

Course Outcome B. Pharm (PCI) Syllabus

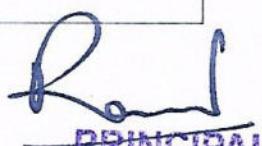
Course code /Course title	Course outcomes
First Year B. Pharm (Semester-I)	
BP101T Human Anatomy and Physiology-I	Upon completion of this course the student should be able to, CO1: Explain the gross morphology, structure and function of various organs of the human body. CO2: Describe the various homeostatic mechanisms and their imbalances. CO3: Identify the various tissues and organs of different systems of human body. CO4: Perform the various experiments related to special senses and nervous system.
BP102T Pharmaceutical Analysis I	Upon completion of this course the student should be able to, CO1: understand the principles, importance, and role of volumetric and electro-chemical analysis. CO2: carryout various volumetric and electro-chemical titrations. CO3: Understand types of errors and their trouble shooting. CO4: Understand analytical instrumental handling skills. CO5: Design the various analytical experiments and write reports on it by using pharmacopeias.
BP103T Pharmaceutics I	Upon completion of this course the student should be able to, CO1: Will Know about the history of profession of pharmacy. CO2: Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations. CO3: Understand the professional way of handling the prescription. CO4: Preparation of various conventional dosage forms.
BP104T Pharmaceutical Inorganic Chemistry	Upon completion of this course the student should be able to, CO1: Describe the sources of impurities and methods for determine the impurities in inorganic drugs and pharmaceuticals.




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	<p>CO2: Explain the Functions of major physiological ions, Electrolytes used in the replacement therapy, buffer equations and buffer capacity in general, role of fluoride in the treatment of dental caries.</p> <p>CO3: Explain the gastrointestinal agents like Acidifiers, Antacid, Cathartics and Antimicrobials</p> <p>CO4: To know Miscellaneous compounds like Expectorants, Emetics, Haematinics and Astringents</p> <p>CO5: Understand use of various radiopharmaceuticals.</p>
BP105T Communication skills	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the behavioral needs for a pharmacist to function effectively in the areas of pharmaceutical operation.</p> <p>CO2: Understand the basic writing and listening skills.</p> <p>CO3: Understand interview and presentation skills.</p> <p>CO4: CO5: Will know about dos and don'ts of group discussion.</p>
BP106RBT Remedial Biology	<p>Upon completion of the course, the student shall be able to</p> <p>CO1: know the classification and salient features of five kingdoms of life</p> <p>CO2: understand the basic components of anatomy & physiology of plant</p> <p>CO3: know understand the basic components of anatomy & physiology animal with special reference to human</p>
BP106RMT Remedial Mathematics	<p>Upon completion of the course the student shall be able to:-</p> <p>CO1: Know the theory and their application in Pharmacy</p> <p>CO2: Solve the different types of problems by applying theory</p> <p>CO3: Appreciate the important application of mathematics in Pharmacy</p>
BP107P Human Anatomy and Physiology-I	<p>Upon completion of this course the student should be able to,</p> <p>CO1: To identify the various tissues and organs of different systems of human body.</p>

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	<p>CO2: To perform the hematological test like blood cell counts, haemoglobin estimation, bleeding/clotting time etc. and also to record blood pressure, heart rate, pulse and respiratory volume.</p> <p>CO3: To describe the various homeostatic mechanisms and their imbalances.</p> <p>CO4: To study the maintenance of normal functioning of human body.</p>
<p>BP108P Pharmaceutical Analysis- I</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Perform limit test of chloride, Sulphate, Iron, Arsenic.</p> <p>CO2: Prepare and standardize Sodium hydroxide, Sulphuric acid, Sodium thiosulfate, Potassium permanganate, ceric ammonium sulphate.</p> <p>CO3: Perform various assays of the compounds along with standardization of titrant and determination of normality</p> <p>CO4: Understand the concepts of volumetric and electrochemical analysis.</p> <p>CO5: Design and execute analytical experiment according to various pharmacopeias.</p>
<p>BP109P Pharmaceutics I</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand formulation and evaluation of pharmaceutical solution.</p> <p>CO2: Understand formulation and evaluation of pharmaceutical dispersed system.</p> <p>CO3: Understand formulation and evaluation of pharmaceutical powders.</p> <p>CO4: Understand formulation and evaluation of semisolid dosage form.</p>
<p>BP110P Pharmaceutical Inorganic Chemistry</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Perform Limit tests for certain impurities like ions, Chlorides and Sulphates, Heavy metals, lead and Arsenic as per</p>



