



# NRI COLLEGE OF PHARMACY

(Run by Sri DurgaMalleSwari Educational Society)

(Approved by AICTE & PCI - New Delhi : : Affiliated to JNTUK, Kakinada)

Pothavarappadu (V), (Via) Nunna, Agiripalli (M), Krishna District, A.P., Pin : 521 212, Cell : 9394686868

## **PROGRAMME: B.PHARMACY COURSE OUTCOMES**

**COURSE NAME:** HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)

**COURSE CODE:** BP 101T, I B.PHARMACY I SEM

<b>BP 101 T.1</b>	Get knowledge on characteristics of different types of tissues and their location in various organs.
<b>BP 101 T.2</b>	To attain knowledge on different types tissues, bones, joints and blood cells and functions in human body.
<b>BP 101 T.3</b>	To know about the working of circulatory, immune and lymphatic systems
<b>BP 101 T.4</b>	Have knowledge on structure and functions of nervous system and their innervations to different parts of human body.
<b>BP 101 T.5</b>	To adapt the structure and functions of heart and blood vessels.

**COURSE NAME:** PHARMACEUTICAL ANALYSIS (Theory)

**COURSE CODE:** BP 102T, I B.PHARMACY I SEM

<b>BP 102 T.1</b>	To know the fundamentals of Analytical chemistry
<b>BP 102 T.2</b>	To learn about the principles of electrochemical analysis of drugs.
<b>BP 102 T.3</b>	To acquire knowledge in acid base titrations, non-aqueous titrations, precipitation titrations and complexometric titrations.
<b>BP 102 T.4</b>	To learn about gravimetric and redox titrations

**COURSE NAME:** PHARMACEUTICS-I (Theory)

**COURSE CODE:** BP 103T, I B.PHARMACY I SEM

<b>BP 103 T.1</b>	To understand the profession of Pharmacy, its history, development in India and the present scenario of the profession in India. Also, basic knowledge about pharmacopoeias and important aspects of pharmacy profession. Understand the handling of prescription and factors that influence dose calculation in children and adults.
<b>BP 103 T.2</b>	Know about the basics regarding formulation of powders, liquid dosage forms and about solubility enhancement techniques. Also gain knowledge about various pharmaceutical calculations from age old days.

<b>BP 103 T.3</b>	Knowledge about different dosage forms in liquid preparations like monophasic and biphasic forms.
<b>BP 103 T.4</b>	Learn the preparation of suppositories and gain knowledge about various incompatibilities in pharmaceutical products.
<b>BP 103 T.5</b>	Understanding the preparation procedures of semisolid dosage forms and their evaluation.

**COURSE NAME:** PHARMACEUTICAL INORGANIC CHEMISTRY (Theory)

**COURSE CODE:** BP 104T, I B.PHARMACY I SEM

<b>BP 104 T.1</b>	The objective is to know impurities in pharmaceutical substances and principle involved in limit test for chloride, arsenic, lead and general methods of preparation, properties and uses of inorganic compounds.
<b>BP 104 T.2</b>	Have a fundamental understanding of acids, bases, buffers, extra and intra cellular electrolytes used in replacement therapy and dental products like desensitizing agents and role of fluoride in treatment of dental caries.
<b>BP 104 T.3</b>	To explore about gastro intestinal agents such as acidifiers, antacids and anti-microbials.
<b>BP 104 T.4</b>	To understand about miscellaneous compounds such as expectorants, emetics, haematinics and antidote.
<b>BP 104 T.5</b>	Have a basic understanding of radio pharmaceuticals such as alpha, beta, gamma radiations, radioisotopes and their applications.

**COURSE NAME:** COMMUNICATION SKILLS (Theory)

**COURSE CODE:** BP 105T, I B.PHARMACY I SEM

<b>BP 105 T.1</b>	Use contextual expressions in English and sounds in English language.
<b>BP 105 T.2</b>	Improve communication skills develop the knowledge of letters and sounds in English language
<b>BP 105 T.3</b>	Improve listening skills
<b>BP 105 T.4</b>	Improve and use the language skills
<b>BP 105 T.5</b>	Improve Writing Skills
<b>BP 105 T.6</b>	Apply listening , reading and writing skills while facing Interviews

**COURSE NAME:** REMEDIAL BIOLOGY (Theory)

**COURSE CODE:** BP 106RBT, I B.PHARMACY I SEM

<b>BP 106RBT.1</b>	Understand the concept of biological diversity, major taxonomic groups and its significance in the natural world.
<b>BP 106RBT.2</b>	Understand the fundamental concepts and terminologies related to body fluid circulation, digestion, absorption, breathing, and respiration.
<b>BP 106RBT.3</b>	Understand the physiological processes involved in the formation of excretory products, including waste products and metabolic byproducts.
<b>BP 106 RBT.4</b>	Understand the importance of plant physiology in the study of plant growth, development, and adaptation.

<b>BP 106 RBT.5</b>	Understand the fundamental concepts and principles of plant growth and development.
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**COURSE NAME:** REMEDIAL MATHEMATICS (Theory)

**COURSE CODE:** BP 106RMT, I B.PHARMACY I SEM

<b>BP 106RMT.1</b>	To Know the concepts of mathematics and their application in pharmacy.
<b>BP 106RMT.2</b>	To correlate the mathematical tools in wide professional views and solve problems of matrices.
<b>BP 106RMT.3</b>	To apply both conventional and creative techniques to solve problems of calculus.
<b>BP 106RMT.4</b>	To Know the Analytical geometry different types of problems by applying mathematics.
<b>BP 106RMT.5</b>	To Know the Differential equation, Laplace transform to solving Pharmacokinetic equations and their applications

**COURSE NAME:** HUMAN ANATOMY AND PHYSIOLOGY (Practical)

**COURSE CODE:** BP 107P, I B.PHARMACY I SEM

<b>BP 107P.1</b>	Get knowledge on instruments used in experimental human anatomy and Physiology its operation.
<b>BP 107P.2</b>	Know differences like structural composition and functional nature of different living cells and tissues using reference slide.
<b>BP 107P.3</b>	Know location, structural features of skeletal system in the body.
<b>BP 107P.4</b>	To estimate the physiological conditions of human body by recording heart rate, pulse rate, blood pressure, bleeding and clotting time.
<b>BP 107P.5</b>	To determine the RBC and WBC in human blood.
<b>BP 107P.6</b>	Have idea about hematological parameters and its physiological importance to diagnose disease in the body.

