



DCOP

Subjectwise Course Outcome - [B. Pharmacy - 2021-22]

Third Semester	
Pharmaceutical Analysis [Theory Regular]	
CO ID.	Course Outcome
CO1	Describe the electrochemical methods of analysis such as Conductometry, Potentiometry & Polarography
CO2	Explain principles, procedure involved in various volumetric titrations as Acid-base, on-aqueous, Precipitation, Complexometric, redox reaction
CO3	Understand concept of error, its classification & methods of minimizing it
CO4	Gain the knowledge of steps involved in Gravimetric Analysis
CO5	Explain the various basic terms as Accuracy, Precision, Significant Figure, Primary & Secondary Standard, Molarity, Normality, Equivalent weight, Molality, Mole Fraction, PPM & PPB involved in Pharmaceutical Analysis
CO6	Familiar with the Preparation & Standardization of Oxalic acid, Sodium hydroxide, Hydrochloric acid, Sodium thiosulphate, Potassium Permanganate & Ceric Ammonium Sulphate
Communication Skill [Theory Regular]	
CO ID.	Course Outcome
CO1	Acquire knowledge about skills, barriers and perspectives in communication to function effectively in areas of Pharmaceutical Operation.
CO2	Understand elements of verbal and non-verbal communication and communication styles.
CO3	Acquire knowledge of basic listening skills and practice effective writing and effective communication skills.
CO4	Apply the knowledge to develop interviews, presentation skills and leadership qualities through group discussion.
Remedial Math [Theory Regular]	
CO ID.	Course Outcome
CO1	Describe the concept of algebra and co-ordinate geometry.
CO2	Acquire the knowledge of function, limit and differentiation, rules of differentiation, trigonometric, composite, parametric functions.
CO3	Explain the measurement of angles, complementary, supplementary, negative angles sum, and difference, sine and cosine angles.
CO4	Demonstrate the integration as inverse function, indefinite and finite integrates.
Remedial Biology [Theory Regular]	
CO ID.	Course Outcome
CO1	Explain living organisms, systematic taxonomy, plant kingdom and morphology of flowering plant.
CO2	Learn and understand circulatory, digestive and respiratory systems of human body.
CO3	Study excretory, nervous, endocrine and reproductive systems of male and female.
CO4	Acquire the knowledge about plant water reactions, mineral nutrient, plant growth and development and sex determination and sex linkage
CO5	Describe structure and function of cell organelles and types of tissues
PHARMACEUTICAL ORGANIC CHEMISTRY II [Practical Regular]	
CO ID.	Course Outcome
CO.1	Acquire the knowledge of basic concept such as re crystallization and steam distillation.
CO.2	Understand the reaction mechanism with synthesis of hetero cyclic compound on the basis of molecular rearrangement.
CO.3	Carry out standardization of oil for determination of acid value, saponification value & iodine value.
Pharmaceutical Analysis-I [Practical Regular]	
CO ID.	Course Outcome

CO1	Perform volumetric analysis such as acidimetry, alkalimetry, oxidation and reduction reactions, iodimetry, iodometry, complexometry, precipitation and non-aqueous titration
CO2	To determine strength of sample solutions by potentiometric & Conductometric titration.
Communication Skill [Practical Regular]	
CO ID.	Course Outcome
CO1	Improve basic Communication skill
CO2	Practice pronunciation for effective usages of language.
CO3	Enhance the advances learning skills to effectively manage the essentials in pharmacy carrier.
Remedial Biology [Practical Regular]	
CO ID.	Course Outcome
CO1	Study experiment in biology, cell inclusion, different plant parts and their modification
CO2	Perform microscopic study and identify tissue of different plant parts.
CO3	Demonstrate study of frog by using computer models
CO4	Identify different bone and determine blood group blood pressure and tidal volume
BP 303 T PHARMACEUTICAL MICROBIOLOGY [Theory Regular]	
CO ID.	Course Outcome
Co1	Understand the basic microbiology and describe the fundamental Principles of microbial taxonomy and their Classification
Co2	Understand and acquire knowledge about uses of microscopy in microbiology, also to understand the importance and implementation of sterilization in pharmaceutical processing and industry.
Co3	Understand the methods of identification, classification, cultivation and preservation of various microorganisms
Co4	Understand the importance and application of sterilization in pharmaceutical processing and industry
Co5	Understand the different parameters influencing sterility process, microbial spoilage of pharmaceuticals and its prevention methods.
Co6	Identification of diseases by performing the diagnostic tests
Co7	Estimation of potency of antibiotic by various microbial assay
o8	Understand infectious diseases its history, pathogenesis, treatment and control
BP 304 T PHARMACEUTICAL ENGINEERING [Theory Regular]	
CO ID.	Course Outcome
CO 1.	CO 1. Acquire the knowledge about various mill & equipment related size reduction size Size separation & flow of fluid
co 2	CO 2. Explain the heat transfer mechanism & methodology in evaporation & distillation process With their equipment's used in the pharmaceutical industries
co 3	CO 3. Describe the process of drying & mixing by using an various equipment's like dryer & Mixer in formulation of various dosage forms in pharmaceutical industries
co 4	CO 4. Understand the concept of filtration & centrifugation with their equipment's used in pharmaceutical industries along with uses advantages disadvantages
co 5	CO 5. Discuss the material used in plant construction and theories of corrosion & its control
BP 307P PHARMACEUTICAL MICROBIOLOGY [Practical Regular]	
CO ID.	Course Outcome
Co1	Carried out microbiological standardization of Pharmaceuticals
Co2	Understand the cell culture technology and its applications in pharmaceutical industries
Co3	To understand the different identification methods for various microorganisms
BP301T PHARMACEUTICAL ORGANIC CHEMISTRY II [Theory Regular]	
CO ID.	Course Outcome
CO.1	Understand the resonance, stability, synthesis method, Reaction and pharmaceutical uses of benzene and its derivatives, effect of substituents of benzene and it's orientation.

