SNDT Women's University
C. U. Shah College of Pharmacy

Name of Program: Bachelor of Pharmacy (B. Pharm.)

Program Outcomes

1. **Pharmacy Knowledge**: Possess knowledge of the core pharmacy subjects such as pharmaceutics, pharmacology, pharmaceutical chemistry and other allied subjects like pharmacy administration, cosmetics, marketing etc.
2. **Planning Abilities:** Showcase effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem analysis:** Apply the scientific principles, analytical and critical thinking, while solving problems and making decisions during daily practice.
4. **Modern tool usage**: Select, and apply appropriate procedures, resources, and modern pharmacy-related computing and analytical tools with an understanding of their working principles.
5. **Leadership skills:** Inculcate leadership and team-building skills required for fulfilment of, professional and societal responsibilities. Undertake participatory roles as responsible citizens or leadership roles to facilitate improvement in health and well-being.
6. **Professional Identity**: Comprehend, evaluate and communicate their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
7. **Pharmaceutical Ethics**: Respect personal values and ethical principles in professional and social contexts. Apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
8. **Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
9. **The Pharmacist and society:** Apply reasoning informed by the appropriate knowledge to assess health, safety and legal issues and following the responsibilities relevant to the professional pharmacy practice.
10. **Environment and sustainability**: Understand the impact of the professional pharmacy practices in environmental contexts, and showcase the knowledge of, and need for sustainable development.
11. **Life-long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self- assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

Program Specific Outcomes

The Bachelor of Pharmacy Programme will prepare its graduates to:

1. Apply knowledge to assess health, safety and legal issues and following the responsibilities relevant to the professional pharmacy practice.
2. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
3. Undertake participatory roles as responsible citizens or leadership roles to facilitate improvement in health and well- being
4. Select, and apply appropriate procedures, resources, and modern pharmacy-related computing and analytical tools with an understanding of their working principles.

Course Outcomes

B. Pharm. Semester-I

Course Code	Course Name	Course Outcomes
BP101T	**HUMAN ANATOMY AND PHYSIOLOGY-I (Theory)**	1. To impart fundamental knowledge on the structure and functions of the various systems of the human body. 2. To understand both homeostatic mechanisms. 3. To provides the basic knowledge required to understand the various disciplines of pharmacy.
BP102T	**PHARMACEUTICAL ANALYSIS (Theory)**	1. This course deals with the fundamentals of analytical chemistry and principles of electrochemical analysis of drugs 2. To understand the principles of volumetric and electro chemical analysis 3. To carryout various volumetric and electrochemical titrations 4. To develop analytical skills
BP103T	**PHARMACEUTICS- I (Theory)**	1. To impart a fundamental knowledge on the preparatory pharmacy with arts and science of preparing the different conventional dosage forms. 2. To know the history of profession of pharmacy 3. To understand the basics of different dosage forms, pharmaceutical incompatibilities and pharmaceutical calculations 4. To understand the professional way of handling the prescription 5. To Prepare various conventional dosage forms
BP104T	**PHARMACEUTICAL INORGANIC CHEMISTRY (Theory)**	This subject deals with the monographs of inorganic drugs and pharmaceuticals. 1. To know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals 2. To understand the medicinal and pharmaceutical importance of inorganic compounds

BP105 T	**COMMUNICATION SKILLS (Theory)**	1. To prepare the young pharmacy student to interact effectively with doctors, nurses, dentists, physiotherapists and other health workers. 2. To develop the soft skills set to work cohesively with the team as a team player and will add value to the pharmaceutical business. 3. To understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation 4. To communicate effectively (Verbal and Non-Verbal) 5. To effectively manage the team as a team player 6. To develop interview skills 7. To develop Leadership qualities and essentials
BP 106RBT	**REMEDIAL BIOLOGY (Theory)**	1. To learn and understand the components of living world, structure and functional system of plant and animal kingdom. 2. To know the classification and salient features of five kingdoms of life 3. To understand the basic components of anatomy & physiology of plant 4. To know understand the basic components of anatomy & physiology animal with special reference to human
BP 106 RMT	**REMEDIAL MATHEMATICS (Theory)**	1. To know the theory and their application in Pharmacy 2. To solve the different types of problems by applying theory 3. To appreciate the important application of mathematics in Pharmacy
BP107 P	**HUMAN ANATOMY AND PHYSIOLOGY (Practical)**	1. To understand the practical aspects in Practical physiology is complimentary to the theoretical discussions in physiology. 2. Practical allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. **3.** This is helpful for developing an insight on the subject**.**
BP108 P	**PHARMACEUTICAL ANALYSIS (Practical)**	**1.** To understand the practical aspects in limit test, preparation and standardization of various standard solutions and percent purity of drugs. **2.** To handle the instruments such as pH meter and conductometer
BP109 P	**PHARMACEUTICSI (Practical)**	1. To understand the practical aspects in formulation development of pharmaceutical dosage forms. 2. To encompass the development of formulations, labelling on dosage forms container and packaging techniques.
BP110 P	**PHARMACEUTICAL INORGANIC CHEMISTRY (Practical)**	1. To understand the practical aspects in limit test, identification test for various pharmaceutical compounds. 2. To understand the detection of the impurity in pharmaceutical compounds and preparation of some pharmaceutically important drugs
BP111 P	**COMMUNICATION SKILLS (Practical)**	**1.** To understand various learning modules using wordsworth® English language lab software. **2.** To improve their writing, communication and presentation skills