**COURSE NAME:** PHARMACEUTICAL ANALYSIS (Practical)

**COURSE CODE:** BP 108P, I B.PHARMACY I SEM

<b>BP 108P.1</b>	To select suitable primary and secondary standards during calibration and standardization procedures.
<b>BP 108P.2</b>	To ascertain the various titrations and limit tests.
<b>BP 108P.3</b>	Primary and secondary standard solutions of different normalities and molarities should be prepared and standardized.
<b>BP 108P.4</b>	To determine the significance of important numbers and the analysis of data calculation.
<b>BP 108P.5</b>	Demonstrate the concept, reaction conditions, and factor computation for data analysis in the context of pharmacopoeial purity application and different volumetric techniques of analysis.
<b>BP 108P.6</b>	To determine GLP and calculate the amount of the active ingredient in pharmaceutical dosage forms.

**COURSE NAME:** PHARMACEUTICS (Practical)

**COURSE CODE:** BP 109P, I B.PHARMACY I SEM

<b>BP 109P.1</b>	To recall the principles used in the preparation of solid, liquid and semi solid dosage forms.
<b>BP 109P.2</b>	To experiment with monophasic liquid dosage forms for internal and external administration.
<b>BP 109P.3</b>	Perform dispensing of powders, pastes, lotions, liniments, inhalations and paints.
<b>BP 109P.4</b>	Identify incompatibilities in prescription and dispensing of such prescriptions.
<b>BP 109P.5</b>	Perform dosage calculations for pediatric and geriatric patients.
<b>BP 109P.6</b>	Dispense the prescriptions involving adjustment of tonicity.

**COURSE NAME:** PHARMACEUTICAL INORGANIC CHEMISTRY (Practical)

**COURSE CODE:** BP 110P, I B.PHARMACY I SEM

<b>BP 110P.1</b>	Identify impurities from pharmaceutical substances
<b>BP 110P.2</b>	Apply the skills of qualitative analysis of unknown samples.
<b>BP 110P.3</b>	Compute, quantitate and record purity of inorganic pharmaceuticals
<b>BP 110P.4</b>	Develop mathematical approach to calculate quantitative parameters for synthesized compounds.
<b>BP 110P.5</b>	To prepare and submit the given inorganic pharmaceuticals.

**COURSE NAME:** COMMUNICATION SKILLS (Practical)

**COURSE CODE:** BP 111P, I B.PHARMACY I SEM

<b>BP 111P.1</b>	Use contextual expressions in English and sounds in English language
<b>BP 111P.2</b>	Enhance communication skills develop the knowledge of letters and sounds in English language
<b>BP 111P.3</b>	Develop listening skills.
<b>BP 111P.4</b>	Develop and use the language skills.
<b>BP 111P.5</b>	Enhance writing Skills.
<b>BP 111P.6</b>	Apply listening, reading and writing skills while facing Interviews.

**COURSE NAME:** REMEDIAL BIOLOGY (Practical)

**COURSE CODE:** BP 112P, I B.PHARMACY I SEM

<b>BP 112RBP.1</b>	Achieve knowledge on instruments used in experimental biology and its operation.
<b>BP 112RBP.2</b>	Understand the Principles and procedures involved in staining techniques for the preparation of slide.
<b>BP 112RBP.3</b>	Grasp knowledge on different cellular composition and its importance in living organism.
<b>BP 112RBP.4</b>	Basic knowledge about morphological features and modified morphological features and its importance of different parts of plant.
<b>BP 112RBP.5</b>	Know about anatomical and physiological features with reference to human by simulatory model.

<b>BP 112RBP.6</b>	Gain knowledge on different cellular composition of different parts of plant.
<b>BP 112RBP.7</b>	Knowledge about different types of blood grouping and its importance.

**COURSE NAME:** HUMAN ANATOMY AND PHYSIOLOGY-II (Theory)

**COURSE CODE:** BP 201T, I B.PHARMACY II SEM

<b>BP 201T.1</b>	To attain knowledge on structure and functions of brain, spinal cord and their sensory, motor functions with the help of chemical mediators and receptors.
<b>BP 201T.2</b>	To illustrate the anatomy and physiology of various parts of gastrointestinal tract and their secretions. To appraise the importance of ATP and BMR in day to day life.
<b>BP 201T.3</b>	To learn the anatomy and physiology of various parts of respiratory system and mechanisms involved in regulation of respiration with their disorders due to abnormal functioning of systems. To appraise the importance of resuscitation methods in day to day life.
<b>BP 201T.4</b>	To know about the characteristics of the endocrine glands and their role in balancing the functions of the human body.
<b>BP 201T.5</b>	To get knowledge about different parts of male and female reproductive system & role of their hormones in development of primary & secondary sexual characteristics. Concepts of genetics.

**COURSE NAME:** PHARMACEUTICAL ORGANIC CHEMISTRY-I (Theory)

**COURSE CODE:** BP 202T, I B.PHARMACY II SEM

<b>BP 202T.1</b>	To attain & indulge Stereo chemical structures, importance of stereochemistry with respect to drugs as interpreted in terms of reactivity and the properties of chiral drugs.
<b>BP 202T.2</b>	To emphasize on equations involved in the preparations, mechanism of formation or the reaction, rearrangements if any, discussion on stabilities and applications of the characteristic reactions in synthesis.
<b>BP 202T.3</b>	To study Nomenclature (numbering), important reactions, mechanisms and examples of drugs having the above ring systems.
<b>BP 202T.4</b>	A detail study of synthesis, reactions, medicinal uses of the various compounds & its derivatives.
<b>BP 202T.5</b>	To understand about General reaction, structures and mechanism, applications in organic synthesis.

**COURSE NAME:** BIOCHEMISTRY (Theory)

**COURSE CODE:** BP 203T, I B.PHARMACY II SEM

<b>BP 203T.1</b>	The objective is to know the classification, chemical nature and biological role of biomolecules such as carbohydrates, lipids, nucleic acids, amino acids and proteins and bio energetics through concept of free energy classification and significance of ATP and cyclic AMP.
<b>BP 203T.2</b>	Have a fundamental understanding carbohydrate metabolism through glycolysis, citric acid cycle and gluconeogenesis and biological oxidation of electron transport chain,

	ETC inhibitors.
<b>BP 203T.3</b>	To explore about lipid metabolism of beta oxidation of saturated fatty acids, significance of cholesterol, disorders of lipid metabolism such as hypercholesterolemia, fatty liver and obesity.
<b>BP 203T.4</b>	To understand about nucleic acid metabolism and genetic information through biosynthesis of purine and pyrimidine nucleotides, structure of DNA and RNA, genetic code, protein synthesis.
<b>BP 203T.5</b>	Have a basic understanding of enzymes nomenclature, IUB classification, kinetics, inhibitors and co-enzymes.