CO.2	Acquire knowledge about structure , stability (Resonance), Physical and chemical properties, synthesis and reaction of phenol, aromatic amine & aromatic acid.
CO.3	Explain the concept of fatty acid, saponification value, Rancidity, ester value, Acid value and related parameter.
CO.4	Describe the resonance , stability, Synthesis method, reaction and Pharmaceutical uses of poly nuclear aromatic hydrocarbon.
CO.5	Study the Baeyer strain theory, Mofitt modification, Sacht Mohrs theory and stability of cycloalkane.

BP302T PHYSICAL PHARMACEUTICS - I [Theory | Regular]

CO ID.	Course Outcome
CO1	Understand various terms, types of solubility and its expressions with laws
CO2	Gain detail knowledge of states of matter and properties of matter with physicochemical properties of drug molecules
CO3	Understand the concept of surface tension and interfacial phenomenon
CO4	Study the applications, methods of complexation and protein binding
CO5	Know the method of determination and applications of pH, buffers and isotonic solutions

BP306P PHYSICAL PHARMACEUTICS - I [Practical | Regular]

CO ID.	Course Outcome
CO1	Understand solubility of drug and pKa value
CO2	Able to determine partition co-efficient and surface tension of liquids
CO3	Know the determination of %composition and critical micelle concentration concepts
CO4	Understand the principles of stability constant by solubility and pH titration method.

BP308P PHARMACEUTICAL ENGINEERING [Practical | Regular]

CO ID.	Course Outcome
BP308P	CO 1. determine the radiation constant, humidity of air, moisture content uniformity index & overall heat transfer by using an various methods and equipments
BP308P	Co.2 describe & demonstrate the various pharmaceutical machinery used in the pharmaceutical industry
CO 4	determine the factors are affecting on a rate of filtration, Evaporation & crystallization
CO 5	to determine the uniformity index by using double cone blender

Fifth Semester

BP 502 T. Industrial Pharmacy-I [Theory | Regular]

CO ID.	Course Outcome
CO 1.	Student shall be able to know the various pharmaceutical dosage forms and their manufacturing techniques.
CO 2	Students shall be able to know various considerations in development of pharmaceutical dosage forms.
CO 3	Students shall be able to formulate solid, liquid and semisolid dosage forms and evaluate them for their quality.
CO 4	Formulate and prepare different types of parenteral and ophthalmic dosage forms

BP501T Medicinal Chemistry-II [Theory | Regular]

CO ID.	Course Outcome
CO. 1	CO.1 Study the available marketed drugs belonging to the different category of drugs used.
CO 2	CO 2. Acquire the knowledge about structure, IUPAC name, chemistryof drugs, drug metabolic pathways, adverse effect therapeutic value ofdrugs and mode of action of some drug belonging to the differentcategory.
CO 3	CO 3. Study the chemical synthesis of selected drugs
CO 4	CO 4. Understand the structure activity relationship of particular classof drug
CO 5	CO 5. Explain the chemical classification of each class of a drug.

BP503T Pharmacology - II [Theory | Regular]

CO ID.	Course Outcome
CO1	Describe the pharmacology of drugs acting on cardiovascular system.

