B.PHARMACY 1st SEMESTER COURSEOUTCOMES	
Course Code: BP101T	Course Name: Human Anatomy and Physiology - I (Theory)
BP101.1	To recognize the various homeostatic mechanisms, basic anatomical terms and cellular level organization.
BP101.2	To summarize the characteristics of different types of tissues and their location in various organs
BP101.3	To organize the structure and functions of skin, bones and joints of human body.
BP101.4	To analyze the importance of blood, lymphatic system and immunity in human body.
BP101.5	To relate the physiology of sympathetic, parasympathetic, spinal/cranial nerves and organization of special senses.
BP101.6	To adapt the anatomy and physiology of heart and blood vessels.
Course Code: BP102T	Course Name: Pharmaceutical Analysis – I (Theory)
BP102.1	To understand the principles of volumetric/gravimetric and gasometric analytical techniques
BP102.2	To gain knowledge of sources of errors and minimizing techniques.
BP102.3	To analyze the techniques of volumetric, gravimetric and gas analysis.
BP102.4	To explain about accuracy, precision and significant figure error concepts.
BP102.5	To compute analytical results and understand the physiochemical concepts of analysis, theories of acids and bases, stoichiometry etc.,
BP102.6	To analyze various electro chemical titrations.
Course Code: BP103T	Course Name: Pharmaceutics – I (Theory)
BP103.1	To know the historical background and profession of pharmacy and basics of pharmaceutical dosage forms.
BP103.2	To understand the importance of prescription and posology.
BP103.3	To solve pharmaceutical calculations and understand the formulation of powders and liquid dosage forms.
BP103.4	To develop monophasic and biphasic liquid dosage forms.
BP103.5	To explain the concepts of suppositories and pharmaceutical incompatibilities.
BP103.6	To formulate and evaluate semi solid dosage forms.
Course Code: BP104T	Course Name: Pharmaceutical Inorganic Chemistry (Theory)
BP104.1	To understand the history and concept of pharmacopoeia and its editions.
BP104.2	To know the sources of impurities and methods to determine the impurities in inorganic pharmaceuticals.
BP104.3	To gain knowledge on limit tests of different pharmaceutical inorganic compounds.
BP104.4	To understand the method to prepare inorganic pharmaceuticals.
BP104.5	To justify the medicinal importance of acidifiers, antacids, cathartics and antimicrobial agents as gastrointestinal agents.
BP104.6	To discuss the handling and applications of radiopharmaceuticals.
Course Code: BP105T	Course Name: Communication Skills (Theory)
BP105.1	To understand the behavioral needs for a pharmacist to function effectively in the areas of pharmaceutical operation.
BP105.2	To communicate effectively (Verbal and Non Verbal).
BP105.3	To effectively manage the team as a team player.
BP105.4	To understand Do's and Don'ts of an interview.
BP105.5	To analyze and apply communication skills and other interpersonal skills.
BP105.6	To develop Leadership qualities and essentials.

Course Code: BP106RBT	Course Name: Remedial Biology (Theory)
BP106.1	To understand the characters of living organisms and classification of kingdoms
BP106.2	To develop basic knowledge on morphology and functions of various plant parts such as root, stem, leaf, flower, fruit and seed.
BP106.3	To analyze functions of organs in the cardiovascular, digestive and respiratory systems of human body
BP106.4	To assess the physiology of brain and spinal cord, and role of kidney in regulation of body fluids
BP106.5	To determine role of hormones in regulation of various organs functioning in the body and process of oogenesis and spermatogenesis.
BP106.6	To elaborate the physiology, nutrient requirements for plants and to predict plant/animal tissues.
Course Code: BP106RMT	Course Name: Remedial Mathematics (Theory)
BP106.1	To understand the role of mathematics in pharmacy.
BP106.2	To know about theory and their application in pharmacy.
BP106.3	To relate the mathematical tools in the wide professional views and solve problems of trigonometry, calculus and matrices.
BP106.4	To solve the different types of problems by applying theory.
BP106.5	To adopt both conventional and creative techniques to the solutions of mathematical problems.
BP106.6	Apply a range of techniques effectively to solve problems including theory deduction, approximation and simulation.
Course Code: BP107P	Course Name: Human Anatomy and Physiology - I (Practical)
BP107.1	To recall handling of compound microscope and to memorize various animal tissues.
BP107.2	To summarize the characteristics of different bones (skeletal system).
BP107.3	To identify the bleeding/clotting time and blood group.
BP107.4	To analyze the blood cells using heamocytometry.
BP107.5	To estimate the hemoglobin concentration of human blood and blood pressure.
BP107.6	To predict the erythrocyte sedimentation rate of human blood and heart rate/ pulse rate.
Course Code: BP108P	Course Name: Pharmaceutical Analysis – I (Practical)
BP108.1	To understand the importance of calibration, calibration of weights, pipette and burette.
BP108.2	To demonstrate standardization of solutions with different strengths.
BP108.3	To experiment with volumetric analysis such as acidimetry and alkalimetry, oxidation and reduction reactions, iodometry, complexometry, precipitation and non-aqueous titration.
BP108.4	To analyze gravimetric analytical techniques.
BP108.5	To evaluate pharmaceuticals by cerimetry.
BP108.6	To analyze pharmaceuticals by electro-analytical methods.
Course Code: BP109P	Course Name: Pharmaceutics – I (Practical)
BP109.1	To recall the principles used in the preparation of solid, liquid and semi solid dosage forms.
BP109.2	To experiment with monophasic liquid dosage forms for internal and external administration.
BP109.3	To prepare biphasic liquid dosage forms.
BP109.4	To design powders and granules.
BP109.5	To develop semi solid dosage forms.
BP109.6	To formulate suppositories.
Course Code: BP110P	Course Name: Pharmaceutical Inorganic Chemistry (Practical)
BP110.1	To recall the sources of limit tests, preparation and identification of compounds.
BP110.2	To demonstrate the preparation of inorganic pharmaceuticals.
BP110.3	To apply knowledge to perform modified limit tests.
BP110.4	To analyze various inorganic pharmaceutical compounds.
BP110.5	To select suitable method for the preparation of inorganic pharmaceuticals.
BP110.6	To assess quality of inorganic pharmaceuticals.