**COURSE NAME:** PATHOPHYSIOLOGY (Theory)

**COURSE CODE:** BP 204T, I B.PHARMACY II SEM

<b>BP 204T.1</b>	To impart knowledge regarding pathology of various diseased conditions. To get knowledge about the mechanisms of cell injury and cellular adaptations. To adapt the principles of inflammation with related diseases with their predisposing factors.
<b>BP 204T.2</b>	To understand the pathogenesis, etiology, manifestations and complications of various diseases and disorders related to cardiovascular, respiratory and renal systems.
<b>BP 204T.3</b>	To explain the alterations in hormone secretions and their related diseases with pathogenesis and etiology. To illustrate pathophysiology of hematogenic, endocrine, nervous, musculoskeletal and GIT.
<b>BP 204T.4</b>	To appraise the classification of tumors with stages of cancer .Explain the principles of carcinogenesis.
<b>BP 204T.5</b>	To understand the pathogenesis, etiology, manifestations and complications of infectious diseases, AIDS and gonorrhoea.

**COURSE NAME:** COMPUTER APPLICATIONS IN PHARMACY (Theory)

**COURSE CODE:** BP 205T, I B.PHARMACY II SEM

<b>BP 205T.1</b>	To understand the fundamentals of computers and Apply the knowledge of mathematics.
<b>BP 205T.2</b>	To know the various types of application of computers in pharmacy.
<b>BP 205T.3</b>	To know the various types of databases.
<b>BP 205T.4</b>	To understand the Programming languages and computing fundamentals to pharmaceutical applications for any given requirement.
<b>BP 205T.5</b>	To know the various applications Preclinical development of databases in pharmacy.

**COURSE NAME:** ENVIRONMENTAL SCIENCES(Theory)

**COURSE CODE:** BP 206T, I B.PHARMACY II SEM

<b>BP 206 T.1</b>	Know the fundamentals of the environment, such as ecology, ecosystems, food webs, chains, and ecological pyramids.
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<b>BP 206T.2</b>	They able to impart knowledge about the environment and its allied problems
<b>BP 206T.3</b>	Understand the different factors of environmental pollution and measures to minimize it.
<b>BP 206T.4</b>	Know about hazards of disposal wastes from hospitals and pharmaceutical industries.
<b>BP 206T.5</b>	Know the Disaster management in natural calamities.
<b>BP 206T.6</b>	Understand the concept of environmental pollution

**COURSE NAME:** HUMAN ANATOMY AND PHYSIOLOGY II (Practical)

**COURSE CODE:** BP 207 P, I B.PHARMACY II SEM

<b>BP 207P.1</b>	Get knowledge on instruments used in experimental Physiology its operation.
<b>BP 207P.2</b>	Know differences like structural composition and functional nature of different living cells and tissues in skin and its role.
<b>BP 207P.3</b>	Know location, structural features of nervous system and endocrine system in the body.
<b>BP 207P.4</b>	To estimate the physiological capacity of eye, involuntary reflex activity & senses.
<b>BP 207P.5</b>	Get knowledge on instrumental techniques used in experimental body temperature recording & vital capacity.
<b>BP 207P.6</b>	Know mechanisms involved in homeostasis for protection of body & BMI.

**COURSE NAME:** PHARMACEUTICAL ORGANIC CHEMISTRY-I (Practical)

**COURSE CODE:** BP 208P, I B.PHARMACY II SEM

<b>BP 208P.1</b>	Perform functional group analysis for organic compounds
<b>BP 208P.2</b>	Prepare suitable solid derivatives from organic compounds.
<b>BP 208P.3</b>	Perform molecular models.
<b>BP 208P.4</b>	To determine the melting point and boiling point of organic compounds.
<b>BP 208 P.5</b>	To identify the unknown organic compounds using systematic qualitative analysis.

**COURSE NAME:** BIOCHEMISTRY (Practical)

**COURSE CODE:** BP 209P, I B.PHARMACY II SEM

<b>BP 209P.1</b>	Perform qualitative analysis of carbohydrates and identification tests for proteins
<b>BP 209P.2</b>	Perform quantitative analysis of reducing sugars and proteins, and qualitative analysis of urine for abnormal constituents.
<b>BP 209P.3</b>	Determine blood creatinine and blood sugar
<b>BP 209P.4</b>	Determine serum total cholesterol
<b>BP 209P.5</b>	Analyze enzymatic hydrolysis of starch and can determine Salivary amylase activity
<b>BP 209P.6</b>	Determine the effect of temperature on salivary amylase activity and effect of substrate

	concentration on salivary amylase activity
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**COURSE NAME:** COMPUTER APPLICATIONS IN PHARMACY (Practical)

**COURSE CODE:** BP 210P, I B.PHARMACY II SEM

<b>BP 210P.1</b>	Use MS Word, MS Access for designing questionnaire, form to record patient information, creating patient database, mailing labels, invoice table, and generate reports
<b>BP 210P.2</b>	Create HTML web page, Export Tables, Queries, Forms and Reports to web pages and XML Pages
<b>BP 210P.3</b>	Know the various types of application of computers in pharmacy.
<b>BP 210P.4</b>	Know various types of databases and its applications in Pharmacy
<b>BP 210P.5</b>	Store the drug information in the database and how to retrieve the information of a drug
<b>BP 210P.6</b>	Use MS Word, MS Access for designing questionnaire, form to record patient information, creating patient database, mailing labels, invoice table, and generate reports

**COURSE NAME:** PHARMACEUTICAL ORGANIC CHEMISTRY-II (Theory)

**COURSE CODE:** BP 301T, II B.PHARMACY I SEM

<b>BP 301T.1</b>	Basic knowledge regarding general methods of preparation of organic compounds.
<b>BP 301T.2</b>	Understand the reactions of some organic compounds.
<b>BP 301T.3</b>	To understand Reactivity of organic compounds.
<b>BP 301T.4</b>	To acquire knowledge in heterocyclic compounds
<b>BP 301T.5</b>	To acquire knowledge about the Electrophilic and Nucleophilic reactions.

**COURSE NAME:** PHYSICAL PHARMACEUTICS-I (Theory)

**COURSE CODE:** BP 302T, II B.PHARMACY I SEM

<b>BP 302T.1</b>	From the study we can be able to understand solute –solvent interactions, diffusion principles in biological systems, Critical solution temperature its effects and applications, distribution law and its applications.
<b>BP 302T.2</b>	The main objective is to know the changes in state of matter, eutectic substances its effects on melting points, Aerosols its preparation and usage, polymorphism and its effects dipole moment and dielectric constants.
<b>BP 302T.3</b>	The study explores about the surface and interfacial tension of liquids adsorption at solid and liquid interface solubilization at C.M.C.



<b>BP 302T.4</b>	To gain knowledge about proteins and number of sites available for binding of drugs, drug protein complex and methods for analysis of complexes.
<b>BP 302T.5</b>	The main moto of this study is to know about pH scale and pH determination by electrometric and calorimetric method, buffers and their significance in pharmacy.