CO2	Discuss the pharmacology of drugs acting on haemopoietic and urinary system.
CO3	Explain various autocooids, their blockers and drug related to them.
CO4	Write the pharmacology of drugs acting on endocrine system.
CO5	Understand principles, types and applications of bioassay.
BP504T Pharmacognosy and Phytochemistry II [Theory Regular]	
CO ID.	Course Outcome
BP504T1	Understand the concept of extraction and chromatography and spectroscopy
BP504T2	Acquire knowledge about Medicinal Plants
BP504T3	Explain the isolation, identification and analysis of phytoconstituents
BP504T4	Describe the metabolic pathway of different secondary metabolites
BP504T5	Know the industrial production, estimation and utilization of different phytoconstituents
BP505 T Pharmaceutical Jurisprudence [Theory Regular]	
CO ID.	Course Outcome
Co1	Pharmaceutical jurisprudence Know the Pharmaceutical legislations and their implications in the development and marketing
Co2	Know various Indian pharmaceutical Acts, Laws and schedule
Co3	Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
Co4	Know code of ethics during the Pharmaceutical practice
BP506P Industrial Pharmacy-I [Practical Regular]	
CO ID.	Course Outcome
CO 1	student shall be able to Know the various pharmaceutical dosage forms and their manufacturing techniques.
CO 2	student shall be able to Know various considerations in development of pharmaceutical dosage forms
Co 3	Student shall be able to Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality.
BP507P Pharmacology - II [Practical Regular]	
CO ID.	Course Outcome
CO1	Study of physiological salt solutions, drug solution, and use in various animal experiments.
CO2	Study the effect of drugs on isolated heart, intestine, and various muscle preparation.
CO3	Study the diuretic, analgesic, and anti-inflammatory activity of drugs in rats/mice.
CO4	Understand different bioassay techniques and Determination of unknown concentrations of Histamine, Oxytocin, Serotonin, and Acetylcholine using suitable isolated tissue preparations.
BP508P Pharmacognosy and Phytochemistry II [Practical Regular]	
CO ID.	Course Outcome
BP508P1	Study Morphology, histology and powder characteristics & extraction & detection of: Cinchona, Cinnamon, Senna, Clove, Ephedra, Fennel, Coriander and chemical identification of crude drugs.
BP508P2	Exercise isolation & detection of active principles a. Caffeine - from tea dust. b. Diosgenin from Dioscorea c. Atropine from Belladonna d. Sennosides from Senna.
BP508P3	Separation of mixture of sugar, herbal extract and volatile oil by chromatography.
Seventh Semester	
Novel Drug Delivery System [Theory Regular]	
CO ID.	Course Outcome
BP704T.1	CO1 Study of Modified Drug Release Systems, Polymers and Novel drug delivery systems
BP704T.2	CO2 Study of formulation and processing of therapeutic aerosols
BP704T.3	CO3 Study of microencapsulation & its applications
BP704T.4	CO4 Study of techniques of optimization

BP 703T. Pharmacy Practice [Theory Regular]	
CO ID.	Course Outcome
CO1	Upon completion of the course, the student shall be able to know various drug distribution methods in a hospital
CO2	Appreciate the pharmacy stores management and inventory control. Monitor drug therapy of patient through medication chart review and clinical review
CO3	Obtain medication history interview and counsel the patients, Identify drug related problems and detect and assess adverse drug reactions
CO4	interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states
CO5	Upon completion of the course, the student shall be able to know pharmaceutical care services and do patient counseling in community pharmacy;
CO6	Upon completion of the course, the student shall be able to appreciate the concept of Rational drug therapy
BP701T Instrumental Methods of Analysis [Theory Regular]	
CO ID.	Course Outcome
CO1	Students should understand the interaction of matter with electromagnetic radiations and its applications in drug analysis.
CO2	Students should understand the chromatographic separation and analysis of drugs.
CO3	Students should be able to perform quantitative & qualitative analysis of drugs using various analytical instruments.
BP702T Industrial Pharmacy II [Theory Regular]	
CO ID.	Course Outcome
CO1	Know the process of pilot plant and scale up of pharmaceutical dosage forms
CO2	Understand the process of technology transfer from lab scale to commercial batch
CO3	Know different Laws and Acts that regulate pharmaceutical industry
CO4	Understand the approval process and regulatory requirements for drug products
BP705P Instrumental Methods of Analysis [Practical Regular]	
CO ID.	Course Outcome
CO1	Students must get practical knowledge of modern analytical instruments that are used for drug testing.
CO2	Students must be able to handle various spectroscopic instruments like Uv-Visible spectrophotometer, Colorimeter, Fluorimeter, IR, Flame photometer and Nepheloturbidometer.
CO3	Students must be well versed in chromatographic techniques like, HPLC, GC, Column chromatography, paper and Thin layer chromatography etc.
First Semester	
Pharmaceutical Analysis [Theory Regular]	
CO ID.	Course Outcome
CO1	Describe the electrochemical methods of analysis such as Conductometry, Potentiometry & Polarography
CO2	Explain principles, procedure involved in various volumetric titrations as Acid-base, non-aqueous, Precipitation, Complexometric, redox reaction
CO3	Understand concept of error, its classification & methods of minimizing it
CO4	Gain the knowledge of steps involved in Gravimetric Analysis
CO5	Explain the various basic terms as Accuracy, Precision, Significant Figure, Primary & Secondary Standard, Molarity, Normality, Equivalent weight, Molality, Mole Fraction, PPM & PPB involved in Pharmaceutical Analysis
CO6	Familiar with the Preparation & Standardization of Oxalic acid, Sodium hydroxide, Hydrochloric acid, Sodium thiosulphate, Potassium Permanganate & Ceric Ammonium Sulphate
Pharmaceutical Inorganic Chemistry [Theory Regular]	
CO ID.	Course Outcome
CO2	To know the sources of impurities and various methods to determine the impurities limit test in inorganic drugs and pharmaceuticals
CO3	To understand, learn and expertise to the different techniques to identify the presence of various inorganic materials present in the medicine and pharmaceutical by qualitative and quantitative methods

