Course Outcome (CO) of Theory According to PCI, Pattern

First year SEM I	
BP101T. Human anatomy and physiology-I	Upon completion of this course the student should be able to- 1. Explain the gross morphology, structure and functions of various organs of the human body. 2. Describe the various homeostatic mechanisms and their imbalances. 3. Identify the various tissues and organs of different systems of human body. 4. Perform the various experiments related to special senses and nervous system. 5. Appreciate coordinated working pattern of different organs of each system
BP102T. Pharmaceutical analysis	Upon completion of the course student shall be able to 1. Understand the principles of volumetric and electro chemical analysis 2. Carryout various volumetric and electrochemical titrations 3. Develop analytical skills
BP103T. Pharmaceutics- i	Upon completion of this course the student should be able to: 1. Know the history of profession of pharmacy 2. Understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations 3. Understand the professional way of handling the prescription 4. Preparation of various conventional dosage forms
BP104T. Pharmaceutical inorganic chemistry	Upon completion of course student shall be able to 1. know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals. 2. understand the medicinal and pharmaceutical importance of inorganic compounds.

Course Outcome (CO) of Theory According to PCI, Pattern

First year SEM II	
BP 201T. Human anatomy and physiology-II	Upon completion of this course the student should be able to: 1. Explain the gross morphology, structure and functions of various organs of the human body. 2. Describe the various homeostatic mechanisms and their imbalances. 3. Identify the various tissues and organs of different systems of human body. 4. Perform the hematological tests heart rate, pulse and respiratory volume. 5. Appreciate coordinated working pattern of different organs of each system. 6. Appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.
BP202T. Pharmaceutical organic chemistry –I	Upon completion of the course the student shall be able to 1. write the structure, name and the type of isomerism of the organic compound 2. write the reaction, name the reaction and orientation of reactions 3. account for reactivity/stability of compounds, 4. identify/confirm the identification of organic compound.
BP203 T. Biochemistry	Upon completion of course student shell able to 1. Understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes. 2. Understand the metabolism of nutrient molecules in physiological and pathological conditions. 3. Understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.
BP 204T. Pathophysiology	Upon completion of the subject student shall be able to – 1. Describe the etiology and pathogenesis of the selected disease states. 2. Name the signs and symptoms of the diseases; and 3. Mention the complications of the diseases.

Course Outcome (CO) of Theory According to PCI, Pattern

Second year SEM III	
BP301T. Pharmaceutical organic chemistry –II	Upon completion of the course the student shall be able to 1. write the structure, name and the type of isomerism of the organic compound 2. write the reaction, name the reaction and orientation of reactions 3. account for reactivity/stability of compounds, 4. prepare organic compounds
BP302T. Physical pharmaceutics-I	Upon the completion of the course student shall be able to- 1-Describe and classify colloidal dispersions. 2-Explain various properties of colloids. 3-Discuss various rheological behaviours exhibited by various systems and to illustrate deformation of solids. 4-Review on colloidal dispersions. 5-Explain the concepts related to micromeretics. 6. Know the principles of chemical kinetics & to use them for stability testing.
BP 303 T. Pharmaceutical microbiology	Upon completion of the subject student shall be able to; 1. Understand methods of identification, cultivation and preservation of various microorganisms 2. To understand the importance and implementation of sterlization in pharmaceutical processing and industry 3. Learn sterility testing of pharmaceutical products. 4. Carried out microbiological standardization of Pharmaceuticals. 5. Understand the cell culture technology and its applications in pharmaceutical industries. 6. To understand history,scope and basic involved in pharmaceutical microbiology
BP 304 T. Pharmaceutical engineering	Upon completion of the course student shall be able: 1. To know various unit operations used in Pharmaceutical industries. 2. To understand the material handling techniques. 3. To perform various processes involved in pharmaceutical manufacturing process. 4. To carry out various test to prevent environmental pollution. 5. To appreciate and comprehend significance of plant lay out design for optimum use of resources. 6. To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.