**COURSE NAME:** PHARMACEUTICAL MICROBIOLOGY (Theory)

**COURSE CODE:** BP 303T, II B.PHARMACY I SEM

<b>BP 303 T.1</b>	To study all categories of microorganisms.
<b>BP 303 T.2</b>	To learn about the various staining techniques for identification of bacteria
<b>BP 303 T.3</b>	To gain knowledge in sterilization methods and the equipments used insterilization
<b>BP 303 T.4</b>	To study about isolation methods and its preservation techniques.
<b>BP 303 T.5</b>	To study the production of alcohol, antibiotics, vaccines, vitamins andenzymes.

**COURSE NAME:** PHARMACEUTICAL ENGINEERING (Theory)

**COURSE CODE:** BP 304T, II B.PHARMACY I SEM

<b>BP 304T.1</b>	The objective is to know the flow fluids through types of manometers, orifice meters, venturi meter, Size reduction and size separation through Principle, construction, working, merits and demerits of hammermill, ball mill, fluid energy mill, seiveshaker.
<b>BP 304T.2</b>	Have a fundamental understanding of heat transfer, mechanisms, evaporation and distillation, Principle, construction, working, merits and demerits of climbing film evaporator, forced circulation evaporator, steam distillation and molecular distillation.
<b>BP 304T.3</b>	To explore about drying and mixing through Principle, construction, working, merits and demerits of spray dryer, fluidized bed dryer, ribbon blender and sigma blade mixer.
<b>BP 304T.4</b>	To understand about filtration and centrifugation through theories and Principle, construction, working, merits and demerits of rotary drum filter, membrane filter, semi continuous centrifuge, super centrifuge.
<b>BP 304T.5</b>	Have a basic understanding of materials of pharmaceutical plant construction, corrosion and its prevention.

**COURSE NAME:** PHARMACEUTICAL ORGANIC CHEMISTRY-II (Practical)

**COURSE CODE:** BP 305P, II B.PHARMACY I SEM

<b>BP 305P.1</b>	To gain knowledge on laboratory purification techniques.
<b>BP 305P.2</b>	Execute recrystallisation& Steam distillation
<b>BP 305 P.3</b>	Determine Acid value, Saponification value, Iodine value, as a result they can have knowledge on rancidity of oils and able to determine best oil.

<b>BP 305P.4</b>	Know preparation and synthesis of various pharmaceutically active organic compounds.
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**COURSE NAME:** PHYSICAL PHARMACEUTICS (Practical)

**COURSE CODE:** BP 306P, II B.PHARMACY I SEM

<b>BP 306P.1</b>	To understand the concept of surface tension.
<b>BP 306P.2</b>	To access the HLB value and critical micellar concentration.
<b>BP 306P.3</b>	Demonstrate the calibration of pH and determine the pH by half neutralization method
<b>BP 306P.4</b>	Determine the critical solution temperature by phenol water system
<b>BP 306P.5</b>	Determine the solubility of drug at room temperature with partition coefficient of benzoic acid and Iodine in different Solvent media
<b>BP 306 P.6</b>	Explain the complexation phenomena.

**COURSE NAME:** PHARMACEUTICAL MICROBIOLOGY (Practical)

**COURSE CODE:** BP 307P, II B.PHARMACY I SEM

<b>BP 307P.1</b>	Understand the different equipments and processing used in experimental microbiology
<b>BP 307P.2</b>	Determine the sterilization of glassware, preparation, sterilization of media, sub culturing of bacteria and fungus. Nutrient stabs and slants preparations
<b>BP 307P.3</b>	Perform the methods of Simple, Gram's staining and acid fast staining
<b>BP 307P.4</b>	Isolate the pure culture of micro-organisms by multiple streak plate technique
<b>BP 307P.5</b>	Determine the Microbiological assay of antibiotics by cup plate method, Motility determination by Hanging drop method
<b>BP 307 P.6</b>	Analyse the sterility testing of pharmaceuticals, Bacteriological analysis of water and biochemical test.

**COURSE NAME:** PHARMACEUTICAL ENGINEERING (Practical)

**COURSE CODE:** BP 308P, II B.PHARMACY I SEM

<b>BP 308P.1</b>	To know various unit operations used in pharmaceutical industries.
<b>BP 308P.2</b>	To Understand the material handling techniques.
<b>BP 308P.3</b>	To perform various processes involved in pharmaceutical manufacturing process.
<b>BP 308P.4</b>	To carry out various tests to prevent environmental pollution.
<b>BP 308P.5</b>	To appreciate the various preventive methods used for corrosion control in

	pharmaceutical industries.
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**COURSE NAME:** PHARMACEUTICAL ORGANIC CHEMISTRY III (Theory)

**COURSE CODE:** BP 401T, II B.PHARMACY II SEM

<b>BP 401T.1</b>	To attain and; indulge Stereo chemical structures, importance of stereochemistry with respect to drugs as interpreted in terms of reactivity and the properties of chiral drugs.
<b>BP 401T.2</b>	To emphasize on equations involved in the preparations, mechanism of formation or the reaction, rearrangements if any, discussion on stabilities and applications of the characteristic reactions in synthesis.
<b>BP 401T.3</b>	To study Nomenclature (numbering), important reactions, mechanisms and examples of drugs having the ring systems.
<b>BP 401T.4</b>	A detail study of synthesis, reactions, medicinal uses of the various compounds & its derivatives.
<b>BP 401T.5</b>	To understand about General reaction, structures and mechanism, applications in organic synthesis.

**COURSE NAME:** MEDICINAL CHEMISTRY I (Theory)

**COURSE CODE:** BP 402T, II B.PHARMACY II SEM

<b>BP 402T.1</b>	Know importance of Physic-chemical properties of drugs which influences biological action and drug metabolism pathways.
<b>BP 402T.2</b>	Familiar with chemistry along with pharmacological action of Sympathomimetic drugs.
<b>BP 402T.3</b>	Know detailed information of metabolic pathways, therapeutic uses, mechanism of Para-sympathomimetic drugs.
<b>BP 402T.4</b>	Acknowledge mechanism of various drugs and SAR of drugs acting on CNS.
<b>BP 402T.5</b>	Get knowledge on chemistry and pharmacological actions of Narcotics and Anti-inflammatory drugs.

**COURSE NAME:** PHYSICAL PHARMACEUTICS-II (Theory)

**COURSE CODE:** BP 403T, II B.PHARMACY II SEM

<b>BP 403T.1</b>	Have a fundamental understanding of colloids regarding their optical properties, and their classification, to know about differences between coarse and colloids
<b>BP 403T.2</b>	Have a basic understanding about flow of fluids effect of viscosity on their flow, stress induced changes on materials.