CO4	To understand, learn and expertise about various method of purity determination of the pharmaceutical and medicinal material by analytical method
CO1	To expertise in the area of preparation of various solvent solutions and inorganic pharmaceuticals required during various experiments
Communication Skill [Theory Regular]	
CO ID.	Course Outcome
CO1	Acquire knowledge about skills, barriers and perspectives in communication to function effectively in areas of Pharmaceutical Operation.
CO2	Understand elements of verbal and non-verbal communication and communication styles.
CO3	Acquire knowledge of basic listening skills and practice effective writing and effective communication skills.
CO4	Apply the knowledge to develop interviews, presentation skills and leadership qualities through group discussion.
Remedial Math [Theory Regular]	
CO ID.	Course Outcome
CO1	Describe the concept of algebra and co-ordinate geometry.
CO2	Acquire the knowledge of function, limit and differentiation, rules of differentiation, trigonometric, composite,parametric functions.
CO3	Explain the measurement of angles, complementary, supplementary, negative angles sum, and difference, sine and cosine angles.
CO4	Demonstrate the integration as inverse function, indefinite and finite integrates.
Remedial Biology [Theory Regular]	
CO ID.	Course Outcome
CO1	Upon completion of the course, the student shall be able to:know the classification and salient features of five kingdoms of life
CO2	Upon completion of the course, the student shall be able to: understand the basic components of anatomy & physiology of plant
CO3	Upon completion of the course, the student shall be able to know understand the basic components of anatomy & physiology animal with special reference to human
Pharmaceutical Analysis-I [Practical Regular]	
CO ID.	Course Outcome
CO1	Perform volumetric analysis such as acidimetry, alkalimetry, oxidation and reduction reactions, iodimetry, iodometry, complexometry, precipitation and non-aqueous titration
CO2	To determine strength of sample solutions by potentiometric & Conductometric titration.
Pharmaceutical Inorganic Chemistry [Practical Regular]	
CO ID.	Course Outcome
CO1	Methods and modification thereof to determine impurities in Inorganic drugs and pharmaceuticals (Limit test)
CO2	Test to identify different inorganic compounds of medicinal value (Identification test)
CO3	Test to check purity of inorganic compounds by application of judging their properties like swelling power, Neutralizing capacity (Test for Purity)
CO4	How to prepare pharmaceutical inorganic compounds
Human Anatomy & Physiology-I [Practical Regular]	
CO ID.	Course Outcome
CO1	Study parts and functions of compound microscope, microscopy of various human tissues and Identify the different bones of the skeletal system.
CO2	Explain haemocytometry and perform WBC, RBC enumeration, bleeding, clotting time determination and estimation of hemoglobin count.
CO3	Gain knowledge of various parameters by determination of blood group, ESR, heart and pulse rate and blood pressure recording
Communication Skill [Practical Regular]	
CO ID.	Course Outcome
CO1	Improve basic Communication skill
CO2	Practice pronunciation for effective usages of language.