Course Outcome (CO) of Theory According to PCI, Pattern

Second year SEM IV	
BP401T. Pharmaceutical organic chemistry –III	At the end of the course, the student shall be able to 1. understand the methods of preparation and properties of organic compounds. 2. explain the stereo chemical aspects of organic compounds and stereo chemical reactions. 3. know the medicinal uses and other applications of organic compounds.
BP402T. Medicinal chemistry – I	Upon completion of the course the student shall be able to 1. Classify drugs based on structure belonging to various categories. 2. Understand the chemistry of drugs with respect to their pharmacological activity. 3. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs. 4. Know the Structural Activity Relationship (SAR) of different class of drugs. 5. Write the chemical synthesis of some drugs. 6. Write uses of various medicinal compounds.
BP 403 T. Physical pharmaceutics-II	Upon the completion of the course student shall be able to 1. Understand various physicochemical properties of drug molecules in the designing the dosage forms. 2. Know the principles of chemical kinetics & to use them for stability testing. 3. Determination of expiry date of formulations. 4. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP 404 T. Pharmacology-I	Upon completion of this course the student should be able to 1. Understand the pharmacological actions of different categories of drugs. 2. Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels. 3. Apply the basic pharmacological knowledge in the prevention and treatment of various diseases. 4. Observe the effect of drugs on animals by simulated experiments. 5. Appreciate correlation of pharmacology with other bio medical sciences.
BP 405 T. Pharmacognosy and phytochemistry I	Upon completion of the course, the student shall be able 1. to know the techniques in the cultivation and production of crude drugs. 2. to know the crude drugs, their uses and chemical nature. 3. know the evaluation techniques for the herbal drugs. 4. to carry out the microscopic and morphological evaluation of crude drugs.

Course Outcome (CO) of Theory According to PCI, Pattern

Third year SEM V	
BP501T Medicinal Chemistry II	Upon completion of the course the student shall be able to 1. Understand the chemistry of drugs with respect to their pharmacological activity. 2. Understand the drug metabolic pathways, adverse effect and therapeutic value of drugs. 3. Know the Structural Activity Relationship of different class of drugs. 4. Study the chemical synthesis of selected drugs.
BP502T Industrial Pharmacy I	Upon completion of the course the student shall be able to 1. Know the various pharmaceutical dosage forms and their manufacturing techniques. 2. Know various considerations in development of pharmaceutical dosage forms. 3. Formulate solid, liquid and semisolid dosage forms and evaluate them for their quality.
BP503T Pharmacology II	Upon completion of this course the student should be able to 1. Understand the mechanism of drug action and its relevance in the treatment of different diseases. 2. Demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments. 3. Demonstrate the various receptor actions using isolated tissue preparation. 4. Appreciate correlation of pharmacology with related medical sciences.
BP504T Pharmacognosy and Phytochemistry II	Upon completion of the course, the student shall be able 1. to know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents. 2. to understand the preparation and development of herbal formulation. 3. to understand the herbal drug interactions. 4. to carryout isolation and identification of phytoconstituents.
BP505T Pharmaceutical Jurisprudence	Upon completion of the course, the student shall be able to understand: 1. The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals. 2. Various Indian pharmaceutical Acts and Laws. 3. The regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals. 4. The code of ethics during the pharmaceutical practice.