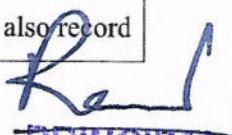

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	<p>Indian pharmacopeia.</p> <p>CO2: Identify inorganic compound through various chemical test.</p> <p>CO3: Test for purity through swelling power of Bentonite.</p> <p>CO4: Preparation of inorganic pharmaceuticals through Boric acid and Potash alum.</p>
BP111P Communication skills	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the essential communication skills.</p> <p>CO2: Learn and practice different types of pronunciation.</p> <p>CO3: Learn to apply advanced communication skills.</p> <p>CO4: Know the writing skills and presentation skills.</p>
BP112RBP Remedial Biology	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand and mechanism of Introduction to experiments in biology</p> <p>CO2: Able to understand cell, stem, root, leaf, seed, fruit, and flower.</p> <p>CO3: Able to understand the Microscopic study and identification of tissues pertinent</p> <p>CO4: Able to understand the Identification of bones, blood group, blood pressure, tidal volume.</p>

First Year B. Pharm (Semester-II)

	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Explain the gross morphology, structure and function of various organs of the human body.</p> <p>CO2: Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.</p> <p>CO3: Identify the various tissues and organs of different systems of human body.</p> <p>CO4: Perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record</p>
	



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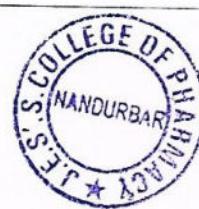
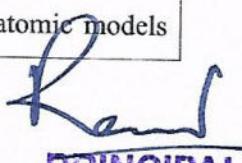
	blood pressure, heart rate, pulse and respiratory volume.
BP202T Pharmaceutical Organic Chemistry-I	Upon completion of this course the student should be able to, CO1: Understand the structure, name and the type of isomerism of the organic compounds. CO2: Understand the name reaction, synthesis and orientation of various classes of reactions. CO3: Will know about the reactivity/stability of compounds. CO4: Identify the organic compound by systematic qualitative test.
BP203T Biochemistry	Upon completion of this course the student should be able to, CO1: Classify / explain the chemical nature, biological role of bio- molecules and identify the concepts of bioenergetics. CO2: Understand the metabolic pathways of bio-molecules in physiological and pathological conditions. CO3: Explain biological significance & disorders of bio-molecules. CO4: Outline the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins CO5: Understand the biosynthesis of nucleotides and nucleoside.
BP204T Pathophysiology	Upon completion of this course the student should be able to, CO1: Understand the etiology and pathogenesis of the various diseases. CO2: Will know about the name the signs and symptoms of the various diseases. CO3: Identify the mode of infection of the various diseases. CO4: Identify the complications of the diseases.
BP205T Computer Applications in Pharmacy	Upon completion of this course the student should be able to, CO1: To understand different types of databases, applications of computers and databases in pharmacy. CO2: To illustrate the concept of number system in computers.




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	<p>CO3: To make use of web technologies such as HTML, XML, CSS, programming languages, Web servers and pharmacy drug database.</p> <p>CO4: To explain about bioinformatics and its impact in vaccine discovery</p>
BP206T Environmental sciences	<p>Upon completion of this course the student should be able to,</p> <p>CO1: To know Multidisciplinary nature of environmental studies.</p> <p>CO2: Understand Concept, Structure and function of an ecosystem.</p> <p>CO3: Explain environmental Pollution and their types.</p> <p>CO4: Identify the natural resources and related problems of renewable and non-renewable resources.</p>
BP207P Human Anatomy and Physiology II	<p>Upon completion of this course the student should be able to,</p> <p>CO1: To identify the various tissues and organs of different systems of human body.</p> <p>CO2: To perform the hematological test like blood cell counts, haemoglobin estimation, bleeding/clotting time etc. and also to record blood pressure, heart rate, pulse and respiratory volume.</p> <p>CO3: To describe the various homeostatic mechanisms and their imbalances.</p> <p>CO4: To study the maintenance of normal functioning of human body.</p>
BP208P Pharmaceutical Organic Chemistry I	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Acquire knowledge of systematic qualitative analysis of unknown organic compounds.</p> <p>CO2: Acquire knowledge, in identification of the unknown compound from the literature using melting point/ boiling point.</p> <p>CO3: Learn and understand the method of preparation of suitable solid derivatives from reactants.</p> <p>CO4: To construct molecular structure by using atomic models</p>