CO3	Enhance the advances learning skills to effectively manage the essentials in pharmacy carrier.
BP101T Human Anatomy & Physiology-I [Theory Regular]	
CO ID.	Course Outcome
CO-1	Explain the gross morphology, homeostatic mechanisms and cellular level Organization of human body.
CO-2	Explain classification structure and functions of various tissues.
CO-3	Describe structure and functions of integumentary, skeletal systems and various joint types.
CO-4	Discuss body fluids, blood and reticulo-endothelial and lymphatic systems.
CO-5	Acquire the knowledge about special senses and nervous system.
CO-6	Study anatomy, structure and functions, electrocardiogram of heart and various CVS diseases.
BP103T pharmaceuticals-I [Theory Regular]	
CO ID.	Course Outcome
CO1	Explain history of profession of Pharmacy in India & Pharmacopeia and its development.
CO2	Learn different types of dosage form
CO3	Learn parts and handling of prescription, posology & dose calculation of drug in children.
CO4	Elaborate different pharmaceutical calculation involved in formulation
CO5	Fundamental knowledge in preparing conventional dosage forms
CO6	Understand basic requirement and formulation of powder and liquid (monophasic& biphasic) dosages form
CO7	Learn basic requirement, formulation and evaluation of suppositories and pessaries
CO8	Explain type of Pharmaceutical incompatibility
CO9	Understand the mechanisms of drug penetration and also the factors influencing permeation through transdermal route
CO10	Explain the formulation and evaluation of semisolid preparation such as ointment, gel cream etc.
BP109P Pharmaceuticals-I [Practical Regular]	
CO ID.	Course Outcome
CO1	To recall the principles used in the preparation of solid, liquid and semi solid dosage forms.
CO2	To experiment with monophasic liquid dosage forms for internal and external administration
CO3	To prepare biphasic liquid dosage forms
CO4	To design powders and granules
CO5	To develop semi solid dosage forms
CO6	To formulate suppositories
CO7	Select an appropriate container and storage conditions for a product
CO8	Label the pharmaceuticals
GPAT Exam	
Industrial Pharmacy-I [Theory Regular]	
CO ID.	Course Outcome
Course outcome not yet added by the respective faculty.(Archana Yelmate)	
IPR course	
Certificate on IPR Course [Theory Regular]	
CO ID.	Course Outcome
CO 1	CO 1: Distinguish and Explain various forms of IPRs.
CO 2	CO 2: Identify criteria's to fit one's own intellectual work in particular form of IPRs.
Second Semester	
Human Anatomy & Physiology -II [Theory Regular]	

CO ID.	Course Outcome
CO1	Explain the gross morphology, structure and functions of various organs of the human body.
CO2	Understand the coordination of the nervous system and endocrine system.
CO3	Describe the various homeostatic mechanisms and their imbalances.
CO4	Write various secretions of the human body with their composition and functions.
CO5	Discuss the concept of genetics and gene expression.
Pharmaceutical Organic Chemistry -I [Theory Regular]	
CO ID.	Course Outcome
CO1	CO 1. Understand nomenclature, classification, isomerism and importance of the organic compounds.
CO2	CO 2. Explain method of preparations, properties, elimination reactions and hybridization of alkanes and alkenes.
CO3	CO 3. Describe method of preparations, qualitative tests, substitution reactions, structure and uses of alkyl halides and alcohols.
CO4	CO 4. Explain method of preparations, condensation reactions, structure and uses of carbonyl compounds.
CO5	CO 5. Write method of preparations, qualitative tests, substituent effect, structure and uses of carboxylic acids and aliphatic amines.
CO 6	How to write reaction, Name the reaction and orientation of reactions
CO7	account for reactivity/stability of compounds and identify/confirm the identification of organic compound
Biochemistry [Theory Regular]	
CO ID.	Course Outcome
co.1	Gain the knowledge of Bioenergetics & bio molecules there structure classification & Significance
co.2	- Explain the various metabolic pathways of carbohydrates & mechanism of ETC, Oxidative phosphorylation
co.3	Describe the general reaction, catabolic pathway & there disorder of amino acid & Lipid & there disorder
co.4	Understand the catalytic role of enzyme, application & importance in design of new Drug.
co.5	Explain the various concepts in nucleic acid metabolism
Pathophysiology [Theory Regular]	
CO ID.	Course Outcome
CO - 01	Understand the Basic Principles, Mechanism, Morphology of Cell injury and Adaptation.
CO - 02	Understand the Basic mechanism involved in the process of Inflammation and Repair.
CO - 03	Describe the etiology and pathogenesis of the selected disease states.
CO - 04	Name the signs and symptoms of the diseases.
CO - 05	Mention the complications of the diseases.
Environmental Science [Theory Regular]	
CO ID.	Course Outcome
BP206T.1	Understand multidisciplinary nature of environmental studies, natural, renewable and non-renewable resources.
BP206T.2	Explain various types of natural resources, associated problems and individual role in conservation.
BP206T.3	Describe introduction, concept, types, characteristic features, structure and functions of the ecosystems.
BP206T.4	Solve environmental, air, water and soil pollutions.
Computer Application [Theory Regular]	
CO ID.	Course Outcome
CO1	Understand the behavioral needs for a pharmacist to function effectively in the areas of pharmaceutical Operation.
CO2	Communicate effectively (verbal and non verbal)
CO3	Effectively manage a team as a team player.
CO4	Develop Interview skills.
CO5	Develop leadership qualities and essentials.