Course Code: BP111P	Course Name: Communication Skills (Practical)
BP111.1	To understand the behavioral needs for a pharmacist to function effectively in the areas of pharmaceutical operation.
BP111.2	To apply the practical skills for effective communication (Verbal and Non verbal).
BP111.3	To distinguish pronunciation of vowel and consonant sounds.
BP111.4	To take part in advanced learning on comprehension/direct andindirect speech.
BP111.5	To develop the interview handling skills.
BP111.6	To improve in email etiquette.
Course Code: BP112RBP	Course Name: Remedial Biology (Practical)
BP112.1	To know the handling of microscope and permanent slide preparation techniques.
BP112.2	To understand the structure of cell and its inclusions.
BP112.3	To identify various plant parts, and to organize their modifications
BP112.4	To categorize the physiology of frog by using computer models
BP112.5	To assessthe microscopical study and identification of tissues pertinent to stem, root, leaf, seed, fruit and flower.
BP112.6	To compile the bones identification, blood group, blood pressure and tidal volume determination.

B.PHARMACY 2nd SEMESTER COURSEOUTCOMES	
Course Code: BP201T	Course Name: Human Anatomy and Physiology – II (Theory)
BP201.1	To relate the basic knowledge about central nervous system including nervous tissue, brain and spinal cord.
BP201.2	To illustrate the structure and functions of gastrointestinal tract and to learn about ATP/CTP/BMR.
BP201.3	To learn about structure and functions of respiratory system and various mechanisms involved in regulation of respiration.
BP201.4	To categorize the anatomy of urinary system and physiology of urine formation /micturition.
BP201.5	To appraise the essentiality of endocrine glands and their hormones.
BP201.6	To predict the physiology of male and female reproductive organs and concepts of genetics.
Course Code: BP202T	Course Name: Pharmaceutical organic Chemistry – I (Theory)
BP202.1	To explain the nomenclature, properties, reactions and uses of organic compounds.
BP202.2	To remember the orientation of reactions and influence products.
BP202.3	To apply the knowledge for the identification of organic compounds.
BP202.4	To discuss chemistry and reactions of various organic compounds.
BP202.5	To elaborate the concepts of hybridization, electronic and steric effects of organic compounds.
BP202.6	To appraise the applications of pharmaceutical organic compounds.
Course Code: BP203T	Course Name: Biochemistry (Theory)
BP203.1	To remember the properties, significance and metabolic reactions of carbohydrates, lipids, nucleic acids, proteins and amino acids
BP203.2	To understand the metabolism of carbohydrates and process of electron transport and ATP formation
BP203.3	To apply the concept of catalytic activity and enzyme inhibition in design of new drugs, diagnostic and therapeutic applications of enzyme
BP203.4	To distinguish the process of DNA replication, transcription and translation
BP203.5	To appraise the causes, manifestations and diagnosis of metabolic disorders
BP203.6	To discuss the metabolism of nucleic acids, lipids and amino acids
Course Code: BP204T	Course Name: Pathophysiology (Theory)
BP204.1	To understand the process of cell injury, morphology of cell injury and cellular adaptations.
BP204.2	To understand the etiopathogenesis of cardiovascular, respiratory and renal diseases mentioned.
BP204.3	To apply the principles of pathogenesis in understanding symptoms, signs and complications of disease states mentioned.
BP204.4	To explain the etiopathogenesis of hematologic, endocrine, nervous, gastrointestinal, musculo skeletol diseases and Immunopathogenesis of infectious diseases.
BP204.5	To appraise the principles of physical, chemical and biologic carcinogenesis.
BP204.6	To adapt the principles of inflammation in understanding pathogenesis of various disease states.
Course Code: BP205T	Course Name: Computer Applications in Pharmacy (Theory)
BP205.1	To understand different types of databases, applications of computers and databases in pharmacy.
BP205.2	To illustrate the concept of number system in computers.
BP205.3	To make use of web technologies such as HTML, XML, CSS, programming languages, Web servers and pharmacy drug database.
BP205.4	To appraise the applications of computers in pharmacy such as drug information services, pharmacokinetics, mathematical model in drug design, hospital and clinical pharmacy etc.,
BP205.5	To explain about bioinformatics and its impact in vaccine discovery.
BP205.6	To elaborate the applications of computers for data analysis in preclinical development.