Course Outcome (CO) of Theory According to PCI, Pattern

Third year SEM VI	
BP601T Medicinal Chemistry III	Upon completion of the course student shall be able to 1. Understand the importance of drug design and different techniques of drug design. 2. Understand the chemistry of drugs with respect to their biological activity. 3. Know the metabolism, adverse effects and therapeutic value of drugs. **4.** Know the importance of SAR of drugs.
BP602T Pharmacology III	Upon completion of this course the student should be able to: 1. understand the mechanism of drug action and its relevance in the treatment of different infectious diseases. 2. comprehend the principles of toxicology and treatment of various poisonings. 3. appreciate correlation of pharmacology with related medical sciences.
BP603T Herbal Drug Technology	Upon completion of this course the student should be able to: 1. understand raw material as source of herbal drugs from cultivation to herbal drug product 2. know the WHO and ICH guidelines for evaluation of herbal drugs 3. know the herbal cosmetics, natural sweeteners, nutraceuticals 4. appreciate patenting of herbal drugs, GMP .
BP604T Biopharmaceutics and Pharmacokinetics	Upon completion of the course student shall be able to: 1. Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance. 2. Use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination. 3. To understand the concepts of bioavailability and bioequivalence of drug. 4. products and their significance. 5. Understand various pharmacokinetic parameters, their significance & applications.
BP605T Pharmaceutical Biotechnology	Upon completion of the subject student shall be able to; 1. Understanding the importance of Immobilized enzymes in Pharmaceutical Industries 1. Genetic engineering applications in relation to production of pharmaceuticals 2. Importance of Monoclonal antibodies in Industries 3. Appreciate the use of microorganisms in fermentation technology
BP606T Quality Assurance	Upon completion of the course student shall be able to: 1. understand the cGMP aspects in a pharmaceutical industry 2. appreciate the importance of documentation 3. understand the scope of quality certifications applicable to pharmaceutical industries 4. understand the responsibilities of QA & QC departments

Course Outcome (CO) of Practical According to PCI, Pattern

First year SEM I	
BP107P. Human Anatomy and Physiology – Lab	The students should be able to- 1. Outline the compound microscope along with microscopic study of various tissues. 2. Identify various bones. 3. Enumeration of white blood cell (WBC) and total red blood corpuscles (RBC) count. 4. Determination of bleeding time, clotting time, blood group, erythrocyte sedimentation rate and haemoglobin content. 5. Predict effective interpersonal written and verbal skill. 6. Reproduce theoretical knowledge of pharmaceutical Analysis I.
BP108P Pharmaceutical Analysis I – Lab	The students should be able to- 1. Express the procedure for determination of Limit Test of various ions. 2. Describe the procedure for preparation and standardization of various pharmaceutical compounds. 3. Illustrate the procedure for performing assay of the following compounds along with standardization of titrant. 4. Determination of Normality by electro-analytical methods. 5. Predict effective interpersonal written and verbal skill. 6. Reproduce theoretical knowledge of pharmaceutical Analysis I.
BP103P Pharmaceutics I – Lab	The students should be able to- 1. Describe the procedure for preparation of various monphasic liquid dosage form like syrups, elixirs, linctus, solutions, gargles and Mouthwashes. 2. Explain the procedure for preparation of various biphasic liquid dosage form like suspensions and emulsion. 3. Illustrate the procedure for preparation of powders and granules. 4. Locate an appropriate method for preparation of various semisolid dosage forms. 5. Predict effective interpersonal written and verbal skill. 6. Reproduce theoretical knowledge of pharmaceutics I.
BP110P Pharmaceutical Inorganic Chemistry – Lab	The students should be able to- 1. Express the procedure for determination of Limit Test of various ions. 2. Illustrate the procedure for identification test of various inorganic compounds. 3. Describe the procedure to perform test for purity. 4. Explain the procedure for preparation of inorganic pharmaceuticals. 5. Predict effective interpersonal written and verbal skill. 6. Reproduce theoretical knowledge of pharmaceutical inorganic chemistry.