<b>BP 403T.3</b>	To understand about suspension interfacial properties their settling emulsions and their stability new approaches regarding to emulsions
<b>BP 403T.4</b>	The objective is to Know the methods to determine particle size and its role in formulation development, surface area and its effects on dissolution profile, packing arrangements in powders.
<b>BP 403T.5</b>	Understanding the degradation and stabilization of medicinal agents as well as accelerated stability testing, order of reactions, photolytic degradation its effects , and prevention

**COURSE NAME:** PHARMACOLOGY-I (Theory)

**COURSE CODE:** BP 404T, II B.PHARMACY II SEM

<b>BP 404T.1</b>	Outline the basic scientific concepts and principles that serve as the foundational underpinnings of the pharmacological sciences including pharmacokinetics, pharmacodynamics, drug metabolism
<b>BP 404T.2</b>	Enumerates about autonomic nervous system and list out different types of drugs used to treat disorders of autonomic nervous system.
<b>BP 404T.3</b>	List and discuss selected drugs used to treat disorders of central nervous system including their clinical uses and potential adverse effects.
<b>BP 404T.4</b>	Explains the pharmacology of NSAIDS, Narcotic analgesics & antagonists, local anaesthetics and drugs acting on various CNS disorders.
<b>BP 404T.5</b>	Understands pharmacology of anti-psychotics, anti-depressants, anti-maniacs, hallucinogens, antiepileptic and anti-parkinsonian drug

**COURSE NAME:** PHARMACOGNOSY AND PHYTOCHEMISTRY-I (Theory)

**COURSE CODE:** BP 405T, II B.PHARMACY II SEM

<b>BP 405T.1</b>	Herbs and their science. Classification of Medicinal Plants, Phytochemistry, Carbohydrates, Lipids, Terpenes, Polyphenols, Alkaloids, Pharmacology, Toxicity, Formulations and Preparations of Herbal Medicines.
<b>BP 405T.2</b>	How herbs influence our physiology and can be helpful against several disorders.
<b>BP 405T.3</b>	Relations between Phyto -therapy and the Elderly, Phytotherapy and Children, Understanding herbal Action, and Understanding the Materia Medica.
<b>BP 405T.4</b>	The recognition of medicinal plants, identification of adulteration and Contamination.
<b>BP 405T.5</b>	Ethnobotany & Ethnopharmacology in drug discovery process. DNA Finger printing.

**COURSE NAME:** MEDICINAL CHEMISTRY-I (Practical)

**COURSE CODE:** BP 406P, II B.PHARMACY II SEM

<b>BP 406P.1</b>	Prepare and synthesize various pharmaceutically active organic compounds.
<b>BP 406P.2</b>	To prepare various drugs and intermediates.

<b>BP 406P.3</b>	To be able to do the assay of various drugs and to calculate their percentage purity
<b>BP 406P.4</b>	To determine the partition coefficient of drugs

**COURSE NAME:** PHYSICAL PHARMACEUTICS-II (Practical)

**COURSE CODE:** BP 407P, II B.PHARMACY II SEM

<b>BP 407P.1</b>	Determine the Particle size and its distribution by using Optical microscopy and sieving methods.
<b>BP 407P.2</b>	Determine and report the derived properties of powder and angle of repose.
<b>BP 407P.3</b>	Explain and determine the Methods of sedimentation volume by using the different suspending agents and concentration of same suspending agents.
<b>BP 407P.4</b>	Demonstrate the concepts of viscosity and determine the viscosity of liquids and semi solids by using ostwald's viscometer and Brookfield viscometer.
<b>BP 407P.5</b>	Determine the reaction rate constants by first and second order reactions by using graphical and substitution methods.
<b>BP 407 P.6</b>	Calculate the expiration date of different dosage forms and describe the accelerated stability studies.

**COURSE NAME:** PHARMACOLOGY-I (Practical)

**COURSE CODE:** BP 408P, II B.PHARMACY II SEM

<b>BP 408P.1</b>	To understand the instruments & animals used in experimental pharmacology as per CPCSEA Guidelines.
<b>BP 408P.2</b>	To gain knowledge on laboratory blood withdrawal techniques while using anesthetics.
<b>BP 408P.3</b>	Study of various routes of drug administration, anesthetics agents used to anesthetize laboratory animals and techniques of Euthanasia.
<b>BP 408P.4</b>	Study of physiological salt solutions, drug solution and use in various animal experiments.
<b>BP 408P.5</b>	To determine the local anesthetic activity by different methods.
<b>BP 408 P.6</b>	To understand the stereotype & anti catatonic activity on mice.

**COURSE NAME:** PHARMACOGNOSY AND PHYTOCHEMISTRY-I (Practical)

**COURSE CODE:** BP 409P, II B.PHARMACY II SEM

<b>BP 409P.1</b>	To understand the techniques involved in analysis of crude drugs by chemical test
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<b>BP 409P.2</b>	To understand principle and procedure involved in stomatal index and vein termination number.
<b>BP 409P.3</b>	To gain Knowledge on determination of Leaf Constants.
<b>BP 409P.4</b>	To gain Knowledge on principle and procedure involved in determination of ash value and extractive value.
<b>BP 409P.5</b>	To gain Knowledge on principle and procedure involved in determination of moisture content, swelling index and foaming index.

**COURSE NAME:** MEDICINAL CHEMISTRY-II (Theory)

**COURSE CODE:** BP 501T, III B.PHARMACY I SEM

<b>BP 501T.1</b>	Understand the structure, MOA, SAR, synthesis, uses and properties of Anti-histaminic agents and Gastric proton pump inhibitors.
<b>BP 501T.2</b>	Understand the structure, MOA, SAR, synthesis, uses and properties of Antineoplastic agents and of Anti-anginal (Calcium channel blockers, Diuretic and Antihypertensive agents)
<b>BP 501T.3</b>	Understand the structure, MOA, SAR, synthesis, uses and properties of Anti-arrhythmic drugs (Anti-hyperlipidaemic agents, Coagulant & Anticoagulants and Drugs used in congestive heart failure)
<b>BP 501T.4</b>	Understand the structure, MOA, SAR, synthesis, uses, and properties of Drugs acting on Endocrine system (Sex hormones, Drugs for erectile dysfunction , Oral contraceptives, Corticosteroids, Thyroid and Anti-thyroid drugs)
<b>BP 501T.5</b>	Understand the structure, MOA, SAR, synthesis, uses, and properties of Drugs acting on Anti-diabetic, Local anaesthetics.