Course Code: BP206T	Course Name: Environmental Studies (Theory)
BP206.1	To extend basic knowledge on environment and its allied problems.
BP206.2	To compare the natural, renewable and non renewable resources and the problems associated with them.
BP206.3	To motivate the learners to participate in environment protection and improvement.
BP206.4	To analyze the concepts of eco system including structure and functions.
BP206.5	To adopt skills in identifying and solving environmental problems.
BP206.6	To develop an attitude of concern for the environment.
Course Code: BP207P	Course Name: Human Anatomy and Physiology – II (Practical)
BP207.1	To recall the physiology of special senses with the help of models, charts and specimens.
BP207.2	To develop the knowledge on coordinating working of organs of various systems with the help of models, charts and specimens.
BP207.3	To analyze the functions of cranial nerves by various sensory and motor functions.
BP207.4	To evaluate body temperature and body mass index.
BP207.5	To determine tidal volume and vital capacity.
BP207.6	To assess the knowledge on family planning devices, pregnancy diagnostic tests, tissues of vital organs and gonads.
Course Code: BP208P	Course Name: Pharmaceutical Organic Chemistry – I (Practical)
BP208.1	To explain the qualitative analysis and preparation of pharmaceutical organic compounds.
BP208.2	To identify the extra elements present in the pharmaceutical organic compounds.
BP208.3	To find the presence of several functional groups in pharmaceutical compounds.
BP208.4	To appraise the rules concerned with reactivity and orientation of organic compounds.
BP208.5	To analyze unknown pharmaceutical organic compounds by determining their melting point/boiling point.
BP208.6	To prepare and characterize the derivatives of organic compounds.
Course Code: BP209P	Course Name: Biochemistry (Practical)
BP209.1	To remember the qualitative analysis of carbohydrates and proteins
BP209.2	To understand the principle and clinical significance of blood glucose
BP209.3	To identify the amount of reducing sugars by DNSA method
BP209.4	To examine the constituents present in Urine and their clinical significance
BP209.5	To determine the effect of temperature and substrate concentration on salivary amylase activity
BP209.6	To elaborate the clinical significance of creatinine, proteins and cholesterol in blood
Course Code: BP210P	Course Name: Computer Applications in Pharmacy (Practical)
BP210.1	To demonstrate and make use of MS Office, MS Word, MS Excel, MS Access and MS Power point.
BP210.2	To understand the paradigms of program languages and be exposed to at least one language from each model, C and SQL.
BP210.3	To summarize the report and printing the report from patient database
BP210.4	To design a questionnaire using a word processing package to gather information about a particular disease.
BP210.5	To create HTML web page to show personal information
BP210.6	To create mailing labels Using Label Wizard , generating label in MS WORD

B.PHARMACY 3rd SEMESTER COURSEOUTCOMES	
Course Code: BP301T	Course Name: Pharmaceutical Organic Chemistry – II (Theory)
BP301.1	To understand about aromaticity, chemistry and reactions of benzene.
BP301.2	To understand the concept of hydrolysis, hydrogenation, saponification and rancidity of oils.
BP301.3	To gain knowledge on structure and medicinal uses of pharmaceutical organic compounds.
BP301.4	To understand the concept of Baeyer's theory and Sachse Mohr's theory.
BP301.5	To gain knowledge on chemistry of phenols, aromatic amines and aromatic acids.
BP301.6	To estimate the analytical constants of fats and oils.
Course Code: BP302T	Course Name: Physical Pharmaceutics – I (Theory)
BP302.1	To recollect the states of matter and understand the applications of various physiochemical properties to design dosage forms.
BP302.2	To gain knowledge of pH and buffers and their use in the stabilization of pharmaceutical formulations.
BP302.3	To understand the principle of interfacial tension and the applications of surface active agents in drug solubilization.
BP302.4	To describe the principles of diffusion in biological systems.
BP302.5	To perceive and apply the concepts of complexation and protein binding in pharmacy.
BP302.6	To elaborate the significance of physical properties of drug molecules in design and stability of dosage forms.
Course Code: BP303T	Course Name: Pharmaceutical Microbiology (Theory)
BP303.1	To remember the scope of microbiology and its branches, methods of classification.
BP303.2	To understand the importance and implementation of sterilization in pharmaceutical processing and industry.
BP303.3	To utilize the knowledge in identification, cultivation and preservation of various microorganisms.
BP303.4	To test for the microbiological standardization of pharmaceuticals.
BP303.5	To choose the cell culture technology and microbial characters for the pharmaceutical industry.
BP303.6	To compile the microbiological testing protocols.
Course Code: BP304T	Course Name: Pharmaceutical Engineering (Theory)
BP304.1	To classify and explain various unit operations involved in manufacturing of pharmaceuticals.
BP304.2	To understand the concepts of flow of fluids, size reduction and size separation.
BP304.3	To summarize different mechanisms of heat transfer.
BP304.4	To compare and contrast different types of evaporation and distillation process.
BP304.5	To determine the factors influencing mixing, filtration and centrifugation.
BP304.6	To elaborate various preventive methods used for corrosion control in pharmaceutical industries.
Course Code: BP305P	Course Name: Pharmaceutical Organic Chemistry – II (Practical)
BP305.1	To gain the knowledge on different recrystalization and steam distillation techniques.
BP305.2	To remember and recall the different laboratory techniques used in pharmaceutical chemistry.
BP305.3	To identify the purity of fats and oils by acid value, saponification value and iodine value.
BP305.4	To perform various reaction like diazotization, oxidation reactions.
BP305.5	To analyze named reactions like perkin and claisen schmidt reactions by using carbonyl compounds.
BP305.6	To test the knowledge on different electrophilic aromatic substitutions reactions like bromination, nitration in monosubstituted aromatic compounds.