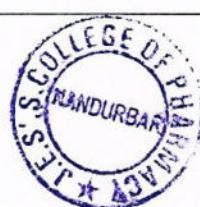
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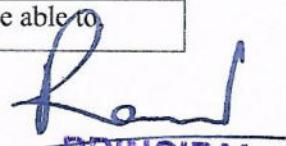
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BP209P Biochemistry	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the qualitative analysis of carbohydrate and protein.</p> <p>CO2: Understand the qualitative analysis of abnormal constituents of urine.</p> <p>CO3: Will Know about the determination of blood creatinine, sugar, and cholesterol.</p> <p>CO4: Understand the determination of enzymatic hydrolysis and salivary amylase Activity.</p>
BP210P Computer Applications in Pharmacy	<p>Upon completion of this course the student should be able to,</p> <p>CO1: To design a questionnaire and use various tools in MS word.</p> <p>CO2: To retrieve drug information and its adverse effect.</p> <p>CO3: To make use of web technologies such as HTML, XML, CSS, programming languages, Web servers and pharmacy drug database.</p> <p>CO4: To know the various tools used in MS Access.</p>

Second Year B. Pharm (Semester-III)

BP301T Pharmaceutical Organic Chemistry II	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the concept of aromaticity and resonance, in case of benzene, phenol, amine, amide and carboxylic acid.</p> <p>CO2: Understand the structure, name, methods of synthesis, reactions and orientation of reactions.</p> <p>CO3: Understand the synthesis and application of different organic compound including cycloalkanes, polynuclear hydrocarbons, phenanthrene, anthracene and naphthalene and its derivatives.</p> <p>CO4: Will know about theories involve in cyclo alkane.</p>
BP302T	Upon completion of this course the student should be able to




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Physical Pharmaceutics I	<p>CO1: Understand solubility expressions, mechanism of solute solvent interaction.</p> <p>CO2: Explain various states of matter, physicochemical properties of drug molecule applicable in designing of dosage form.</p> <p>CO3: Understand the concept of surface tension and interfacial tension phenomenon.</p> <p>CO4: Understand application of buffer, buffer capacity and buffer in pharmaceutical and biological system.</p> <p>CO5: Will know about the process of complexation.</p>
<p>BP303T Pharmaceutical Microbiology</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand methods of isolation, cultivation and preservation of various microorganisms.</p> <p>CO2: To understand the importance and implementation of sterilization principles/methods in pharmaceutical industry.</p> <p>CO3: Learn sterility testing of pharmaceutical products.</p> <p>CO4: Carried out microbiological assay standardization of Pharmaceuticals.</p>
<p>BP304T Pharmaceutical Engineering</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Will know about the various unit operations used in Pharmaceutical industries.</p> <p>CO2: Understand the material handling techniques.</p> <p>CO3: Perform the various processes involved in pharmaceutical manufacturing process.</p> <p>CO4: Understand the theories of corrosion and their types.</p> <p>CO5: Understand significance of plant lay out design for optimum use of resources.</p>
<p>BP305P Pharmaceutical Organic Chemistry II</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Identify the chemical impurities and its purification methods</p> <p>CO2: Calculate the analytical constants values of oils.</p>