BP112RBP	**REMEDIAL BIOLOGY (Practical)**	1. To understand the practical aspects in plant biology including cutting, staining and permanent slide preparations. 2. Determine blood group, blood pressure and tidal volume of humans.
Course Outcomes		
B. Pharm. Semester-II		
Course Code	**Course Name**	**Course Outcomes**
BP 201T	**HUMAN ANATOMY AND PHYSIOLOGY -II (Theory)**	1. To impart fundamental knowledge on the structure and functions of the various systems of the human body. 2. It also helps in understanding both homeostatic mechanisms. 3. To understand the various disciplines of pharmacy. 4. To explain the gross morphology, structure and functions of various organs of the human body. 5. To describe the various homeostatic mechanisms and their imbalances. 6. To identify the various tissues and organs of different systems of human body. 7. To perform the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume. 8. To appreciate coordinated working pattern of different organs of each system 9. To appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.
BP202T	**PHARMACEUTICAL ORGANIC CHEMISTRY –I (Theory)**	1. To write the structure, name and the type of isomerism of the organic compound 2. To write the reaction, name the reaction and orientation of reactions 3. To account for reactivity/stability of compounds, 4. To identify/confirm the identification of organic compound
BP203T	**BIOCHEMISTRY (Theory)**	1. To understand of the molecular levels of the chemical process associated with living cells. 2. To provide biochemical facts and the principles to understand metabolism of nutrient molecules in physiological and pathological conditions. 3. To emphasize on genetic organization of mammalian genome and hetero & autocatalytic functions of DNA. 4. To understand the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes. 5. To understand the metabolism of nutrient molecules in physiological and pathological conditions. 6. To understand the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.

BP 204T	**PATHOPHYSIOLOGY (THEORY)**	1. To study of causes of diseases and reactions of the body to such disease producing causes. 2. To impart a thorough knowledge of the relevant aspects of pathology of various conditions with reference to its pharmacological applications, and understanding of basic pathophysiological mechanisms. 3. To study the syllabus of pathology, but also to get baseline knowledge required to practice medicine safely, confidently, rationally and effectively. 4. To describe the etiology and pathogenesis of the selected disease states 5. To name the signs and symptoms of the diseases
		6. To mention the complications of the diseases.
BP205 T	**COMPUTER APPLICATIONS IN PHARMACY (Theory)**	1. To introduce Database, Database Management system, computer application in clinical studies and use of databases. 2. To know the various types of application of computers in pharmacy 3. To know the various types of databases 4. To know the various applications of databases in pharmacy
BP 206T	**ENVIRONMENTAL SCIENCES (Theory)**	1. To study of the environmental system and the status of its inherent or induced changes on organisms. 2. To study of physical and biological characters of the environment but also the social and cultural factors and the impact of man on environment. 3. To create the awareness about environmental problems among learners. 4. To impart basic knowledge about the environment and its allied problems. 5. To develop an attitude of concern for the environment. 6. To motivate learner to participate in environment protection and environment improvement. 7. To acquire skills to help the concerned individuals in identifying and solving environmental problems. 8. To strive to attain harmony with Nature.