Pharmaceutical Organic Chemistry-I [Practical Regular]	
CO ID.	Course Outcome
CO1	CO 1. Systematic qualitative analysis of unknown organic compounds.
CO2	CO 2. Preparation of suitable solid derivatives from organic compounds
CO3	CO 3. Understand the Construction of molecular models.
Biochemistry [Practical Regular]	
CO ID.	Course Outcome
CO1	Identify & confirm various carbohydrates, proteins and abnormal constituents of urine by qualitative analysis.
CO2	Perform quantitative analysis of reducing sugars and proteins and determine various blood constituents.
CO3	Prepare buffer solutions & check the pH by using pH meter.
CO4	Study enzymatic hydrolysis of starch and effect of different parameters on enzymatic activity.
Computer Application [Practical Regular]	
CO ID.	Course Outcome
CO1	Design a questionnaire using word processing package, create HTML web page, online tools to gather disease, personal and drug information.
CO2	Develop skills in MS Word and MS Access for creating, designing and generating report from patient database.
CO3	Understand exporting tables, queries, forms and reports to web pages and XML pages.
BP210P.1	Design a questionnaire using word processing package. create HTML web Page, online tools to gather disease, personal and drug information
BP210P.2	Develop skills in MS word and MS Access for creating, designing and generating report form patient database.
BP210P.3	Understand exporting tables, queries, forms and reports to web pages and XML pages
BP207P Human Anatomy & Physiology -II [Practical Regular]	
CO ID.	Course Outcome
CO1	To Explain the gross morphology, structure and functions of various organs of the human body.
CO2	Learn the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body
CO3	Identify the various tissues and organs of different systems of human body.
CO4	Learn coordinated working pattern of different organs of each system
CO5	Perform the hematological tests like blood cell counts
CO6	Determination of respiratory volume capacities.
CO7	Recording of body temperature, Body mass index.
CO8	Study of family planning devices and pregnancy diagnosis test
CO9	To study histology of vital organs and gonads
Fourth Semester	
Pharmaceutical Organic Chemistry - III [Theory Regular]	
CO ID.	Course Outcome
CO.1	Understand the concept of stereo-chemistry and isomerism with its type.
CO.2	Acquire knowledge about configurational and conformational isomerism with its effect on a stability of molecule, physical & chemical properties.
CO.3	Explain the different types of name reaction with its mechanism.
CO.4	Describe the nomenclature, classification, resonance, stability, synthesis method and reaction of heterocyclic compound.
CO.5	Know the medicinal uses and other applications of heterocyclic compound.
Medicinal Chemistry -I [Theory Regular]	
CO ID.	Course Outcome

CO1	CO1 know the Structural Activity Relationship (SAR) & mechanism of action of different class of drugs
CO2	CO2 Discuss the Classification, Structures, IUPAC Names & therapeutic uses of drugs
CO3	CO3 understand the Physicochemical properties, drug metabolic pathways, biosynthesis & adverse effect of drugs.
CO 4	CO 4 write the chemical synthesis of some drugs.
Medicinal Chemistry -I [Practical Regular]	
CO ID.	Course Outcome
CO1	Carry out the synthesis of heterocyclic compound
CO2	Perform the assay of different medicinal drug.
CO3	. Understand the process of partition coefficient and determine the partition coefficient of any two pharmaceutical drugs.
Physical Pharmaceutics-II [Practical Regular]	
CO ID.	Course Outcome
BP407.1	Understand physico chemical properties of powders, their flow properties, bulk density, true density and porosity.
BP407.2	Able to determine angle of repose, viscosity of liquids with its effect of lubricant, and viscosity of semisolids.
BP407.3	Know the sedimentation volume and effect of concentration on suspending agents
BP407.4	Understand the principles of accelerated stability studies
Pharmacology-I [Practical Regular]	
CO ID.	Course Outcome
CO1	Understand the basics of experimental pharmacology.
CO2	Describe the blood withdrawal techniques and routes of drug administration in experimental animals.
CO3	Write the effect of drugs on animals by simulated experiments.
405 Pharmacognosy & Phytochemistry -I [Theory Regular]	
CO ID.	Course Outcome
co1	Define Pharmacognosy and History its scope with different terms related to drugs from natural origin. development of pharmacognosy
co2	Describe the techniques in the cultivation, processing, storage and production of crude drugs of natural origin
Co3	Describe fundamental aspects of plant tissue culture
Co4	Describe different types of secondary metabolites, their general properties, classification, and their test for identification
Co5	Describe the sources, chemical constituents and uses of plants products containing plant fibers, hallucinogens teratogens, and natural allergens
Co6	Describe the pharmacognosy and chemistry of primary metabolites (carbohydrates, lipids, proteins) and elaborate on their sources
Co7	Describe novel medicinal agents from marine sources
Co8	Describe the role of Pharmacognosy in allopathy and traditional system of medicine
405 Pharmacognosy & Phytochemistry -I [Practical Regular]	
CO ID.	Course Outcome
Co1	To evaluate the crude drugs by quantitative evaluation methods.
Co2	To evaluate the crude drugs by physical methods of evaluation
Co3	To evaluate the crude drugs by chemical methods of evaluation.
Co4	To remember different morphological and microscopical characteristic features of crude drugs
Co5	To understand the cellular structure of crude drugs.
BP104T Pharmacology-I [Theory Regular]	
CO ID.	Course Outcome
CO1	Know basics of pharmacology like history, scope & general principles.
CO3	Upon completion of this course the student should be able to: Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels.