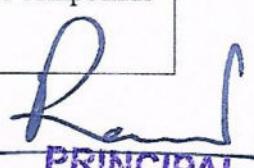

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	CO3: Understand the synthesis of drugs and intermediate. CO4: Understand the principles and reaction orientation of synthesized drugs and intermediate.
BP306P Physical Pharmaceutics I	Upon completion of this course the student should be able to, CO1: Determine the various physicochemical properties of drug molecules which are applicable in the designing of dosage form. CO2: Analyze HLB number of a surfactant by Saponification method. CO3: Compare different method used in determination of physicochemical parameter. CO4: Determine the partition co- efficient of drugs.
BP307P Pharmaceutical Microbiology	Upon completion of this course the student should be able to, CO1: Understand equipment used and important in sterilization. CO2: Capable of performing microorganism staining techniques. CO3: perform the microbial assay. CO4: To understand isolation of microbial culture.
BP308P Pharmaceutical Engineering	Upon completion of this course the student should be able to, CO1: Perform the various unit operation processes. CO2: Understand the material handling techniques in pharmaceutics laboratory. CO3: Explain the construction, working and application of Pharmaceutical Machinery. CO4: Understand the process of size reduction.

Second Year B. Pharm (Semester-IV)

	Upon completion of this course the student should be able to, CO1: Understand the methods of preparation and properties of organic compounds. CO2: Explain the stereo chemistry aspects of organic compounds and stereo chemical reactions
BP401T Pharmaceutical Organic Chemistry III	



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	<p>CO3: Understand the structure, name, properties, reaction and mechanism of reactions of heterocyclic compounds.</p> <p>CO4: Will know about the medicinal uses and other applications of organic compounds.</p>
BP402T Medicinal Chemistry-I	<p>Upon completion of this course the student should be able to,</p> <p>CO1: understand the chemistry of drugs with respect to their pharmacological activity.</p> <p>CO2: understand the drug metabolic pathways, adverse effect and therapeutic value of drugs.</p> <p>CO3: Will know about the Structural Activity Relationship (SAR) of different classes of drugs.</p> <p>CO4: Outline the synthesis of prescribed drugs.</p>
BP403T Physical Pharmaceutics II	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand colloidal dispersion and their size, shapes general characteristics, properties and evaluation.</p> <p>CO2: Will know about the concept of rheology, deformation of solids, micromeritics and its application in pharmaceutical industries.</p> <p>CO3: Understand the coarse dispersion and their properties.</p> <p>CO4: Understand methods for determining particle size and its applications.</p> <p>CO5: Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations.</p>
BP404T Pharmacology -I	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Explain fundamental concept used in pharmacology like synergism, agonist, antagonist, side effect, and adverse effects.</p> <p>CO2: Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels.</p> <p>CO3: Understand the pharmacological actions of different categories of drugs.</p>




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	<p>CO4: Discuss the mechanism of drug acting on peripheral nervous system.</p> <p>CO5: Explain various drugs used for the drug acting on central nervous system.</p>
BP405T Pharmacognosy and Phytochemistry I	<p>Upon completion of the course, the student should be able to,</p> <p>CO1: To know the techniques in the cultivation and production of crude drugs.</p> <p>CO2: to know the crude drugs, their uses and chemical nature</p> <p>CO3: know the evaluation techniques for the herbal drugs</p> <p>CO4: to carry out the microscopic and morphological evaluation of crude drugs</p>
BP406P Medicinal Chemistry -I	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Able to outline the procedure, principle, mechanism and synthesis of drugs and their intermediate.</p> <p>CO2: Capable to describe the method for crystallization and characterization of drugs and intermediate.</p> <p>CO3: perform the assay of drugs and their preparation by pharmacopoieal method.</p> <p>CO4: understand to determine the partition coefficient of drugs.</p>
BP407P Physical Pharmaceutics II	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand various particle size, particle size distribution, flow properties of powders using various methods.</p> <p>CO2: Determine the sedimentation volume and viscosity of the liquids by various methods.</p> <p>CO3: Will know about the different instruments handling techniques.</p> <p>CO4: Understand the different methods of reaction rate constant and carry out the stability studies.</p>
BP408P Pharmacology -I	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Handle the laboratory equipments and apply techniques</p>