BP 207P	**HUMAN ANATOMY AND PHYSIOLOGY (Practical)**	1. Practical allow the verification of physiological processes discussed in theory classes through experiments on living tissue, intact animals or normal human beings. 2. To develop an insight on the subject. 3. To study the integumentary and special senses using specimen, models, etc., 4. To study the nervous system using specimen, models, etc. 5. To study the endocrine system using specimen, models, etc 6. To demonstrate the general neurological examination 7. To demonstrate the function of olfactory nerve 8. To examine the different types of taste. 9. To demonstrate the visual acuity 10. To demonstrate the reflex activity 11. To record body temperature 12. To demonstrate positive and negative feedback mechanism.
BP208 P	**PHARMACEUTICAL ORGANIC CHEMISTRY -I (Practical)**	**1.** To understand practical aspect in identifying unknown organic compounds using preliminary tests, functional group tests and melting point/boiling point measurement using literature. **2.** To construct molecular models
BP 209 P	**BIOCHEMISTRY (Practical)**	1. To identify various biomolecules such as carbohydrates, proteins by performing identifying tests. 2. To understand practical aspects of determination of various important parameters in blood and urine.
BP210 P	**COMPUTER APPLICATIONS IN PHARMACY (Practical)**	1. To use of computer systems to Create a HTML web page to show personal information 2. To retrieve the information of a drug and its adverse effects using online tools and Creating mailing labels 3. To use Label Wizard, generating label in MS WORD

Course Outcomes		
B. Pharm. Semester-III		
Course Code	**Course Name**	**Course Outcomes**
BP 301T	**PHARMACEUTICAL ORGANIC CHEMISTRY –II (Theory)**	1. To understand preparation and reactions of some organic compounds. Reactivity of organic compounds are also studied here. The syllabus emphasizes on mechanisms and orientation of reactions. Chemistry of fats and oils are also included in the syllabus. 2. To write the structure, name and the type of isomerism of the organic compound 3. To write the reaction, name the reaction and orientation of reactions 4. To account for reactivity/stability of compounds, 5. To prepare organic compounds
BP302T	**PHYSICAL PHARMACEUTICS-I (Theory)**	1. To study various physical and physicochemical properties, and principles involved in dosage forms/formulations. 2. to learn theory and practical components of the subject help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms. 3. To understand various physicochemical properties of drug molecules in the designing the dosage forms 4. To know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations 5. To demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP303 T	**PHARMACEUTICAL MICROBIOLOGY (Theory)**	1. To study of all categories of microorganisims especially for the production of alchol antibiotics, vaccines, vitamins enzymes etc.. 2. To understand methods of identification, cultivation and preservation of various microorganisms 3. To understand the importance and implementation of sterlization in pharmaceutical processing and industry 4. To learn sterility testing of pharmaceutical products. 5. To Carry out microbiological standardization of Pharmaceuticals. 6. To understand the cell culture technology and its applications in pharmaceutical industries.
BP 304T	**PHARMACEUTICAL ENGINEERING (Theory)**	**1.** To impart a fundamental knowledge on the art and science of various unit operations used in pharmaceutical industry. **2.** To know various unit operations used in Pharmaceutical industries. **3.** To understand the material handling techniques. **4.** To perform various processes involved in pharmaceutical manufacturing process. **5.** To carry out various test to prevent environmental pollution. **6.** To appreciate and comprehend significance of plant lay out design for optimum use of resources. **7.** To appreciate the various preventive methods used for corrosion control in Pharmaceutical industries.
BP305P	**PHARMACEUTICAL ORGANIC CHEMISTRY -II (Practical)**	1. To understand practical aspects of recrystallization and distillation techniques. 2. To synthetize pharmaceutically important organic compounds using various organic reactions.

BP 306 P	**PHYSICAL PHARMACEUTICS – I (Practical)**	1. To understand practical aspects of various important parameters required during development of various pharmaceutical dosage forms. 2. To understand use of important physical parameters in developing formulation.
BP 307P	**PHARMACEUTICAL MICROBIOLOGY (Practical)**	**1.** To understand hands on training on sterilization techniques in pharmaceutical processing and industry **2.** To learn Sub culturing of bacteria and fungus, Nutrient stabs and slants preparations and staining methods.
BP308P	**PHARMACEUTICAL ENGINEERING (Practical)**	**1.** To understand practical aspects of various unit operations and processes carried out during development of various pharmaceutical dosage forms. **2.** To gain knowledge of the newer techniques and pharmaceutical process parameters and operations