CO2	Classify the various routes of administration with advantages and disadvantages
CO4	Understand the process of new drug discovery and development of drug.
CO5	Understand the basics of pharmacokinetic and pharmacodynamics
CO6	Upon completion of this course the student should be able toApply the basic pharmacological knowledge in the prevention and treatment of various diseases.
BP302T Physical Pharmaceutics-II [Theory Regular]	
CO ID.	Course Outcome
CO1	Understand various physicochemical properties of drug molecules of colloids
CO2	Gain detail knowledge of Rheology and Deformation of solids
CO3	Understand the concept of Suspension and Emulsion
CO4	Study the flow properties and powder characteristics in the formulation development and evaluation of dosage forms
CO5	Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
Six Semester	
Medicinal Chemistry-III [Theory Regular]	
CO ID.	Course Outcome
BP601T.1	CO.1Understand drug discovery concept, physico-chemical properties, structure, IUPAC name of Antibiotics, Antifungals agents, Anti-tubercular Agents,Antiviral agents
BP601T.2	CO.2 Chemical classification of each class of a drug mentioned in syllabus
BP601T.3	CO.3 Know the structural activity relationship of different class of drugs
BP601T.4	CO 4.Describe the synthetic layout of essential drug mention in syllabus.
Pharmacology-III [Theory Regular]	
CO ID.	Course Outcome
CO1	Discuss the pharmacology of drugs acting on Respiratory system and GIT.
CO2	Understand the various principles of chemotherapy
CO3	Understand the mechanism of drug action and its relevance in the treatment ofdifferent infectious diseases
CO4	Comprehend the principles of toxicology and treatment of various poisonings
CO5	Understand the concept of Immunopharmacology and Chronopharmacology
Pharmaceutical Biotechnology [Theory Regular]	
CO ID.	Course Outcome
CO1	Understand, recall and acquire the historical development, detail knowledge, fundamentals, different technologies and products based on biotechnology.
CO2	Aspects of traditional and modern biotechnology viz. Fermentation technology and Recombinant DNA technology relating the biotechnological aspects to health, and disease; Production of bio-pharmaceuticals and immunological products.
CO4	Employ the knowledge in to genetic and recombination technology and microbial transformation in industrial biotechnology.current applications of biotechnology and advances in the different areas like medical, microbial, environmental, bio-remediation, agricultural, plant, animal, and forensic.
CO3	understand and acquire detail knowledge of various antigen-antibody reactions with their application, mechanism of cell mediated immunity & humoral immunity, gene cloning, hyridoma technology & DNA fingerprinting with their applications.Biological revolutions in diagnosis, prevention and cure of diseases, new and cheaper pharmaceutical drugs production by using Cell biology and cell culture principles of biotechnology.
CO5	understand in detail about Microbial genetics, gene cloning, hyridoma technology & DNA fingerprinting with their applications; Acquire knowledge about fermentor, fermentation process & their application in pharmaceutical sciences.Appreciate the use of different kinds of enzymes and microorganisms in biotechnology in relation to production of pharmaceuticals.
Quality Assurance [Theory Regular]	
CO ID.	Course Outcome
CO1	BP606T.1 understand the cGMP aspects in a pharmaceutical industry
CO2	BP606T.2 appreciate the importance of documentation