**COURSE NAME:** INDUSTRIAL PHARMACY-I (Theory)

**COURSE CODE:** BP 502T, III B.PHARMACY I SEM

<b>BP 502T.1</b>	Learn about the science behind performing a Preformulation study before formulating.
<b>BP 502T.2</b>	Know very well about orally administered solid dosage forms (Tablets, capsules and pellets) and liquid dosage forms (syrups, elixirs, suspensions and emulsions) with standard protocols.
<b>BP 502T.3</b>	Know very well about novel drug delivery systems like parenterals, ophthalmic preparations and pharmaceutical aerosols with standard protocols.
<b>BP 502T.4</b>	Understand about basics and legal aspects of cosmeticology and various formulations like dentifrices, lipsticks, nail polish and baby products etc.
<b>BP 502T.5</b>	Understand how to select a suitable packaging option for the formulated dosage form

	to store it for extended periods.
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**COURSE NAME:** PHARAMACOLOGY-II (Theory)

**COURSE CODE:** BP 503T, III B.PHARMACY I SEM

<b>BP 503T.1</b>	Understanding of Anatomy and Physiology of cardiovascular system, concept of various cardio vascular disorders (Hypertension, Congestive heart failure, Angina, Arrhythmia)
<b>BP 503T.2</b>	Describes treatment of hyperlipidemias along with their classification of drugs and pharmacology, Drugs acting on blood and blood forming agents.
<b>BP 503T.3</b>	Outline Concept of Autacoids- various types of autacoids (amine autacoids, lipid derived autacoids and peptide autacoids).
<b>BP 503T.4</b>	Demonstrates Treatment of metabolic disorders like Diabetes Mellitus, Drugs acting on Thyroid disorders. Steroidal anti-inflammatory agents and Oral drugs.
<b>BP 503T.5</b>	Summarize Physiology of respiration and drugs acting on respiratory disorders. Concept of Bio-assay- Principle, types, Importance and applications of biological.

**COURSE NAME:** PHARMACOGNOSY AND PHYTOCHEMISTRY-II (Theory)

**COURSE CODE:** BP 504T, III B.PHARMACY I SEM

<b>BP 504T.1</b>	To know the modern extraction techniques, characterization and identification of the Herbal drugs and phytoconstituents
<b>BP 504T.2</b>	To understand the preparation and development of herbal formulation.
<b>BP 504T.3</b>	To understand the herbal drug interactions
<b>BP 504T.4</b>	To carry out isolation and identification of phytoconstituents
<b>BP 504T.5</b>	To impart the students the knowledge of how the secondary metabolites are produced in the crude drugs, how to isolate and identify and produce them industrially.

**COURSE NAME:** PHARMACEUTICAL JURISPRUDENCE (Theory)

**COURSE CODE:** BP 505T, III B.PHARMACY I SEM

<b>BP 505T.1</b>	The main objective is to know about import of drugs, manufacture of drugs their rules and regulation related to Drugs and cosmetic act.
<b>BP 505T.2</b>	Be familiar with schedules, sale of drugs, administrative bodies of the Drug and cosmetic act and rules, study about central drug laboratory.
<b>BP 505T.3</b>	To Know about pharmacy act in related to Pharmacy council of India, registration of pharmacist it's offences, medicinal and toilet preparations in related to manufacturing in bond and outside bond laboratory, narcotic and psychotropic substances in related to cultivation collection sale of narcotic substances.
<b>BP 505T.4</b>	To gain knowledge about drugs and magic remedies, CPCSEA guideline for breeding and stocking of animals and permissions for performing experiments, Drug price control order in related to retail price and ceiling price of formulations.
<b>BP 505T.5</b>	To explore about pharmaceutical legislations, health committee, code of pharmaceutical ethics, procedure for obtaining patents, copyright, trademark.

**COURSE NAME:** INDUSTRIAL PHARMACY-I (Practical)

**COURSE CODE:** BP 506P, III B.PHARMACY I SEM

<b>BP 506P.1</b>	Perform pre-formulation studies.
<b>BP 506P.2</b>	Formulate and evaluate tablets using various granulation techniques.
<b>BP 506P.3</b>	Coat the formulated tablets with appropriate coating solutions.
<b>BP 506P.4</b>	Formulate and dispense hard gelatin capsules.
<b>BP 506P.5</b>	To design parenteral and ophthalmic products.
<b>BP 506 P.6</b>	Perform quality control tests for the selected marketed tablets
<b>BP 506 P.7</b>	Perform quality control tests for various packaging materials according to IP.

**COURSE NAME:** PHARMACOLOGY-II (Practical)

**COURSE CODE:** BP 507P, III B.PHARMACY I SEM

<b>BP 507P.1</b>	To understand the techniques involved in In-Vitro pharmacology & different types physiological salt solutions
<b>BP 507P.2</b>	To determine the effect of PA2 & PD2 value of drugs using isolate tissue of animal by different methods
<b>BP 507P.3</b>	Know principles of bioassay, its types including advantages and disadvantages
<b>BP 507P.4</b>	To study the effect of spasmogens and spasmolytics on rabbit jejunum preparation
<b>BP 507P.5</b>	To gain knowledge on Different types of Multiple point bioassay techniques using tissue preparations
<b>BP 507 P.6</b>	Demonstrate and discuss recording of effects of CNS acting drugs in rats/mice using Actophotometer and anti-epileptic activity using Convulsimeter with the help of software.

**COURSE NAME:** PHARMACOGNOSY AND PHYTOCHEMISTRY-II (Practical)

**COURSE CODE:** BP 508P, III B.PHARMACY I SEM

<b>BP 508P.1</b>	Perform techniques of Morphology, histology, powder characteristic, extraction, and detection by TLC or chemical tests of alkaloidal, glycosidal, volatile oil containing crude drug
<b>BP 508P.2</b>	Perform techniques involving isolation and detection by TLC or chemical tests of active principles alkaloids, glycosides, steroids
<b>BP 508P.3</b>	Perform separation of sugars by paper chromatography
<b>BP 508P.4</b>	Perform analysis of crude drugs-resins and glycosides by chemical tests
<b>BP 508P.5</b>	Perform distillation of volatile oils and detection of phytoconstituents by TLC



**COURSE NAME:** MEDICINAL CHEMISTRY III (Theory)

**COURSE CODE:** BP 601T, III B.PHARMACY II SEM

<b>BP 601T.1</b>	Understand the nomenclature, stereochemistry, SAR and degradation of drugs with respect to their biological activity of Antibiotics like Pencillins, Cephalosporins, Monobactams, Betalactamase Inhibitors, Aminoglycoside and Tetracyclines.
<b>BP 601T.2</b>	Understand the nomenclature, stereochemistry, SAR and degradation of drugs with respect to their biological activity of Antibiotics like Macrolide antibiotics and Chloramphenicol. To understand about prodrug concept. To Know about Malarial Drugs and Life Cycle of Malaria.
<b>BP 601T.3</b>	Understand the structure, MOA, SAR, synthesis, uses, and properties of Drugs acting on Antitubercular drugs, Urinary tract anti- infective agents, Antiviral agents
<b>BP 601T.4</b>	Understand the structure, MOA, SAR, synthesis, uses and properties of Drugs acting on Antifungal agents, Anti-protozoal Agents, anti-helminthic, Sulphonamides and Sulfones
<b>BP 601T.5</b>	Understand the importance of various parameters of drug design, Hansch analysis, Molecular modeling importance of SAR of drugs and to identify LEAD molecule. To know concept of Combinatorial synthesis of Drugs like Solid Phase and solution phase Synthesis