Course Outcome (CO) of Practical According to PCI, Pattern

First year SEM II	
BP 207 P Human Anatomy and Physiology II – Lab	The students should be able to- 1. Describe integumemtory and special scene nervous and endocrine system using special model. 2. Memories function of olfactory nerve, visual activity and reflux activity along with positive and negative feedback mechanism. 3. Recognise different types of taste. 4. Express the method for recording body temp. 5. Predict effective interpersonal written and verbal skill. 6. Reproduce theoretical knowledge of human Anatomy and physiology.
BP208P Pharmaceutical Organic Chemistry I– Lab	The students should be able to- 1.Express the procedure for systematic qualitative analysis of unknown organic compounds. 2.Explain the procedure for preparation of suitable solid derivatives from organic compounds. 3.Describe the procedure for construction of molecular models. 4.Predict effective interpersonal written and verbal skill. 5.Reproduce theoretical knowledge of pharmaceutical organic chemistry I.
BP209P Biochemistry– Lab	The students should be able to- 1. Explain the procedure for qualitative analysis of carbohydrates, reducing sugars, proteins and urine. 2. Describe the procedure for identification tests for Proteins, enzymatic hydrolysis of starch 3. Determination of blood creatinine, sugar, serum total cholesterol and Salivary amylase activity 4. Express the procedure for preparation of buffer solution and measurement of pH. 5. Study the effect of temperature and substrate concentration on Salivary amylase activity. 6. Predict effective interpersonal written and verbal skill.

Course Outcome (CO) of Practical According to PCI, Pattern

Second year SEM III	
BP305P Pharmaceutical Organic Chemistry II – Lab	Upon completion of the course the student shall be able to 1. write the structure, name and the type of isomerism of the organic compound. 2. write the reaction, name the reaction and orientation of reactions. 3. account for reactivity/stability of compounds. 4. prepare organic compounds
BP306P Physical Pharmaceutics I – Lab	Upon the completion of the course student shall be able to 1. Understand various physicochemical properties of drug molecules in the designing the dosage forms 2. Know the principles of chemical kinetics & to use them for stability testing nad determination of expiry date of formulations 3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP307P Pharmaceutical Microbiology – Lab	Upon completion of the subject student shall be able to; 1. Understand methods of identification, cultivation and preservation of various microorganisms 2. To understand the importance and implementation of sterlization in pharmaceutical processing and industry 3. Learn sterility testing of pharmaceutical products. 4. Carried out microbiological standardization of Pharmaceuticals. 5. Understand the cell culture technology and its applications in pharmaceutical industries.
BP 308P Pharmaceutical Engineering– Lab	Upon completion of the course student shall be able: 1. To know various unit operations used in Pharmaceutical industries. 2. To understand the material handling techniques. 3. To perform various processes involved in pharmaceutical manufacturing process. 4. To carry out various test to prevent environmental pollution. 5. To appreciate and comprehend significance of plant lay out design for optimum use of resources. 6. To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.

Course Outcome (CO) of Practical According to PCI, Pattern

Second year SEM IV	
BP406P Medicinal Chemistry I — Lab	Upon completion of the course the student shall be able to 1. understand the chemistry of drugs with respect to their pharmacological activity 2. understand the drug metabolic pathways, adverse effect and therapeutic value of drugs 3. know the Structural Activity Relationship (SAR) of different class of drugs. 4. write the chemical synthesis of some drugs
BP407P Physical Pharmaceutics II – Lab	Upon the completion of the course student shall be able to 1. Understand various physicochemical properties of drug molecules in the designing the dosage forms 2. Know the principles of chemical kinetics & to use them for stability testing nad determination of expiry date of formulations 3. Demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP408P Pharmacology I – Lab	Upon completion of this course the student should be able to 1. Outline study of common laboratory animal and different routes of drug administration 2. Discuss CPCSEA guidelines 3. Review effect of various drugs by performing practical using animal simulator software 4. Predict interpersonal written and verbal skill. 5. Reproduce therotical knoeledge of pharmacology.
BP409P Pharmacognosy and Phytochemistry I – Lab	Upon completion of the course, the student shall be able 1. To analyse crude drug by chemical tests. 2. Evaluate crude drug by microscopic methods. 3. To analyse crude drug by physical tests 4. Predict effective interpersonal written and verbal skill