CO3	BP606T.3 understand the scope of quality certifications applicable to pharmaceutical industries
CO4	BP606T.4 understand the responsibilities of QA & QC departments
CO5	BP606T.5 Illustrate the concept of calibration, validation & quality management
Medicinal Chemistry- III [Practical Regular]	
CO ID.	Course Outcome
BP601P.1	Study the reaction mechanism of synthetic drug molecule along with their mode of action.
BP601.2	Understand the various Computers aided techniques in relation with drug design.
BP601.3	Assay of drugs mentioned in syllabus
Pharmacology-III [Practical Regular]	
CO ID.	Course Outcome
CO 1	Understand the effect of drugs on animal models by using simulated experiments or videos
CO 2	Acquire the knowledge of serum biochemical parameters, pharmacokinetic parameters, and various toxicity studies
CO 3	Understand the use of Bio-statistical method in experimental pharmacology
BP 604 T Biopharmaceutics & Pharmacokinetics [Theory Regular]	
CO ID.	Course Outcome
CO 1	Upon completion of the course student shall be able to: Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance
CO 2	Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
CO 3	To understand the concepts of bioavailability and bioequivalence of drug products and their significance.
CO 4	Understand various pharmacokinetic parameters, their significance & applications.
BP 609 P Herbal Drug Technology [Practical Regular]	
CO ID.	Course Outcome
CO1	The students are able to perform preliminary phytochemical screening, evaluation, and monograph of herbal drugs.
CO2	The students are able to prepare and standardize herbal formulations.
CO3	The students are able to determine aldehyde content, phenol content, total alkaloid content, and alcohol content of Asava and Arista.
BP205 T Herbal Drug Technology [Theory Regular]	
CO ID.	Course Outcome
CO 1	Students should be able to understand raw material as source of herbal drugs from cultivation to herbal drug product.
CO 2	Students should be able to know the WHO and ICH guidelines for evaluation for evaluation of herbal drugs.
CO 3	Students should be able to know the herbal cosmetics, natural sweeteners, nutraceuticals.
CO 4	Students should be able to appreciate patenting of herbal drugs, GMP.
Eight Semester	
Social & Preventive Pharmacy [Theory Regular]	
CO ID.	Course Outcome
CO2	After the successful completion of this course, the student shall be able to: Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide.
CO1	Upon completion of course student should be able to understand the concept of Disease and health
CO3	After the successful completion of this course, the student shall be able to: Have a critical way of thinking based on current healthcare development.
CO4	After the successful completion of this course, the student shall be able to: Evaluate alternative ways of solving problems related to health and pharmaceutical issues
CO5	After the successful completion of this course, the student shall be able to: know the various national health program rural and urban development.

Project Work [Practical Regular]	
CO ID.	Course Outcome
CO1	Generate the topic for the project
CO2	Collect the information from the relevant sources
CO3	Focus on the objective of the project work related to pharmacy elective subject
CO4	Learn to acquire knowledge of methodology of work
CO5	able to perform project in team work, conclude results and discussion and Prepare the presentation and explain it to the audience.
BP801T Biostatistics & Research Methodology [Theory Regular]	
CO ID.	Course Outcome
CO1	Define the principal concepts about biostatistics, frequency distribution, correlation and dispersion.
CO2	Understand the concepts of regression, probability and various parametric tests.
CO3	Discuss different methodologies and techniques used in research work.
CO4	To familiarize students with Statistical packages such as SPSS/EXCEL.
CO5	Discuss different methodologies and techniques used in design and analysis of experiment.
BP804ET Pharmaceutical Regulatory Science [Theory Regular]	
CO ID.	Course Outcome
CO1	Know about the process of drug discovery and development.
CO2	Understand the concept of preclinical and clinical testing.
CO3	Understand the concept of generic drug development.
CO4	Understand the format, content and approval processes involved in Investigational New Drug Application(IND), New Drug Application(NDA), Abbreviated New Drug Application(ANDA).
CO5	Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals.
CO6	Know the regulatory approval process and their registration procedure for drug products in different countries.
CO7	Learn and discuss technical documentation.
CO8	Learn the procedure for export of pharmaceutical products and registration of Indian drug products in overseas market
CO9	Explain basic understanding of clinical trials and developing clinical trial protocol, importance of pharmacovigilance.
CO10	Know the good clinical practice obligations of sponsor, investigator, monitor and monitoring process.
CO11	Understand the basic terminologies used in regulatory concepts.
CO12	Learn the importance of Orange book and Purple book.
CO13	Explain the importance of Code of Federal Regulations.
BP811ET Advanced Instrumentation Techniques [Theory Regular]	
CO ID.	Course Outcome
CO1	Students must understand the advanced instruments used and its applications in drug analysis.
CO2	Students must learn about Calibration and validation of various analytical instruments.
CO3	Students must know about various extraction and separation techniques.
CO4	Students must learn how to analyse drugs using various analytical instruments.
CO5	Students must study and understand different Hyphenated Techniques.