Course Code: BP306P	Course Name: Physical Pharmaceutics – I (Practical)
BP306.1	To understand the significance of physical properties such as solubility, surface tension, partition coefficient and pKa in the design of dosage forms.
BP306.2	To explain adsorption isotherms and determine Freundlich-Langmuir constant using activated charcoal.
BP306.3	To apply Henderson – Hasselbalch equation for interpretation of pKa value of drugs.
BP306.4	To determine the surface tension of sample liquids by drop count and drop weight methods
BP306.5	To deduce the HLB value and critical micellar concentration of a surfactant.
BP306.6	To estimate the stability constants of complexes by solubility and pH titration methods.
Course Code: BP307P	Course Name: Pharmaceutical Microbiology (Practical)
BP307.1	To recall different techniques of sterilization.
BP307.2	To demonstrate various staining methods – simple, gram staining and acid fast staining.
BP307.3	To interpret the results of microbial testing.
BP307.4	To test for possible microbial contaminants.
BP307.5	To estimate the amount of biomass in the given sample.
BP307.6	To choose the correct method to evaluate the microbes to be tested.
Course Code: BP308P	Course Name: Pharmaceutical Engineering (Practical)
BP308.1	To understand the basic principles involved in unit operations such as size reduction, size separation, distillation and drying.
BP308.2	To demonstrate and explain about the construction, working and applications of pharmaceutical equipments such as colloid mill, planetary mixer, fluidized bed dryer and freeze dryer.
BP308.3	To experiment with the process variables of filtration, evaporation and infer the same.
BP308.4	To determine radiation constant of brass, iron, unpainted and painted glass.
BP308.5	To determine overall heat transfer coefficient by heat exchanger and calculate the efficiency of steam distillation.
BP308.6	To estimate moisture content, loss on drying and construct drying curves for calcium carbonate and starch.

B.PHARMACY 4th SEMESTER COURSE OUTCOMES	
Course Code: BP401T	Course Name: Pharmaceutical Organic Chemistry – III (Theory)
BP401.1	To understand the nomenclature, properties and methods of preparation of heterocyclic compounds.
BP401.2	To understand the fundamentals of stereo chemical aspects.
BP401.3	To identify medicinal uses and other applications of organic compounds.
BP401.4	To explain stereo isomerism in biphenyl compounds (atropisomerism) and conditions for optical activity.
BP401.5	To elaborate the reactions and synthetic importance of metal hydride reduction (NaBH4 & LiAlH4), Clemmensen reduction, Oppenauer oxidation and Beckmann rearrangement.
BP401.6	To discuss optical isomerism-optical activity, enantiomerism, diastereoisomerism and meso compounds.
Course Code: BP402T	Course Name: Medicinal Chemistry – I (Theory);
BP402.1	To recall the various classes of medicinal compounds
BP402.2	To explain the physicochemical properties, steric aspects of drugs and their metabolic pathways
BP402.3	To identify the structural requirements of drugs to elicit biological response
BP402.4	To categorize the drugs based on their mechanism of action and clinical uses
BP402.5	To design the synthetic routes for medicinal compounds.
BP402.6	To choose the appropriate medicinal compound for treatment of disease or disorder
Course Code: BP403T	Course Name: Physical Pharmaceutics – II (Theory)
BP403.1	To introduce and categorize the dispersed systems and understand the properties and applications of colloidal dispersions.
BP403.2	To make the use of principles of kinetics in the stabilization of dosage forms.
BP403.3	To interpret the rheological behavior of fluids and illustrate the physics of tablet compression.
BP403.4	To determine the properties of powders and apply them in formulation development.
BP403.5	To formulate and evaluate coarse dispersions making use of rheological and electrical properties.
BP403.6	To discuss the importance of zeta potential in the stabilization of dispersed systems.
Course Code: BP404T	Course Name: Pharmacology – I (Theory)
BP404.1	To define the fundamental concepts of pharmacology and pharmacokinetics.
BP404.2	To understand the basics of pharmacodynamics, adverse reactions, drug interactions and drug discovery
BP404.3	To identify the role of neurohumoral transmission and drugs acting on peripheral nervous system.
BP404.4	To analyze the functions of neurotransmitters and drugs acting on central nervous system.
BP404.5	To appraise the pharmacology of Psychopharmacological agents.
BP404.6	To predict the effects of drugs against neurodegenerative disorders and to elaborate the concepts of drug addiction/abuse/tolerance/ dependence
Course Code: BP405T	Course Name: Pharmacognosy and Phytochemistry – I (Theory)
BP405.1	To recall the history, scope and development of pharmacognosy.
BP405.2	To remember different sources of crude drugs and also classify them accordingly.
BP405.3	To illustrate students about cultivation, collection, processing and storage of crude drugs.
BP405.4	To plan systematic pharmacognostic study of primary metabolites, ayurvedic drugs, marine drugs and teratogens.
BP405.5	To analyze quality of crude drugs.
BP405.6	To elaborate the applications of advanced technologies like polyploidy, mutation and hybridization in medicinal plants.

