I.T.S COLLEGE OF PHARMACY

DELHI-MEERUT ROAD, MURAD NAGAR,
GHAZIABAD, U.P-201206

Course Outcomes

Course Code	Course Outcomes
	FIRST SEMESTER
BP101.1	To remember the anatomy andphysiology of cell, skeletal system, neuromuscular junction,joints, blood, Lymphatic system, Peripheral nervous system, Special sensesandCardiovascular system.
BP101.2	To describe and recall the details of the working pattern of different organs of each system.
BP101.3	To classify and organize the various tissues, their structure, location, and functions of epithelial, muscular and nervous and connective tissues.
BP101.4	To explain and illustrate the physiology of muscle contraction, neuromuscular junction, anatomy of heart and blood circulation,
BP101.5	To understand the regulation of blood pressure, pulse, electrocardiogram and disorders of heart and special senses.
BP101.6	To understand the general principles of cell communication, their pathway, various homeostatic mechanisms with their imbalances.
BP102.1	Recall fundamental concepts of pharmaceutical analysis, including principles of volumetric and gravimetric methods.
BP102.2	Explain the principles and theories behind acid-base, redox, complexometric, and non-aqueous titrations.
BP102.3	Apply theoretical knowledge to perform quantitative analysis of pharmaceutical compounds using titrimetric methods
BP102.4	Analyze titration data to interpret results and identify sources of error in experimental procedures.

BP102.5	Design experimental protocols for the analysis of drugs and pharmaceutical formulations considering regulatory standards.
BP102.6	Critically evaluate analytical methods for their accuracy, precision, and suitability in pharmaceutical quality control.
BP103.1	Discuss about the History of profession of Pharmacy in India in relation to pharmacy education, industry and organization, Pharmacy as a career, Pharmacopoeias: Introduction to IP, BP, USP and Extra Pharmacopoeia.
BP103.2	Discuss about dosage form, prescription, posology
BP103.3	DemonstrateWeights and measures– Imperial & Metric system, Calculations involving percentage solutions, allegation, proof spirit and isotonic solutions based on freezing point and molecular weight.
BP103.4	Discuss about monophasic liquid, biphasic liquid with example.
BP103.5	Discuss about the suppositories, pharmaceutical incompatibilities.
BP103.6	Discuss about the semisolid dosage form.
BP104.1	Classification of impurities and periodicity of elements.
BP104.2	Knowledge about electrolytes and reagents used in pharmaceutical preparations
BP104.3	Knowledge about radiopharmaceuticals in Medicine preparationsanddesign.
BP104.4	Study about topical agents,dental products,gastro intestinal agents.
BP104.5	Knowledge about major intra and extracellular electrolytes.
BP104.6	Study of novel applications of metals in pharmacy
BP 106RBT.1	Understand the Living world, Morphology of flowering plants.
BP 106RBT.2	Remember the fluids and circulation, Digestion and absorption, Breathing and respiration.
BP 106RBT.3	Understand Excretory products and their elimination, Neural control and coordination.
BP 106RBT.4	Understand the Plants and mineral nutrition, Photosynthesis
BP 106RBT.5	Analyze Plant respiration, Plant growth and development, Cell - The unit of life, Tissues, Definition, types of tissues, location and functions.
BP106RBT.6	Remember the Endocrine glands and their secretions, Functions of hormones secreted by endocrine glands

BP 106.1	To explain the knowledge and application of partial fractions, logarithms function and limit & continuity in pharmaceutical sciences.
BP 106.2	To create application of Matrices in solving Pharmacokinetic equations.
BP 106.3	To apply differentiation, Integration and its application in pharmacy
BP 106.4	Analyses and solution of Pharmacokinetic equations with the help of integration and analytical geometry
BP 106.5	To evaluate differential equations and Laplace Transform problems
BP 106.6	Remember differential equations and Laplace Transform in solving Chemical kinetics & Pharmacokinetic equations.
SECOND SEMESTER	
BP201.1	To investigate the gross morphology, structure and functions of various organs of the human body.
BP201.2	To evaluate the various homeostatic mechanisms and their imbalances
BP201.3	Identify the various tissues and organs of different systems of human body.
BP201.4	To analyze the hematological tests like blood cell counts, hemoglobin estimation, bleeding/clotting time etc. and also record blood pressure,heart rate, pulse and respiratoryvolume
BP201.5	To understand the coordinated working pattern of different organs of each system
BP201.6	Remember the inter linked mechanisms in the maintenance of normal functioning (homeostasis) of human body.
BP202.1	Classify and name organic compounds using both common and IUPAC systems, and distinguish between various types of structural isomerism.
BP202.2	Discuss the structure, stability, and reactions of alkanes, alkenes, and conjugated dienes, and apply conceptssuchasMarkownikoff'sandAnti-Markownikoff'srules,E1/E2reactionmechanisms,and Diels-Alderreaction.