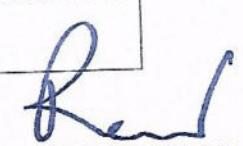



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	<p>used in experimental pharmacology</p> <p>CO2: Demonstrate the common laboratory techniques like routes of administration, blood withdrawal for animal studies</p> <p>CO3: Observe the effect of drugs on animals by simulated experiments.</p> <p>CO4: Evaluate the pharmacological screening of drugs in rats/mice</p>
<p>BP409P Pharmacognosy and Phytochemistry I</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Determine the microscopical index/number/values of crude drugs.</p> <p>CO2: Analysis of crude drugs by different chemical tests.</p> <p>CO3: Able to perform and understand the evaluation parameter for standardization of crude drug.</p> <p>CO4: Determine the extractive values and moisture content of crude drugs.</p>

Third Year B. Pharm (Semester-V)

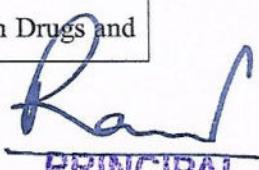
<p>BP501T Medicinal Chemistry-II</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the chemistry of drugs with respect to their pharmacological action.</p> <p>CO2: Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs.</p> <p>CO3: Will Know about the Structural Activity Relationship of different class of drugs.</p> <p>CO4: Outline the synthesis of prescribed drugs.</p>
<p>BP502T Industrial Pharmacy-I</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Will know about the various pharmaceutical dosage forms and their manufacturing techniques.</p> <p>CO2: Understand the formulation, coating and evaluation of tablet /capsule dosage form.</p>

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	<p>CO3: Understand the formulation and evaluation of Semi solid dosage form.</p> <p>CO4: Understand the formulation and evaluation of parenteral products.</p>
<p>BP503T Pharmacology-II</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the mechanism of drug action and its relevance in the treatment of different diseases and hemodynamic and electrophysiology of heart.</p> <p>CO2: Understand the different mechanism of drug action.</p> <p>CO3: Identify the role of autacoids and related drugs.</p> <p>CO4: Explain pharmacology of drugs acting on endocrine system.</p> <p>CO5: Understand principles of bioassay and methods of application for various.</p>
<p>BP504T Pharmacognosy and Phytochemistry-II</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Will know about the modern extraction techniques, characterization and identification of the herbal drugs or phytoconstituents.</p> <p>CO2: Understand the preparation and evaluation of herbal formulation.</p> <p>CO3: Understand the herbal drug interactions.</p> <p>CO4: Carryout isolation and identification of phytoconstituents.</p>
<p>BP505T Pharmaceutical Jurisprudence</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Acquire knowledge on schedule rules, regulations and laws related to Drugs and Cosmetics Act, 1940 and its rules 1945.</p> <p>CO2: Understand the study of Schedule G, H, M, N, P, T, U, V, X, Y and General labeling requirements and specimen labels for drugs and cosmetics.</p> <p>CO3: Explain the various acts on Pharmacy Act and Medicinal and Toilet Preparation Act etc.</p> <p>CO4: Understand another act and rules associated with Drugs and</p>

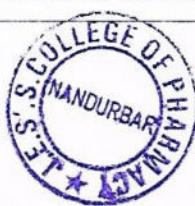
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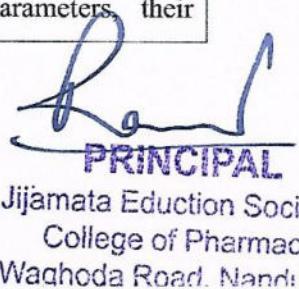
	<p>Magic Remedies Act and its rules and National Pharmaceutical Pricing Authority.</p> <p>CO5: Will know about the various Pharmaceutical Legislations, Code of Pharmaceutical ethics and Introduction to Intellectual Property Rights (IPR).</p>
BP506P Industrial Pharmacy-I	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the preformulation studies of paracetamol.</p> <p>CO2: Design formulation of Aspirin tablet.</p> <p>CO3: Understand the evaluation parameter of marketed tablet.</p> <p>CO4: Understand the evaluation for glass containers.</p>
BP507P Pharmacology-II	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the concept of <i>in-Vitro</i> Pharmacology.</p> <p>CO2: Demonstrate the effect of drugs on animals by simulated experiments.</p> <p>CO3: Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments.</p> <p>CO4: Determination of drug concentration by bioassay.</p>
BP508P Pharmacognosy and Phytochemistry-II	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand morphological, microscopical and powder characteristics of crude drug sample.</p> <p>CO2: Understand and perform the isolation process of phytoconstituents.</p> <p>CO3: Perform different methods of Chromatography.</p> <p>CO4: Performs chemical test of crude drugs.</p>