B.PHARMACY 5th SEMESTER COURSE OUTCOMES	
Course Code: BP501T	Course Name: Medical Chemistry-II (Theory)
BP501.1	To recall the classification of drugs obtained by natural and synthetic route
BP501.2	To explain the biological targets for medicinal compounds
BP501.3	To apply the knowledge of biochemical processes to understand the mechanism of action and therapeutic uses of drugs
BP501.4	To understand the relationships between structure of compound and its activity
BP501.5	To choose the synthetic route for selected category of drugs
BP501.6	To discuss the significance, advantages and limitations of drugs
Course Code: BP502T	Course Name: Industrial Pharmacy-I (Theory)
BP502.1	To outline the objectives and applications of preformulation studies in the development and stability of dosage forms.
BP502.2	To discuss the formulation, manufacturing, coating and quality control tests of tablets.
BP502.3	To review the formulation and manufacturing considerations of liquid orals.
BP502.4	To illustrate the pharmaceutical aspects of capsules and pellets.
BP502.5	To describe the preparation and quality control of parenterals and ophthalmic preparations.
BP502.6	To summarize formulation, manufacturing and evaluation of cosmetic preparations, pharmaceutical aerosols and appraise the science of packaging materials.
Course Code: BP503T	Course Name: Pharmacology-II (Theory)
BP503.1	To relate the relative pros and cons in the use of drugs for various cardiac complications.
BP503.2	To illustrate the drugs acting on hematopoietic system, shock diuretics and anti-diuretics.
BP503.3	To identify the role of autocoids and related drugs.
BP503.4	To analyze and summarize the drugs acting on endocrine system.
BP503.5	To appraise the physiological role of sex hormones and to assess the effects of oral contraceptives and drugs acting on the uterus.
BP503.6	To predict principles of bioassay and to construct the bioassay methods of various compounds.
Course Code: BP504T	**Course Name :** Pharmacognosy and Phytochemistry-II (Theory)
BP504.1	To outline the metabolic pathway in higher plants and their biogenetic studies.
BP504.2	To the pharmacognistic study of secondary metabolites like alkaloids, glycosides, tannins, volatile oils etc,
BP504.3	To demonstrate the different types and steps involved in isolation, identification and analysis of Phytoconstituents like terpenoids, glycosides, alkaloids and resins.
BP504.4	To plan the industrial production, estimation and utilization of Phytoconstituents.
BP504.5	To assess the crude drug by modern methods of extraction, spectroscopy, chromatography, isolation and purification.
Course Code: BP505T	**Course Name :** Pharmaceutical Jurisprudence (Theory)
BP505.1	To recall the pharmaceutical legislations, ethics, right to information, medical termination of pregnancy and intellectual property rights
BP505.2	To relate the significance of Drugs and cosmetics act 1940 and its rules 1945 in relation to import and manufacture of drugs
BP505.3	To apply the knowledge on schedules pertaining to Drugs and cosmetics act 1940 and its rules 1945 and also administration of the act and rules
BP505.4	To understand the functions of pharmacy councils and implementation of education regulations in pharmacy
BP505.5	To appraise the importance of medicinal and toilet preparations act and narcotic drugs and psychotropic substances act and rules
BP505.6	To discuss the salient features of drugs and magic remedies act, prevention of cruelty to animals act and drugs price control order
Course Code: BP506P	**Course Name :** Industrial Pharmacy-I (Practical)
BP 506.1	To interpret the preformulation studies on drugs.
BP 506.2	To explain the preparation, evaluation and coating of tablets.
BP 506.3	To illustrate the formulation and evaluation of capsules.
BP 506.4	To design parenteral and ophthalmic products.
BP 506.5	To describe the preparation of creams.
BP 506.6	To evaluate glass containers as per pharmacopeial specifications.

Course Code: BP507P	**Course Name :** Pharmacology-II (Practical)
BP507.1	To learn the importance of physiological salt solutions and to identify the effect of various drugs on isolated frog heart, blood pressure and heart rate of dog.
BP507.2	To illustrate the diuretic activity of drugs in mice/rats
BP507.3	To identify the dose response relationship, effect of drugs on DRC and to construct the drug concentrations by various bioassay methods using animal simulator software.
BP507.4	To categorize the PA_2 and PD_2 value of drugs using rat anococcygeus muscle and guinea pig ileum.
BP507.5	To interpret the effect of spasmogens and spasmolytics using rabbit jejunum.
BP507.6	To predict various screening models for analgesic and anti- inflammatory.
Course Code: BP508P	**Course Name :** Pharmacognosy and Phytochemistry-II (Practical)
BP508.1	To remember the wide variety of the crude drugs and their sources by morphological characteristics.
BP508.2	To identify the powder mixture and to report the types of adulterants and substituents present.
BP508.3	To analyze and evaluate the powdered crude drug samples by morphological and microscopical characteristics.
BP508.4	To isolate the drug from the given crude drug sample.
BP508.5	To predict the crude drug by performing chromatographic techniques.
BP508.1	To remember the wide variety of the crude drugs and their sources by morphological characteristics.

B.PHARMACY 6th SEMESTER COURSE OUTCOMES	
Course Code: BP601T	**Course Name :** Medicinal Chemistry – III (Theory)
BP601.1	To recall the classification and nomenclature of drugs of natural and synthetic origin
BP601.2	To explain the concept of prodrugs and their importance
BP601.3	To identify the mechanism of action and therapeutic uses of drugs
BP601.4	To understand the relationship between structure of compound and its biological activity
BP601.5	To choose the synthetic route for selected category of drugs
BP601.6	To discuss the approaches in drug design including QSAR, pharmacophore modeling, docking and combinatorial chemistry
Course Code: BP602T	**Course Name :** Pharmacology-III (Theory)
BP602.1	To list the drugs used in respiratory and gastrointestinal complications
BP602.2	To understand the principles of chemotherapy and illustrate the mechanism of action of antibiotics.
BP602.3	To explain and compare the mechanism of anti-mycobacterial, anti- fungal, anti-viral,
BP602.4	To analyze the chemotherapy of UTI's, STD's, anti-cancer drugs and to categorize the immunopharmacology.
BP602.5	To assess the various types of toxicity studies, principles of treatment of poisoning and management of various poisoned conditions.
BP602.6	To compile the biological clock and its significance leading to chronotherapy.
Course Code: BP603T	**Course Name :** Herbal Drug Technology (Theory)
BP603.1	To recall the fundamental concepts of herbal raw materials and biodynamic agriculture techniques
BP603.2	To understand the concept of neutraceuticals and herbal food interactions.
BP603.3	To apply the knowledge for evaluation and preparation of herbal formulations.
BP603.4	To remember the regulatory guidelines for the assessment of herbal drugs and patenting.
BP603.5	To illustrate the scope and future prospects of the herbal drug industry.
BP603.6	To establish and follow the SOP's, infrastructure of industries as per GMP
Course Code: BP604T	**Course Name :** Biopharmaceutics and Pharmacokinetics (Theory)
BP604.1	To recall and understand basic concepts of absorption, distribution, metabolism and excretion of drugs.
BP604.2	To understand the mechanisms, interpret various factors affecting drug absorption, distribution, metabolism and excretion of drugs.
BP604.3	To utilize the pharmacokinetic models for the determination of pharmacokinetic parameters.
BP604.4	To analyze the bioavailability of a drug and to compare the bioequivalence between drug products.
BP604.5	To evaluate various pharmacokinetic parameters for the drugs exhibiting saturation kinetics.
BP604.6	To design multiple dosage regimens based on pharmacokinetic parameters for maximizing patient compliance and therapeutic effectiveness.
Course Code: BP605T	**Course Name :** Pharmaceutical Biotechnology (Theory)
BP605.1	To remember the basic concepts of biotechnology with respect to enzyme technology, immunology, microbial technology, genetic engineering and protein engineering.
BP605.2	To understand the steps involved in development of biosensors, recombinant products and concepts of immunology.
BP605.3	To outline the production parameters important in pharmaceutical product development using principles of biotechnology.
BP605.4	To compare the genetic organization of different types of cells and to list detection methods at genomic level, gene transfer methods and mutagens.
BP605.5	To explain general requirements of fermentative production and biotechnological production of pharmaceuticals.
BP605.6	To elaborate on microbial genetics, biotransformation and various immunological products.

