital pharmacist and Continuous professional development.
CO 4	Know manufacturing practices of various formulations in Hospital setup.
CO 5	Appreciate the importance of various committees and their roles in Hospital.
CO 6	Appreciate the stores management and inventory control.

Course Name: HOSPITAL PHARMACY (Practical)

Course Code: 17T00408, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Define the basic concepts in hospital pharmacy.
CO 2	Critically interpret and apply Inventory control methods.
CO 3	Execute professional responsibilities of hospital pharmacist and identify drug related problems.
CO 4	Provide professional services like patient counseling and technical inputs for Parenteral nutritional support.
CO 5	Execute the activities related to hospital formulary and pharmacy and therapeutics committee.
CO 6	Manufacture common pharmaceutical formulations within hospital setup.

Course Name: CLINICAL PHARMACY (Theory)

Course Code: 17T00403, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Define the role of clinical pharmacist at various healthcare settings.
CO 2	Monitor drug therapy of the patient through medication chart review and clinical review.
CO 3	Conduct the medication history interview and counsel the patients.
CO 4	Detect, assess and monitor adverse drug reactions (ADR).
CO 5	Interpret selected laboratory results (as monitoring parameters) of specific disease states.
CO 6	Provide drug / poison information services by retrieving, analyzing, interpreting and Formulate drug and medicine information by utilizing various databases and software's.

Course Name: CLINICAL PHARMACY (Practical)

Course Code: 17T00409, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Answer the drug information questions.
CO 2	Perform the patient medication counseling.
CO 3	Interpret the case studies related to laboratory investigations.
CO 4	Perform the patient medication history interview.

Course Name: BIOSTATISTICS & RESEARCH METHODOLOGY (Theory)

Course Code: 17T00404, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Choose the appropriate research design and develop appropriate research hypothesis for a project.
CO 2	Develop an appropriate framework for research studies.
CO 3	Know the various statistical methods to solve different types of problems.
CO 4	Operate various statistical software packages.
CO 5	Appreciate the importance of Computer in hospital and Community Pharmacy.
CO 6	Appreciate the statistical technique in solving the pharmaceutical problems.

Course Name: BIOPHARMACEUTICS AND PHARMACOKINETICS (Theory)

Course Code: 17T00405, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Define the basic concepts in biopharmaceutics and pharmacokinetics.
CO 2	Critically interpret biopharmaceutic studies including drug product equivalency.
CO 3	Use raw data and derive the pharmacokinetic models and parameters that best describe the process of drug absorption, distribution, metabolism and excretion.
CO 4	Design and evaluate dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters.
CO 5	Identify potential clinical pharmacokinetic problems and apply basic pharmacokinetic principles to solve them.

Course Name: BIOPHARMACEUTICS AND PHARMACOKINETICS (Practical)

Course Code: 17T00410, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Understand & Comparison of dissolution characteristics and Influence of polymorphism on solubility and dissolution.
CO 2	Understand In vitro evaluation of protein binding and bioavailability parameters.
CO 3	Understand In vivo evaluation of bioavailability parameters by using animal.
CO 4	Apply the various regulations related to developing Bioequivalence studies on the different drugs on animals and human volunteers.

Course Name: CLINICAL TOXICOLOGY (Theory)

Course Code: 17T00406, IV/VI Pharm D

Upon completion of the course student will be able to

CO 1	Understand the basic principles of toxicology. Explain the supportive care in clinical toxicology-Gut decontamination, elimination enhancement.
CO 2	To perceive the information on symptoms, management, diagnosis of paracetamol, opioids, barbiturates NSAIDS, radiation and metal poisonings
CO 3	To carefully understand the different kinds of snake bites and Plants poisoning and their respective complications and strategies involved in management.
CO 4	To gain updated knowledge on precautions to avoid food poisoning and basic treatment in different food poisonings.
CO 5	To elaborate the understanding on substance abuse and dependence of CNS stimulants, Opioids, CNS depressants, Hallucinogens, LSD, Cannabis and Tobacco.

FIFTH YEAR

Course Name: CLINICAL RESEARCH (Theory)

Course Code: 17T00501, V/VI Pharm D

Upon completion of the course student will be able to

CO 1 Know about the new drug development process.

CO 2 Understand the regulatory and ethical requirements.