**COURSE NAME:** PHARMACOLOGY III (Theory)

**COURSE CODE:** BP 602T, III B.PHARMACY II SEM

<b>BP 602T.1</b>	Fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on respiratory and gastrointestinal system.
<b>BP 602T.2</b>	Summarize the mechanism of action of drugs and its relevance in the treatment of different infectious diseases.
<b>BP 602T.3</b>	Fundamental knowledge on immunopharmacology.
<b>BP 602T.4</b>	Emphasis on the principles of toxicology and chronopharmacology

**COURSE NAME:** HERBAL DRUG TECHNOLOGY (Theory)

**COURSE CODE:** BP 603T, III B.PHARMACY II SEM

<b>BP 603T.1</b>	To study biodynamic agriculture and herbs as raw materials and system of medicine.
<b>BP 603T.2</b>	To understand and know about nutraceuticals their applications along with herbal-drug &; herbal- food interactions.
<b>BP 603T.3</b>	To find out various useful information about herbal cosmetics, herbal Excipients &; herbal formulations.
<b>BP 603T.4</b>	To know about WHO &; ICH guidelines for the evaluation of drugs and regulatory issues, patenting aspects of crude drugs in India.

<b>BP 603T.5</b>	To get knowledge about herbal drug industry and GMP of Indian system of medicine.
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**COURSE NAME:** BIOPHARMACEUTICS AND PHARMACOKINETICS (Theory)

**COURSE CODE:** BP 604T, III B.PHARMACY II SEM

<b>BP 604T.1</b>	Understand the concept of Biopharmaceutics, Pharmacokinetics and their applications—absorption mechanisms, factors, their application with examples and also acquire knowledge on the concept of drug distribution, protein binding – factors.
<b>BP 604T.2</b>	Acquire knowledge on the concept of elimination. Understand the concepts of bioavailability, bioequivalence, concepts, assessments, design, regulation, in vitro dissolution methods and in vitro-in vivo correlations.
<b>BP 604T.3</b>	Describe the different pharmacokinetic models. Evaluate and estimate drug changes in the body by using pharmacokinetic models.
<b>BP 604T.4</b>	. Describe various multi compartment models and its significance.
<b>BP 604T.5</b>	Understand the concept of Linear and Non-Linear kinetics, mechanisms and method of Assessments.

**COURSE NAME:** PHARMACEUTICAL BIOTECHNOLOGY (Theory)

**COURSE CODE:** BP 605T, III B.PHARMACY II SEM

<b>BP 605T.1</b>	To learn about the scientific applications of biotechnology in the field of genetic engineering, medicine and fermentation technology.
<b>BP 605T.2</b>	To acquire knowledge to new biological revolutions in diagnosis, prevention and cure diseases, new and cheaper pharmaceutical drugs.
<b>BP 605T.3</b>	To know about the transgenic crops and animals and the future promises.
<b>BP 605T.4</b>	To learn about the researches in this subject.

**COURSE NAME:** QUALITY ASSURANCE (Theory)

**COURSE CODE:** BP 606T, III B.PHARMACY II SEM

<b>BP 606T.1</b>	The key principles and philosophies of quality management, including Total Quality Management (TQM), Six Sigma, and Lean methodologies.
<b>BP 606T.2</b>	Analyze different types of organizational structures, including functional, and divisional structures.
<b>BP 606T.3</b>	Define Good Laboratory Practices (GLP) and its significance in research, development, and testing laboratories.
<b>BP 606T.4</b>	The significance of complaints documentation in various industries, including healthcare, customer service, manufacturing, and regulatory affairs.
<b>BP 606T.5</b>	The fundamental principles of calibration, including traceability, accuracy, precision, and calibration uncertainty, validation in quality management, including process validation, method validation, and computer system validation.

**COURSE NAME:** MEDICINAL CHEMISTRY III (Practical)

**COURSE CODE:** BP 607P, III B.PHARMACY II SEM

<b>BP 607P.1</b>	Synthesize various drugs and intermediates.
<b>BP 607P.2</b>	Perform the assay of drugs
<b>BP 607P.3</b>	To synthesize the drugs by microwave irradiation techniques
<b>BP 607P.4</b>	To be able to draw the structures by chem draw software
<b>BP 607P.5</b>	To determine the Physicochemical properties of drugs

**COURSE NAME:** PHARMACOLOGY III (Practical)

**COURSE CODE:** BP 608P, III B.PHARMACY II SEM

<b>BP 608P.1</b>	Execute different dose calculation in pharmacological experiments
<b>BP 608P.2</b>	Study of anti-ulcer activity of a drug using pylorus ligand (SHAY) rat model and NSAIDS induced ulcer model.
<b>BP 608P.3</b>	Perform anti-allergic activity by mast cell stabilization assay
<b>BP 608P.4</b>	Perform test for pyrogens ( rabbit method)
<b>BP 608P.5</b>	Determine acute oral toxicity (LD50) of a drug from a given data
<b>BP 608 P.6</b>	Determine acute skin & skin irritation / corrosion of a test substance
<b>BP 608 P.7</b>	To gain knowledge on biostatistics methods used in experimental pharmacology

**COURSE NAME:** HERBAL DRUG TECHNOLOGY (Practical)

**COURSE CODE:** BP 609P, III B.PHARMACY II SEM

<b>BP 609P.1</b>	Perform preliminary phytochemical screening of crude drugs
<b>BP 609P.2</b>	Learn and exercise techniques of Evaluation of excipients of natural origin
<b>BP 609P.3</b>	Learn and exercise Cosmetic formulation (Preparation of dosage forms creams, lotions, shampoos) using standardized plant extract and evaluation as per pharmacopeial requirement
<b>BP 609P.4</b>	Learn and exercise Monograph analysis of herbal drugs from recent Pharmacopeia to standardize the herbal extract for the evaluation of identity and purity
<b>BP 508P.5</b>	Learn and exercise Determination of total phenol content in herbal drugs or crude drugs to standardize the herbal extract for the evaluation of identity and purity.
<b>BP 609 P.6</b>	To know the principle and procedure involved determination of aldehyde content, phenol and total alkaloid content.