Course Code: BP606T	**Course Name :** Quality Assurance (Theory)
BP606.1	To remember the concepts of quality assurance, quality management and ICH guidelines.
BP606.2	To explain the ISO, NABL and QbD concepts in pharmaceutical industry.
BP606.3	To identify the organization and personnel responsibilities.
BP606.4	To analyze quality control parameters and good laboratory practices in pharmaceutical industry.
BP606.5	To evaluate the complaints and documents maintenance in industry with required regulatory guidelines.
BP606.6	To elaborate the calibration, validation procedures and good warehousing practices.
Course Code: BP607P	**Course Name :** Medicinal Chemistry-III (Practical)
BP607.1	To define and select the method for preparation of drugs and intermediates
BP607.2	To explain principle underlying the preparation of drugs
BP607.3	To choose the method for assay of drugs by quantitative analysis
BP607.4	To compare the advantages of microwave technique over conventional synthesis of drugs
BP607.5	To select the tools needed for drawing structures and reactions
BP607.6	To predict the relation between physicochemical properties and biological activity
Course Code: BP608P	**Course Name :** Pharmacology-III (Practical)
BP608.1	To recall the dose calculations in pharmacological experiments, and to relate the antiallergic activity / anti-ulcer activity in rat models.
BP608.2	To demonstrate of effect of drugs on gastrointestinal motility and the effect of agonist/antagonists on guinea pig ileum
BP608.3	To construct serum biochemical parameters by using semi auto analyzer.
BP608.4	To analyze effect of saline purgative on frog intestine, insulin hypoglycemic effect and test for pyrogens using rabbit method.
BP608.5	To evaluate acute oral toxicity (LD50), acute skin irritation / corrosion and acute eye irritation / corrosion of a test substance
BP608.6	To predict the pharmacokinetic parameters and adapt the biostatistics methods in experimental pharmacology.
Course Code: BP609P	**Course Name :** Herbal Drug Technology (Practical)
BP609.1	To remember different preliminary phytochemical screening of crude drugs
BP609.2	To evaluate the various herbal formulations
BP609.3	To apply monographic analysis of herbal drugs as per pharmacopoeias
BP609.4	To evaluate parameters such as aldehyde and phenol contents
BP609.5	To assess the total alkaloid content

B.PHARMACY 7th SEMESTER COURSE OUTCOMES	
Course Code: BP701T	**Course Name :** Instrumental Methods of Analysis (Theory)
BP701.1	To understand selected instrumental analytical techniques (spectroscopic and chromatographic methods) and differentiate with volumetric analysis.
BP701.2	To gain knowledge on interaction of EMR with matter and to build the analytical understanding at the level of atom, group and molecular structure of organic and inorganic compounds with different functional groups and their applications in pharmacy.
BP701.3	To maximize knowledge on characterization and estimation of ions by spectroscopical techniques
BP701.4	To simplify affinity of matter with stationary phase and mobile phase, physical and chemical properties of matter
BP701.5	To elaborate various principles, theory and instruments employed for the characterization and analysis of drugs.
BP701.6	To categorize different organic and inorganic compounds using suitable spectroscopic and chromatographic techniques.
Course Code: BP702T	**Course Name :** P Industrial Pharmacy-II (Theory)
BP702.1	To explains pilot plant scale up techniques and SUPAC guidelines.
BP702.2	To outline various aspects of technology transfer involved from R & D to productions.
BP702.3	To choose and to apply various responsibilities and regulatory requirements for drug approval.
BP702.4	To analyze and study various quality management systems in pharmacy field.
BP702.5	To determine the requirements and approval procedures for new drugs by Indian Regulatory.
BP702.6	To discuss about approval process and regulatory requirements for drug products.
Course Code: BP703T	**Course Name :** Pharmacy Practice (Theory)
BP703.1	To acquire the knowledge on organization of hospitals, various methods of distribution and hospital formulary in hospitals and apply it in the practice of pharmacy.
BP703.2	To outline the organization and structure of community pharmacy and to build ability to design and run own community pharmacy.
BP703.3	To demonstrate the knowledge of therapeutic drug monitoring, patient medication history interview and to apply the knowledge on assessment of drug related problems.
BP703.4	To categorize and evaluate the role of hospital pharmacist in pharmacy and therapeutic committee, drug information services, patient counseling, education and training programmes in hospitals.
BP703.5	To explain the principles of drug store management and inventory control methods during practice.
BP703.6	To interpret clinical laboratory tests of specific disease states to provide better patient centered service.
Course Code: BP704T	**Course Name :** Novel Drug Delivery Systems (Theory)
BP704.1	To understand and rationalize fundamentals and polymers used in the design of controlled drug delivery systems.
BP704.2	To outline the concepts of formulation and evaluation of oral, mucosal and implantable drug delivery system.
BP704.3	To develop and study oral, mucosal, dermal, pulmonary and Nasal drug delivery systems over conventional dosage forms for prolonged action.
BP704.4	To illustrate the principles and fundamentals of drug targeting in the design of site specific drug delivery system.
BP704.5	To study the importance of site specific drug delivery systems or devices for ocular and intra uterine routes
BP704.6	To predict the rate and maximize therapeutic compliance of site specific drug delivery systems by modifying conventional dosage forms.
Course Code: BP705P	**Course Name :** Instrumental Methods of Analysis (Practical)
BP705.1	To recall the principle involved in spectroscopy and importance of absorption maximum in the estimation of organic compounds.
BP705.2	To experiment with selected drugs by UV, Visible spectroscopy and flourimetry.
BP705.3	To estimate the amount of sodium and potassium ions by flame photometry
BP705.4	To characterize and quantify the organic compounds/amino acids/plant pigments by