Third Year B. Pharm (Semester-VI)

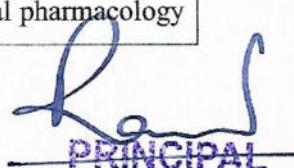
	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the Structure activity relationship of different classes of drugs.</p> <p>CO2: Understand the chemistry, metabolic pathway and mechanism</p>
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	<p>of action of different classes of drugs.</p> <p>CO3: Know the prodrug design, adverse effects and therapeutic value of drugs.</p> <p>CO4: Know the drug design techniques by QSAR application.</p>
<p>BP602T Pharmacology III</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the pharmacology of drug acting on respiratory system.</p> <p>CO2: Understand the general principles of chemotherapy of different drugs.</p> <p>CO3: Explain the chemotherapy of different drugs like antitubercular agents and antileprotic agents.</p> <p>CO4: understand the principles of toxicology and treatment of various poisonings.</p>
<p>BP603T Herbal Drug Technology</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand raw material as source of herbal drugs from cultivation to herbal drug Product.</p> <p>CO2: Will know about the WHO and ICH guidelines for evaluation of herbal drugs.</p> <p>CO3: Will know about the herbal cosmetics, natural sweeteners, and neutraceuticals.</p> <p>CO4: understand the patenting of herbal drugs, GMP.</p>
<p>BP604T Biopharmaceutics and Pharmacokinetics</p>	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the basic concepts in Biopharmaceutics and pharmacokinetics and their significance.</p> <p>CO2: Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.</p> <p>CO3: To understand the concepts of bioavailability and bioequivalence of drug products and their significance.</p> <p>CO4: Understand various pharmacokinetic parameters, their</p>



	significance & applications.
BP605T Pharmaceutical Biotechnology	Upon completion of this course the student should be able to, CO1: Understand the importance of immobilization of enzymes in pharmaceutical industries. CO2: Understand the genetic engineering applications in relation to production of pharmaceuticals. CO3: Understand the importance of monoclonal antibodies in industries. CO4: Understand the use of microorganisms in fermentation technology.
BP606T Quality Assurance	Upon completion of this course the student should be able to, CO1: Understand the cGMP aspects in a pharmaceutical industry. CO2: Understand the importance of documentation. CO3: Understand the scope of quality certifications applicable to pharmaceutical industries. CO4: Will know about the responsibilities of QA & QC departments.
BP607P Medicinal chemistry III	Upon completion of this course the student should be able to, CO1: Understand the synthesis drugs and intermediate. CO2: Analyze percentage purity of pharmaceutical drugs. CO3: Understand the synthesis by microwave irradiation technique. CO4: To compute Lipinski's rule of five and sketch/draw chemical compound.
BP608P Pharmacology III	Upon completion of this course the student should be able to, CO1: Perform dose calculation in pharmacological experiments. CO2: Understand the concept of <i>in-Vivo</i> Pharmacology CO3: Demonstrate the effect of drugs on animals by simulated experiments CO4: Study bio statistical methods in experimental pharmacology



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	and calculation of pharmacokinetic parameters.
BP609P Herbal Drug Technology	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Perform preliminary phytochemical screening of crude drugs and evaluations of excipients.</p> <p>CO2: Preparation and evaluations of formulations of drugs.</p> <p>CO3: Analysis of herbal drugs from recent Pharmacopoeias.</p> <p>CO4: Determine the phenol content, aldehyde content etc</p>

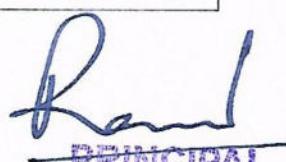
Final Year B. Pharm (Semester-VII)