**COURSE NAME:** INSTRUMENTAL METHODS OF ANALYSIS (Theory)

**COURSE CODE:** BP 701T, IV B.PHARMACY I SEM

<b>BP 701 T.1</b>	Describe the fundamentals of UV Visible spectroscopy and Fluorimetry, its instrumentation and applications.
<b>BP 701 T.2</b>	Understand principle, instrumentation and applications of IR spectroscopy, Atomic spectroscopy and Nepheloturbidometry.
<b>BP 701 T.3</b>	Explain basic theories and applications of conventional chromatographic methods.
<b>BP 701 T.4</b>	Apply knowledge of GC and HPLC for evaluation of pharmaceutical compounds.
<b>BP 701 T.5</b>	Discuss theory, instrumentation and applications of ion exchange, gel and affinity chromatography

**COURSE NAME:** INDUSTRIAL PHARMACY-II (Theory)

**COURSE CODE:** BP 702T, IV B.PHARMACY I SEM

<b>BP 702 T.1</b>	The role and significance of pilot plants in the research, development, and commercialization of processes and Plan and design a pilot plant layout, considering safety, equipment selection, material flow, and space utilization.
<b>BP 702 T.2</b>	Technology development and its significance in innovation, research, and industrial progress.
<b>BP 702 T.3</b>	Familiarize with national and international regulatory agencies, guidelines, and requirements relevant to specific industries and regions.
<b>BP 702 T.4</b>	Explore quality control (QC) and quality assurance (QA) measures for monitoring and verifying laboratory procedures and Good Manufacturing Practices (GMP), Good Clinical Practices (GCP), and Good Laboratory Practices (GLP), (TQM), Six Sigma.
<b>BP 702 T.5</b>	Familiarize with the regulatory authorities in India, including the Central Drugs Standard Control Organization (CDSCO) and other relevant bodies, COPP.

**COURSE NAME:** PHARMACY PRACTICE (Theory)

**COURSE CODE:** BP 703T, IV B.PHARMACY I SEM

<b>BP 703 T.1</b>	Students will demonstrate knowledge of and ability to use principles of therapeutics, quality improvement, communication, economics, health behaviour, social and administrative aspects, health policy and legal issues in the practice of pharmacy.
<b>BP 703 T.2</b>	Students will use knowledge of drug distribution methods in hospital and apply it in the practice of pharmacy.
<b>BP 703 T.3</b>	Students will effectively apply principles of drug store management and inventory control to medication use.
<b>BP 703 T.4</b>	Students will provide patient-centred care to diverse patients using the best available evidence and monitor drug therapy of patient through medication chart review, obtain medication history interview and counsel the patients, identify drug related problems.
<b>BP 703 T.5</b>	Students will engage in innovative activities by making use of the knowledge of clinical trials.

**COURSE NAME:** NOVEL DRUG DELIVERY SYSTEM (Theory)

**COURSE CODE:** BP 704T, IV B.PHARMACY I SEM

<b>BP 704 T.1</b>	Students will have deep knowledge about the application of nanoparticles, bio conjugates, gels, and implants in drug delivery. Further, you will have a deep knowledge about novel technologies (e.g. theranostics, photochemical internalization) in drug targeting and in delivery of biomolecular drugs.
<b>BP 704 T.2</b>	Drug delivery system gave a detailed information transporting a pharmaceutical compound in the body as needed to safely achieve its desired therapeutic effect.
<b>BP 704 T.3</b>	Also it refers to approaches, formulations, technologies, and systems for transporting a pharmaceutical compound in the body as needed to safely achieve its desired therapeutic effect with suitable drug delivery.
<b>BP 704 T.4</b>	They know the different types of Drug carrier used in the process of drug delivery which serves to improve the selectivity, effectiveness, and/or safety of drug administration.
<b>BP 704 T.5</b>	Recent developments in protein and peptide for parenteral delivery approaches will give new dimension of drug deliver for antibiotics, insulin, etc.

**COURSE NAME:** INSTRUMENTAL METHODS OF ANALYSIS (Practical)

**COURSE CODE:** BP 705T, IV B.PHARMACY I SEM

<b>BP 705 T.1</b>	To learn the concepts of quantitative estimation techniques.
<b>BP 705 T.2</b>	To gain knowledge of handling of the instruments like HPLC, GC.
<b>BP 705 T.3</b>	To apply the concepts of separation methods for sugars, amino acids, pigments etc.,
<b>BP 705 T.4</b>	To have a knowledge on qualitative determination of organic compounds
<b>BP 705 T.5</b>	To be able to perform assay of dosage forms by the application of UV/Vis spectrophotometry

**COURSE NAME:** BIOSTATISTICS AND RESEARCH METHODOLOGY (Theory)

**COURSE CODE:** BP 801T, IV B.PHARMACY II SEM

<b>BP 801 T.1</b>	Develop the ability to apply the methods while working on a research project work.
<b>BP 801 T.2</b>	To Understand and apply statistical methods for the design of biomedical research.
<b>BP 801 T.3</b>	Describe the appropriate statistical methods required for a particular research design.
<b>BP 801 T.4</b>	Choose the appropriate research design and develop appropriate research hypothesis for a

	Research project.
<b>BP 801 T.5</b>	Develop appropriate framework for research studies.

**COURSE NAME:** SOCIAL AND PREVENTIVE PHARMACY(Theory)

**COURSE CODE:** BP 802T, IV B.PHARMACY II SEM

<b>BP 802 T.1</b>	Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide.
<b>BP 802 T.2</b>	Have a critical way of thinking based on current healthcare development.
<b>BP 802 T.3</b>	Evaluate alternative ways of solving problems related to health and pharmaceutical issues.
<b>BP 802 T.4</b>	Acquire knowledge of the business and professional practice management skills in community pharmacies.
<b>BP 802 T.5</b>	Knowledge on social, health medicine and preventive medicine.

**COURSE NAME:** PHARMA MARKETING MANAGEMENT(Theory)

**COURSE CODE:** BP 803ET, IV B.PHARMACY II SEM

<b>BP 803 ET.1</b>	Describe the concept of pharmaceutical marketing. Discuss the emerging concepts of marketing.
<b>BP 803 ET.2</b>	Enumerate the concept of product management in pharmaceutical industry.
<b>BP 803 ET.3</b>	Discuss the various components of promotion of pharmaceutical products.
<b>BP 803 ET.4</b>	Discuss the roles and responsibilities of pricing authorities in India. Explain the different pharmaceutical marketing channels. Discuss the role market research.
<b>BP 803 ET.5</b>	Discuss the role and responsibility of professional sales representative.

**COURSE NAME:** PHARMACEUTICAL REGULATORY SCIENCE (Theory)

**COURSE CODE:** BP 804ET, IV B.PHARMACY II SEM

<b>BP 804 ET.1</b>	Know about the process of drug discovery and development along with knowledge about generics
<b>BP 804 ET.2</b>	Know about the regulatory requirements of filing a permission in different countries for a IND, NDA and ANDA.
<b>BP 804 ET.3</b>	Know about filings according to ICH guidelines.
<b>BP 804 ET.4</b>	Understanding about stages of clinical trials and its documentation.
<b>BP 804 ET.5</b>	Knowledge about federal Laws in United States of America regarding Food and Drug administration.