	using various chromatographic and spectroscopical techniques.
BP705.5	To analyze the various organic compounds using nepheloturbidimetry.
BP705.6	To maximize the knowledge on integration and interpretation of chromatograms and spectra.
Course Code: BP706PS	**Course Name :** Practice School
BP706.1	To understand the importance of realistic learning through practice in various domains such as community pharmacy, drug testing and manufacturing, preclinical testing, clinical practice, patent filing, regulatory filing accounting, green audit and article writing.
BP706.2	To get familiarize with the aspects of realistic practice in the domain of interest.
BP706.3	To develop knowledge and skills related to practical learning in the domain of interest.
BP706.4	To analyze the problems encountered during realistic practice and make use of theoretical knowledge to resolve those problems.
BP706.5	To build up the ability to perform well in the domain of interest after becoming an employee/entrepreneur.
BP706.1	To understand the importance of realistic learning through practice in various domains such as community pharmacy, drug testing and manufacturing, preclinical testing, clinical practice, patent filing, regulatory filing accounting, green audit and article writing.

B.PHARMACY 8th SEMESTER COURSE OUTCOMES	
Course Code: BP801T	**Course Name :** Biostatistics and Research methodology (Theory)
BP801.1	To understand the basic aspects of statistics such as central tendency, dispersion and correlation.
BP801.2	To make use of regression and probability while analyzing data by statistical methods.
BP801.3	To explain the need of research, research designs and their applications and to explain methodological designs.
BP801.4	To assess the need of regression modeling and to build up the ability to use various statistical problems.
BP801.5	To elaborate design and analysis of experiments and response surface methodology.
BP801.6	To build the ability to perform various parametric and non-parametric statistical tests and to draw graphs and plots based on type of data.
Course Code: BP802T	**Course Name :** Social and Preventive Pharmacy (Theory)
BP802.1	To understand the concept of health and health education.
BP802.2	To create awareness about various preventive measures of stated communicable and non communicable diseases.
BP802.3	To apply the knowledge of national health programmes mentioned in real world to serve the society.
BP802.4	To elaborate various vaccines under national immunization programme and their schedule.
BP802.5	To demonstrate the impact of socio-cultural factors and urbanization on health.
BP802.6	To evaluate the health and pharmacy related problems in societal perspective.
Course Code: BP803ET	**Course Name :** Pharma Marketing Management (Theory)
BP803.1	To understand different concepts of marketing.
BP803.2	To identify marketing mix for pharmaceutical products.
BP803.3	To classify different types of sales promotion.
BP803.4	To examine pharmaceutical marketing channels.
BP803.5	To compare pricing of the pharmaceutical products.
BP803.6	To adapt to emerging concepts of marketing.
Course Code: BP804ET	**Course Name :** Pharmaceutical Regulatory Science (Theory)
BP804.1	To recall the concepts of Drug discovery, development process, clinical studies and generic drug product development.
BP804.2	To perceive the regulatory approval process and timelines for IND, NDA and ANDA and to know about changes to an approved NDA/ANDA.
BP804.3	To familiar with Regulatory authorities and agencies like India, USA, Europe, Australia, Japan and Canada.
BP804.4	To know the regulatory registration process of Indian drugs in overseas market which include to understand about technical documents like DMF, CTD, eCTD and ACTD.
BP804.5	To assimilate the process of clinical trials and pharmacovigilance as well as to understand obligations of GCP in clinical trials.
BP804.6	To understand the concepts of Regulatory science in pharmaceutical industry as well as to make use of regulatory guidelines, laws, acts, orange and purple book.
Course Code: BP805ET	**Course Name :** Pharmacovigilance (Theory)
BP805.1	To understand the history of pharmacoivigilance, adverse drug reactions and basic terminologies in Pharmacovigilance.
BP805.2	To make use of various drug disease classifications, drug dictionaries and drug information resources in pharmacovigilance.
BP805.3	To explain various methods of pharmacovigilance and communication process during ADR reporting.
BP805.4	To appraise safety data generation and ICH guidelines in pharmacovigilance.
BP805.5	To evaluate drug and vaccine safety in special population and to appraise the process of haemovigilance and materiovigilance.
BP805.6	To build the ability to report adverse drug reactions through various ADR reporting forms.