Course Outcomes

B. Pharm. Semester-IV

Course Code	Course Name	Course Outcomes
BP 401T	**PHARMACEUTICAL ORGANIC CHEMISTRY –III (Theory)**	1. To impart knowledge on stereo-chemical aspects of organic compounds and organic reactions, important named reactions, chemistry of important hetero cyclic compounds. 2. to emphasize on medicinal and other uses of organic compounds. 3. To understand the methods of preparation and properties of organic compounds 4. To explain the stereo chemical aspects of organic compounds and stereo chemical reactions 5. To know the medicinal uses and other applications of organic compounds
BP402T	**MEDICINAL CHEMISTRY – I (Theory)**	1. To impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. 2. to emphasize on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. 3. To emphasizes on chemical synthesis of important drugs under each class. 4. To understand the chemistry of drugs with respect to their pharmacological activity 5. To understand the drug metabolic pathways, adverse effect and therapeutic value of drugs 6. To know the Structural Activity Relationship (SAR) of different class of drugs 7. To write the chemical synthesis of some drugs

P403 T	**PHYSICAL PHARMACEUTICS-II (Theory)**	**1.** To understand various physical and physicochemical properties, and principles involved in dosage forms/formulations. **2.** To help the student to get a better insight into various areas of formulation research and development, and stability studies of pharmaceutical dosage forms. **3.** To understand various physicochemical properties of drug molecules in the designing the dosage forms **4.** To know the principles of chemical kinetics & to use them for stability testing nad determination of expiry date of formulations **5.** To demonstrate use of physicochemical properties in the formulation development and evaluation of dosage forms.
BP 404T	**PHARMACOLOGY-I (Theory)**	**1.** To understand what drug do to the living organisms and how their effects can be applied to therapeutics. **2.** The understand mechanism of action, physiological and biochemical effects (pharmacodynamics) as well as absorption, distribution, metabolism and excretion (pharmacokinetics) along with the adverse effects, clinical uses, interactions, doses, contraindications and routes of administration of different classes of drugs. **3.** To understand the pharmacological actions of different categories of drugs **4.** To explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels. **5.** To apply the basic pharmacological knowledge in the prevention and treatment of various diseases. **6.** To observe the effect of drugs on animals by simulated experiments
		7. To appreciate correlation of pharmacology with other bio medical sciences
BP405T	**PHARMACOGNOSY AND PHYTOCHEMISTRY I (Theory)**	1. To understand the fundamentals of Pharmacognosy like scope, classification of crude drugs, their identification and evaluation, phytochemicals present in them and their medicinal properties. 2. To know the techniques in the cultivation and production of crude drugs 3. To know the crude drugs, their uses and chemical nature 4. To know the evaluation techniques for the herbal drugs 5. To carry out the microscopic and morphological evaluation of crude drugs
BP406 P	**MEDICINAL CHEMISTRY – I (Practical)**	**1.** To understand practical aspects of preparation of various pharmaceutically important drugs and intermediates. **2.** To perform assays of pharmaceutically important drugs using various titrimetric methods
BP407P	**PHYSICAL PHARMACEUTICS- II (Practical)**	1. To understand practical aspects of various important parameters required during development of various pharmaceutical dosage forms. 2. To understand the use of important physical parameters in developing formulation
BP408P	**PHARMACOLOGY-I (Practical)**	1. To gain knowledge of instruments and laboratory animals used in experimental pharmacology. 2. To understand the practical aspects of Common laboratory techniques used for animal studies, different routes of drugs administration in mice/rats and pharmacological actions of different categories of drugs.

BP409 P	**PHARMACOGNOSY AND PHYTOCHEMISTRY I (Practical)**	1. To analyse practically various crude drugs by performing various phytochemical tests. 2. To understand the practical aspects in evaluation of crude drugs by measuring various parameters.