CO 3 Identify the roles and responsibilities of the different positions (Principle Investigator, Clinical Research Associate, Clinical Research Monitor, Study Participant) within the clinical research process.

CO 4 Design the clinical study documents.

CO 5 Know the concept of safety monitoring and reporting in clinicaltrials.

Course Name: PHARMACOEPIDEMIOLOGY & PHARMACOECONOMICS (Theory)

Course Code: 17T00502, V/VI Pharm D

Upon completion of the course student will be able to

CO 1 Identify the applications of pharmacoepidemiology and Pharmacoeconomics in clinical settings.

CO 2 Discuss the various pharmacoepidemiologicaloutcome measures.

CO 3 Describe the concept of risk inpharmacoepidemiology and different methods of measuring risk.

CO 4 Explain the sources of data forpharmacoepidemiological studies.

CO 5 Describe the current pharmacoeconomic evaluationmethods.

CO 6 Use the software's in pharmacoepidemiology andPharmacoeconomics analysis.

Course Name: CLINICAL PHARMACOKINETICS & PHARMACOTHERAPEUTIC DRUG MONITORING (Theory)

Course Code: 17T00503, V/VI Pharm D

Upon completion of the course student will be able to

CO 1	Understand the basics of pharmacokinetics and demonstrate nomograms, tabulations and their applications in designing dosage regimens in special populations.
CO 2	Apply the principles of pharmacokinetics in identifying the drug interactions and to develop the skills on individualization of drug dosage regimen in special population by considering TDM indications, protocol and correlation.
CO 3	Analyze GFR, creatinine clearance, extracorporeal removal of drugs & pharmacokinetic considerations in dosing renal and hepatic diseases.
CO 4	Discuss bayesian theory, adaptive methods and pharmacogenetics in developing drug dosage regimens.

Course Name: CLERKSHIP, V/VI Pharm D

Upon completion of the course student will be able to

CO 1	Discuss the role of Pharmacist in clinical pharmacy services.
CO 2	Demonstrate the skills of a clinical Pharmacist.
CO 3	Discuss the available therapeutic options in the management of diseases.
CO 4	Prepare a pharmaceutical care plan for a given case.
CO 5	Detect, Interpret and report medication errors and drug interactions.

Course Name: PROJECT WORK, V/VI Pharm D

The main objectives of the project work is to

1. Show the evidence of having made accurate description of published work of others and of having recorded the findings in an impartial manner
2. Develop the students in data collection, analysis and reporting and interpretation skills.

Upon completion of the course student will be able to

CO 1	Address a problem related to Pharmacy practice in hospital, community service or clinical set up with a wider perspective and generality.
CO 2	Define the problem to be addressed and translate it into a statement of aim, objectives, scope and plan for the project.
CO 3	Carry out and report an information survey and take account of findings in executing project.
CO 4	Evaluate, select and apply relevant theories and techniques from the full range of courses studied using conceptual models and frameworks to enhance depth of understanding.
CO 5	Select appropriate methodology for investigative work, taking into account the pros and cons of the alternatives available and develop solution proposals based on reasoned judgement.
CO 6	Present a coherent, logically argued, fully referenced report and engage in a professional manner in a viva-voce discussion about the project.

SIXTH YEAR

Course Name: INTERNSHIP, VI Pharm D

Upon completion of the course student will be able to

CO 1 Provide patient care in cooperation with patients, prescribers and other members of an inter-professional health care team based health care team based upon sound therapeutic principles and evidence based data, taking into account relevant legal, ethical, social cultural, economic and professional issues, emerging technologies and evolving biomedical, pharmaceutical, social or behavioural or administrative and clinical sciences that may impact therapeutic outcomes.

CO 2 Manage and use resources of the health care system in cooperation with patients, prescribers, other health care providers, administrative and supportive personnel to promote health, to provide, assess and coordinate safe, accurate and time sensitive medication distribution and to improve therapeutic outcome of medication use.

CO 3 Promote health improvement, wellness and prevention in co-operation with patients, communities, at risk population, and other members of inter professional team of health care providers.

CO 4 Demonstrate skills in monitoring of the national health programmes and schemes oriented to provide preventive and promotive health care services to the community.

CO 5 Develop leadership qualities to function effectively as a member of the health care team organized to deliver the health and family welfare services in existing socio-economic, political and cultural environment.

CO 6 Communicate effectively with patients and the community.