BP701T Instrumental Methods of Analysis	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the interaction of spectrophotometric techniques and its applications in drug analysis.</p> <p>CO2: Understand the chromatographic separation and analysis of drugs.</p> <p>CO3: Perform quantitative & qualitative analysis of drugs.</p> <p>CO4: Understand the analytical instrumental handling.</p> <p>CO5: Explain the construction, working and applications of analytical instrument.</p>
BP702T Industrial Pharmacy-II	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Will Know about the process of pilot plant and scale up of pharmaceutical dosage forms.</p> <p>CO2: Understand the process of technology transfer from lab scale to commercial batch.</p> <p>CO3: Will Know about the different Laws and Acts that regulate pharmaceutical industry.</p> <p>CO4: Understand the approval process and regulatory requirements for drug products.</p>
BP703T Pharmacy Practice	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Will know about the hospital and its organization.</p> <p>CO2: Understand the various drug distribution processes.</p>




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	<p>CO3: Will know about the pharmacy and therapeutic committee and role of pharmacist in the education and training program.</p> <p>CO4: Understand the concept of clinical pharmacy and importance of over the counter (OTC) drugs.</p> <p>CO5: Understand the investigational/new use of drugs.</p>
BP704T Novel Drug Delivery System	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Understand the various approaches for development of novel drug delivery system.</p> <p>CO2: Understand about the criteria for selection of drug and polymer for microencapsulation.</p> <p>CO3: Understand about the criteria for selection of drug and polymer gastroretentive drug delivery systems.</p> <p>CO4: Will Know about the various polymer uses trandermal drug delivery systems.</p>
BP705P Instrumental Methods of Analysis	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Perform absorption maxima and effect of solvents on absorption maxima of organic compounds.</p> <p>CO2: Understand the various assays by using spectrophotometric techniques.</p> <p>CO3: Demonstrate the experiment on chromatographic techniques.</p> <p>CO4: Explain and perform analytical experiments.</p>
BP706PS Practice School	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Select the topic according to their area of interest.</p> <p>CO2: Will know about the subject literature which is useful to design their project work.</p> <p>CO3: Evaluate conclusions on their research problem.</p> <p>CO4: Explain a project report and defend his / her work in front of a panel of examiners.</p>

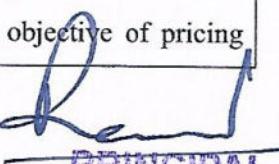



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Final Year B. Pharm (Semester-VIII)

BP801T Biostatistics and Research Methodology	Upon completion of this course the student should be able to, CO1: Understand the concept of biostatistics in pharmacy, measures of central tendency, dispersion and correlation. CO2: Will know about the regression, probability, SEM and various parametric tests. CO3: Understand the concept of non parametric test and research methodology. CO4: Understand the operation of M.S. Excel, SPSS, R, MINITAB®, and DoE (Design of Experiment). CO5: Apply the statistical techniques in solving the problems and understand the concept of factorial design.
BP802T Social and Preventive Pharmacy	Upon completion of this course the student should be able to, CO1: Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide. CO2: Will know about the current healthcare development system for various diseases. CO3: Understand the various health programs conducted by Govt. of India. CO4: Understand various health policies given by Govt. of India. CO5: Will know about preventative measures of various diseases.
BP803ET Pharma Marketing Management	Upon completion of this course the student should be able to, CO1: Understand the various strategies in pharmaceutical market. CO2: Will know about the Classification, product line and product decisions. CO3: Understand the different online promotional techniques for OTC products. CO4: Learn the duties for professional sales representative CO5: Understand the meaning, importance, objective of pricing



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	and overview of DPCO and NPPA.
BP811ET Advanced Instrumentation Techniques	<p>Upon completion of this course the student should be able to,</p> <p>CO1: understand the advanced instruments used and its applications in drug analysis</p> <p>CO2: understand the chromatographic separation and analysis of drugs.</p> <p>CO3: understand the calibration of various analytical instruments</p> <p>CO4: Will know about the analysis of drugs using various analytical instruments.</p>
BP813 Project Work	<p>Upon completion of this course the student should be able to,</p> <p>CO1: Will know about their topic for a research design including the sampling, observational, statistical and operational designs if any.</p> <p>CO2: Will know about the subject literature which is useful to design their research /review work.</p> <p>CO3: Evaluate conclusions on their research problem.</p> <p>CO4: Calculate the relevant data, interpret & analyze it from observation and results wherever applicable.</p> <p>CO5: Explain a rational project report and defend his / her work in front of a panel of examiners.</p>




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