Course Outcomes		
B. Pharm. Semester-V		
Course Code	**Course Name**	**Course Outcomes**
BP 501T	**MEDICINAL CHEMISTRY – II (Theory)**	1. To impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. 2. To understand structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs. 3. To emphasize on chemical synthesis of important drugs under each class. 4. To understand the chemistry of drugs with respect to their pharmacological activity 5. To understand the drug metabolic pathways, adverse effect and therapeutic value of drugs 6. To know the Structural Activity Relationship of different class of drugs 7. To study the chemical synthesis of selected drugs
BP502T	**Industrial PharmacyI (Theory)**	1. To understand and appreciate the influence of pharmaceutical additives and various pharmaceutical dosage forms on the performance of the drug product. 2. To know the various pharmaceutical dosage forms and their manufacturing techniques. 3. To know various considerations in development of pharmaceutical dosage forms 4. To formulate solid, liquid and semisolid dosage forms and evaluate them for their quality
BP503 T	**PHARMACOLOGY-II (Theory)**	1. To impart the fundamental knowledge on various aspects (classification, mechanism of action, therapeutic effects, clinical uses, side effects and contraindications) of drugs acting on different systems of body and in addition,emphasis on the basic concepts of bioassay. 2. To understand the mechanism of drug action and its relevance in the treatment of different diseases 3. To demonstrate isolation of different organs/tissues from the laboratory animals by simulated experiments 4. To demonstrate the various receptor actions using isolated tissue preparation 5. To appreciate correlation of pharmacology with related medical sciences
BP 504T	**PHARMACOGNOSY AND PHYTOCHEMISTRY II (Theory)**	**1.** 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. **2.** To study of producing the plants and phytochemicals through plant tissue culture, drug interactions and basic principles of traditional system of medicine **3.** To know the modern extraction techniques, characterization and identification of the herbal drugs and phytoconstituents **4.** To understand the preparation and development of herbal formulation. **5.** To understand the herbal drug interactions **6.** To carryout isolation and identification of phytoconstituents

BP505T	**PHARMACEUTICAL JURISPRUDENCE (Theory)**	**1.** To impart basic knowledge on important legislations related to the profession of pharmacy in India. **2.** To understand the Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals. **3.** To understand various Indian pharmaceutical Acts and Laws **4.** To understand the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals **5.** To understand the code of ethics during the pharmaceutical practice
BP506 P	**Industrial PharmacyI (Practical)**	**1.** To understand practical aspects of preformulation studies and evaluation of various dosage forms. **2.** To gain knowledge of various unit operations and processes carried out during development of various pharmaceutical dosage forms.
BP507P	**PHARMACOLOGY-II (Practical)**	**1.** To gain knowledge of effect of drug on different organs of animals to understand the mechanism of action of drugs. **2.** To understand the practical aspects of bioassays of various drugs using rat's organs by simulated experiments by softwares and videos.
BP508P	**PHARMACOGNOSY AND PHYTOCHEMISTRY II (Practical)**	**1.** To analyse practically various crude drugs by performing various phytochemical tests. **2.** To understand the practical aspets of isolation and detection of active ingredients from plant part, separation and detection of components in plant by chromatographic techniques.

Course Outcomes		
B. Pharm. Semester-VI		
Course Code	**Course Name**	**Course Outcomes**
BP 601T	**MEDICINAL CHEMISTRY – III (Theory)**	1. To impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs. 2. To emphasize on modern techniques of rational drug design like quantitative structure activity relationship (QSAR), Prodrug concept, combinatorial chemistry and Computer aided drug design (CADD). 3. to emphasizes on the chemistry, mechanism of action, metabolism, adverse effects, Structure Activity Relationships (SAR), therapeutic uses and synthesis of important drugs. 4. To understand the importance of drug design and different techniques of drug design. 5. To understand the chemistry of drugs with respect to their biological activity. 6. To know the metabolism, adverse effects and therapeutic value of drugs. 7. To know the importance of SAR of drugs.
BP602T	**PHARMACOLOGY-III (Theory)**	**1.** To impart the 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, infectious diseases, immuno-pharmacology and in addition,emphasis on the principles of toxicology and chronopharmacology. **2.** To understand the mechanism of drug action and its relevance in the treatment of different infectious diseases **3.** To comprehend the principles of toxicology and treatment of various poisonings **4.** To appreciate correlation of pharmacology with related medical sciences.
BP603 T	**HERBAL DRUG TECHNOLOGY (Theory)**	1. To give knowledge of basic understanding of herbal drug industry, the quality of raw material, guidelines for quality of herbal drugs, herbal cosmetics, natural sweeteners, nutraceutical etc. 2. To emphasizes on Good Manufacturing Practices (GMP), patenting and regulatory issues of herbal drugs 3. To understand raw material as source of herbal drugs from cultivation to herbal drug product 4. To know the WHO and ICH guidelines for evaluation of herbal drugs 5. To know the herbal cosmetics, natural sweeteners, nutraceuticals 6. To appreciate patenting of herbal drugs, GMP
BP 604T	**BIOPHARMACEUTICS AND PHARMACOKINETICS (Theory)**	**1.** To impart knowledge and skills of Biopharmaceutics and pharmacokinetics and their applications in pharmaceutical development, design of dose and dosage regimen and in solving the problems arised therein. **2.** To understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance. **3.** To use of plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.