Course Code: BP806ET	**Course Name :** Quality Control and Standardization of Herbals (Theory)
BP806.1	To recall the WHO guidelines for the quality control of herbal drugs.
BP806.2	To illustrate and outline the quality assurance in traditional system of medicine including CGMP, GAP, GMP and GLP.
BP806.3	To compare the quality control parameters of drugs according to European union and ICH guidelines.
BP806.4	To make use of research guidelines for evaluation of safety and efficacy of herbal medicine.
BP806.5	To apply the knowledge of chromatography in standardization of herbal drugs and to perform the stability studies.
BP806.6	To improve the knowledge on regulatory issues for herbal medicine including GMP, WHO guidelines on safety monitoring of herbal medicine in Pharmacovigilance.
Course Code : BP807 ET	**Course Name :** Computer Aided Drug Design (Theory)
BP807.1	To recall the approaches in drug discovery, drug development, lead discovery based on metabolism and clinical observation and also analog based drug design
BP807.2	To explain the development, approaches of QSAR, importance and determination of physicochemical parameters
BP807.3	To make use of molecular modeling and virtual screening techniques
BP807.4	To apply the molecular docking techniques to examine the binding interactions of ligand with molecular targets
BP807.5	To explain the applications of bioinformatics, chemo informatics, ADME databases, chemical, biochemical and pharmaceutical databases relevant to drug design
BP807.6	To discuss the conformational analysis of molecules using molecular and quantum mechanics approach and also determine the global conformational minima
Course Code : BP808 ET	**Course Name :** Cell and Molecular Biology (Elective Subject)
BP808.1	To relate the basic structure, properties of cells (prokaryotic and eukaryotic) and cell membranes / cellular reproduction.
BP808.2	To illustrate DNA structure and functioning, RNA and protein synthesis (transcription/translation).
BP808.3	To organize protein structure, pathways, cellular processes and significance of protein synthesis.
BP808.4	To distinguish the science of genetics, transgenics, genomic and cell cycle analysis.
BP808.5	To interpret mitosis / meiosis, cellular activities and checkpoints.
BP808.6	To elaborate how cell communication occur and discuss mechanisms of receptors for cell signaling/signaling pathways/Protein kinase
Course Code : BP809 ET	**Course Name :** Cosmetic Science (Elective Subject)
BP809.1	To remember classification and historical evolution of cosmetics, cosmeceutical products, cosmetic excipients and recall the basic structure, functions and common problems associated with skin, hair and oral cavity.
BP809.2	To understand the principles of formulation and building blocks of various skin care products and hair care products.
BP809.3	To describe the role of herbs in cosmetics and analytical methods for cosmetics.
BP809.4	To evaluate various cosmetics using analytical instruments.
BP809.5	To apply the knowledge gained and develop cosmetics to solve problems associated with skin, hair and scalp.
Course Code: BP810 ET	**Course Name:** Pharmacological Screening Methods (Elective Subject)
BP810.1	To recall the CPCSEA/OECD guidelines for maintenance, breeding and conduct of experiments on laboratory animals and to demonstrate different laboratory/transgenic/ mutant animals, various routes of administration, techniques of blood collection and euthanasia.
BP810.2	To outline various preclinical screening models for diuretics, nootropics, antiasthmatics and drugs acting on CNS.
BP810.3	To construct preclinical screening models for drugs acting on ANS, eye and local anesthetics.
BP810.4	To analyze the preclinical screening models for drugs acting on CVS.
BP810.5	To appraise the preclinical screening models for drugs like antiulcer, antidiabetic and anticancer agents.

BP810.6	To compile research methodology and biostatistics
Course Code : BP811 ET	**Course Name :** Advanced Instrumentation Techniques (Elective Subject)
BP811.1	To understand the principle and procedure involved in selected instrumental analytical techniques (spectroscopy,chromatography and thermal methods)
BP811.2	To gain knowledge on interaction of EMR with matter and to build the analytical understanding at the level of atom, group and molecular structure of organic and inorganic compounds with different functional groups and their applications in pharmacy.
BP811.3	To maximize knowledge on characterization and estimation of drugs by spectroscopical and thermal techniques
BP811.4	To simplify the importance of calibration and validation of analytical instruments as per ICH and USFDA guidelines.
BP811.5	To elaborate various principles and procedure employed in radio immuno assay and extraction techniques.
BP811.6	To detail the principle, instrumentation and applications of hyphenated techniques.
Course Code : BP812 ET	**Course Name :** Dietary Supplements and Nutraceuticals (Elective Subject)
BP812.1	To define, classify and understand the functional foods, Nutraceuticals and dietary supplements.
BP812.2	To remember the sources, chemical nature, medicinal uses and health benefits of Nutraceuticals and functional foods.
BP812.3	To interprete the applications of phytochemicals as Nutraceuticals like sulfies, phytochemicals as Nutraceuticals like sulfides, polyphenolics, flavonoids, probiotics, Tocopherols, proteins, minerals etc.
BP812.4	To examine (to identify the damaging reactions of free radicals on tepids, carbohydrates. Proteins and nucleic acids. Role of functional foods in various disease conditions.
BP812.5	To analyse the role of dietary fibres and complex carbohydrates as functional food ingredients
BP812.6	To discuss the regulatory aspects, adultration of dietary fibres and Nutraceuticals and their pharmacopoeal specifications.
Course Code : BP813 PW	**Course Name :** Pharmaceutical Product Development (Elective course)
BP813.1	To recall the formulation development of different types of dosage forms
BP813.2	To outline the role of different pharmaceutical excipients in product development
BP813.3	To select the excipients for a specific drug products
BP813.4	To classify different of packaging for the drug product and materials used for primary and secondary packaging.
BP813.5	To choose optimization technique in the development of pharmaceutical drug product.
BP813.6	To design the drug product by using principles of Quality by Design