		4. To understand the concepts of bioavailability and bioequivalence of drug products and their significance. **5.** To Understand various pharmacokinetic parameters, their significance & applications.
BP605T	**PHARMACEUTICAL BIOTECHNOLOGY (Theory)**	**1.** To revolutionize the biological sciences and technology. **2.** To explain scientific application of biotechnology in the field of genetic engineering, medicine and fermentation technology **3.** To learn new biological revolutions in diagnosis, prevention and cure of diseases, new and cheaper pharmaceutical drugs. **4.** To understanding the importance of Immobilized enzymes in Pharmaceutical Industries **5.** To learn genetic engineering applications in relation to production of pharmaceuticals **6.** To understand importance of Monoclonal antibodies in Industries **7.** To appreciate the use of microorganisms in fermentation technology
BP606 T	**PHARMACEUTICAL QUALITY ASSURANCE (Theory**	**1.** To deal with the various aspects of quality control and quality assurance aspects of pharmaceutical industries. **2.** to deal with the important aspects like cGMP, QC tests, documentation, quality certifications and regulatory affairs. **3.** To understand the cGMP aspects in a pharmaceutical industry **4.** To appreciate the importance of documentation **5.** To understand the scope of quality certifications applicable to pharmaceutical industries **6.** To understand the responsibilities of QA & QC departments
BP607P	**MEDICINAL CHEMISTRY-III (Practical)**	**1.** To understand practical aspects of preparation of various pharmaceutically important drugs and intermediates by conventional and microwave irradiation techniques **2.** To perform assays of pharmaceutically important drugs using various titrimetric methods. **3.** To draw the structure of organic compounds using Chemdraw software. **4.** To gain the knowledge of physicochemical properties by using drug design software Drug likeliness screening (Lipinskies RO5)
BP608P	**PHARMACOLOGY-III (Practical)**	**1.** To gain knowledge of effect of drug on different organs of animals, toxicity study and biostatical methods. **2.** To understand the practical aspects of evaluation of various pharmacological activities in animal model by simulated experiments by software and videos.
BP 609 P	**HERBAL DRUG TECHNOLOGY (Practical)**	**1.** To apply the knowledge in defining requirements for development of herbal formulations. **2.** To understand the practical aspects of determination of content of active ingredients present in plant products.

Course Outcomes		
B. Pharm. Semester-VII		
Course Code	**Course Name**	**Course Outcomes**
BP 701T	**INSTRUMENTAL METHODS OF ANALYSIS (Theory)**	1. To deal with the application of instrumental methods in qualitative and quantitative analysis of drugs. 2. To impart a fundamental knowledge on the principles and instrumentation of spectroscopic and chromatographic technique. 3. To emphasizes on theoretical and practical knowledge on modern analytical instruments that are used for drug testing. 4. To understand the interaction of matter with electromagnetic radiations and its applications in drug analysis 5. To understand the chromatographic separation and analysis of drugs. 6. To perform quantitative & qualitative analysis of drugs using various analytical instruments.
BP702T	**INDUSTRIAL PHARMACYII (Theory)**	1. To impart fundamental knowledge on pharmaceutical product development and translation from laboratory to market 2. To know the process of pilot plant and scale up of pharmaceutical dosage forms 3. To understand the process of technology transfer from lab scale to commercial batch 4. To know different Laws and Acts that regulate pharmaceutical industry 5. To understand the approval process and regulatory requirements for drug products
BP703 T		1. To learn various skills like drug distribution, drug information, and therapeutic drug monitoring for improved patient care. 2. To learn various skills such as dispensing of drugs, 3. to respond to minor ailments by providing suitable safe medication, patient counselling for improved patient care in the community set up. 4. To know various drug distribution methods in a hospital 5. To appreciate the pharmacy stores management and inventory control 6. To monitor drug therapy of patient through medication chart review and clinical review 7. To obtain medication history interview and counsel the patients 8. To identify drug related problems 9. To detect and assess adverse drug reactions 10. To interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states 11. To know pharmaceutical care services 12. To do patient counseling in community pharmacy; 13. To appreciate the concept of Rational drug therapy.

BP 704T	**NOVEL DRUG DELIVERY SYSTEMS (Theory) 45 Hours**	1. To impart basic knowledge on the area of novel drug delivery systems. 2. To understand various approaches for development of novel drug delivery systems. 3. To understand the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation
BP705P	**INSTRUMENTAL METHODS OF ANALYSIS (Practical)**	1. To use different analytical instruments used for qualitative and quantitative analysis of drugs and formulations as per pharmacopoeial requirements 2. To understand practical aspects of various chromatography techniques to separate components in samples.

Course Outcomes		
B. Pharm. Semester-VIII		
Course Code	**Course Name**	**Course Outcomes**
BP 801T	**BIOSTATISITCS AND RESEARCH METHODOLOGY (Theory)**	1. To understand the applications of Biostatics in Pharmacy. **2.** To deal with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory, Sampling technique, Parametric tests, Non -parametric tests, ANOVA, Introduction to Design of Experiments, Phases of Clinical trials and Observational and Experimental studies, SPSS, R and MINITAB statistical software's, analyzing the statistical data using Excel**.** 3. To know the operation of M.S. Excel, SPSS, R and MINITAB®, DoE (Design of Experiment) 4. To know the various statistical techniques to solve statistical problems **5.** To appreciate statistical techniques in solving the problems**.**
BP802T	**SOCIAL AND PREVENTIVE PHARMACY**	1. To introduce to students a number of health issues and their challenges. 2. To introduce a number of national health programmes. The roles of the pharmacist in these contexts are also discussed. 3. To acquire high consciousness/realization of current issuesrelated to health and pharmaceutical problems within the country and worldwide. 4. To have a critical way of thinking based on current healthcare development. 5. To evaluate alternative ways of solving problems related tohealth and pharmaceutical issues
BP803ET	**PHARMACEUTICAL MARKETING (Theory)**	1. To develop highly qualified researchers, chemist, technical people but also requires skilled managers who can take the industry forward by managing and taking the complex decisions which are imperative for the growth of the industry. Sales & Marketing which grooms the people for taking a challenging role in Sales and Product management. 2. To give hands on experience in sales and marketing only. 3. To provide an understanding of marketing concepts and techniques and the application of the same in the pharmaceutical industry. 4. To introduce concepts of marketing, product management in pharmaceutical industry. 5. To give overview of sales and product promotion, parmaceutical marketing channels and duties of PSR. 6. To overview on pricing strategies and role of DPCO and NPPA. 7. To introduce emerging concepts in marketing and Brand management.
BP804T	**Clinical Data Management (Theory)**	1. To make the candidates employable as entry level resource in the domains of Clinical Data management, Pharmacovigilance/drug safety in BPOs, Pharmaceutical companies, Contract Research Organizations (CROs). 2. To serve as a sound introduction to CDM domain for Pharmacy students even if they plan on not joining the domain in their industry career. 3. To give theoretical training to ensure the employability of the candidate immediately on completion of their graduate Pharmacy

		Program.
BP805ET	**QUALITYCONTROLANDSTANDARDIZATIONOFHERBALS (Theory)**	1. To learn about the various methods and guidelines for evaluation and standardization of herbs and herbal drugs. 2. To provide an opportunity for the student to learnc GMP, GAP and GLP in traditional system of medicines. 3. To know WHO guidelines for quality control of herbal drugs 4. To know Quality assurance in herbal drug industry 5. To know the regulatory approval process and the registration in Indian and international markets 6. To appreciate EU and ICH guidelines for quality control of herbal drugs
BP809 T	**COSMETIC SCIENCE (Theory)**	1. To impart specific knowledge and skills in different areas focusing needs of cosmetic industry and its consumers. 2. to provide deep knowledge on various cosmetic preparations, key ingredients and evaluation of these cosmetic preparations. 3. To introduce relevance to the industry and to respond the industry challenges effectively. 4. To develop student potential to pursue career in fast growing cosmetic industry in the area of product development & research, regulatory, quality assurance and manufacturing or pursue academic research in the area or to become an entrepreneur in the field. 5. To apply the knowledge in defining requirements for development of cosmetic product 6. To take research in development of cosmetic product considering market status.