BP202.3	Compare and contrast SN1and SN2 mechanisms in alkyl halides with respect tokinetics,stereochemistry,andcarbocationrearrangement,anddescribetheusesofimportantalkylhalides andalcohols.
BP202.4	Describe the mechanisms of nucleophilic addition reactions in aldehydes and ketones and predice the products of named condensation reaction ssuchas Aldol, Cannizzaro, Benzoin, and Perkin reactions..
BP202.5	Evaluate the acidity of carboxylic acids based on substituent and inductive effects and identify their Derivatives including esters and amides, along with qualitative tests and pharmaceutical uses.
BP202.6	Explain the basicity of aliphatic amines and analyze The effect of substituents on their basicity, supported by structural features and applications in pharmaceutical compounds.
BP203.1	To Describe basic concept at the molecular levels of the chemical process associated with living cells and how to apply in modern technology
BP203.2	To Know and remember the biochemical facts and the principles of metabolism of nutrient molecules in physiological & pathological conditions to evaluate the same with pathological conditions of different subjects too.
BP203.3	To Discuss the catalytic role of enzymes and evaluate the importance of enzyme inhibitor in design of new drugs, therapeutic and diagnostic applications of enzymes
BP203.4	To Understand the metabolism of nutrient molecules in physiological and pathological conditions and apply the same knowledge in new pathological conditions.
BP203.5	To Explain the genetic organization of mammalian genome and analyse the function of DNA in the synthesis of RNAs and protein
BP203.6	To Assess the genetic organization of mammalian genome and hetero autocatalytic activity.
BP204.1	Describethe etiologyand pathogenesisofcommondiseases.
BP204.2	Explain the basic concepts of cell injury, inflammation,and healing processes.
BP204.3	Demonstrate the signs and symptoms of various organ-specific diseases.
BP204.4	Analyze the pathophysiological changes in cardiovascular,respiratory, renal, and endocrine systems.
BP204.5	Justify the relevance of pathophysiological mechanisms in treatment strategies
BP204.6	To Understand the metabolism of nutrient molecules in physiological and pathological conditions.
BP206.1	Analyze study of the multidisciplinary nature of environmental studies. Natural Resources and associated problems, Renewable and non-renewable resources.

BP 206.2	Understand study of Forest resources, Water resources,Mineral resources, Food resources, Energy resources, Land resources. Role of an individual in conservation of natural resources.
BP206.3	Remember study of Ecosystems, Structure and function of an ecosystem. Introduction to different types of ecosystems, characteristic features, structure and function of the ecosystems.
BP206.4	Detail study of Forest ecosystem; Grassland ecosystem; Desert ecosystem; Aquatic ecosystems (ponds, streams, lakes, rivers, oceans, estuaries).
BP206.5	Detail study Environmental Pollution, Types of Environmental Pollutionslike Air pollution; Water pollution; Soil pollution.
THIRD SEMESTER	
BP301T.1	Knowledge of analytical, synthetic and other evidences in the derivation of structure of benzene, Structure and uses of DDT, Saccharin, BHCand ChloramineT.
BP301T.2	Knowledge of phenols, aromatic amines & aromatic acids and its important reactions
BP301T.3	Knowledgeof fat and oils, reactions of fatty acids, and different values
BP301T.4	Knowledge of PolynuclearHydrocarbons its Synthesis,reactions.
BP301T.5	Knowledgeof cycloalkanes ,different theories and its reactions
BP301T.6	Basic concepts to understand the distinct theories of cycloalkanes and its reactions.
BP302T.1	To understand various physicochemical parameters of drug molecules in designing the dosage forms
BP302T.2	To apply the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
BP302T.3	To evaluate the various physicochemical properties in the formulation development and dosage forms .
BP302T.4	To analyze the applications of several pharmaceutical and biological systems.
BP302T.5	To understand the various concepts and fundamentals of physical pharmaceutics to create and build up the practical knowledge.
BP302T.6	To Remember the various applications in the field of pharmaceutical development of dosage form.
BP303T.1	Remember history of microbiology, bacterial morphology, cultivation, isolation, and preservation of bacteria
BP303T.2	Understand and remember the principles and procedures of staining techniques and biochemical tests
BP303T.3	Understand the morphology, classification, reproduction, and cultivation of fungi and viruses.
BP303T.4	Classify and explain the methods of sterilization, sterility testing and microbiological assay.

BP303T.5	Identify the key components involved in the design of an aseptic area, laminar flow equipment, and clean area classification standards.
BP303T.6	Understand cell culture technology and its applications and evaluate microbial spoilage of pharmaceutical products.
BP304.1	Understand Design and development of fluid flow equipments and importance of particle size and its separation and reduction in Pharmaceutical industry.
BP304.2	Analyze about heat transfer mechanisms and its processes in pharmaceutical industry.
BP304.3	Understanding of drying and mixing operations in pharmaceutical processes.
BP304.4	Evaluation of filtration and centrifugation operations in pharmaceutical processes.
BP304.5	Remember the material of plant construction and prevention from corrosion in metals.
BP304.6	Apply the various tests to prevent environmental pollution.
FOURTH SEMESTER	
BP401.1	Knowledge of optical isomerism-optical activity, enantiomerism, diastereomerism, meso compounds, racemic modification 7resolution of racemic mixture. Asymmetric synthesis.
BP401.2	Knowledge of geometrical isomerism, Atropisomerism, conformers & stereoselective reactions
BP401.3	Knowledge of heterocyclic compounds
BP401.4	Medicinal uses of pyrrole, synthesis and reaction of furan, thiophene, pyrrole, imidazole, pyrimidine, purine, quinoline, Isoquinoline, acridine, azepines
BP401.5	Reactions of synthetic metal hydrides reduction, Clemmensen reduction , birch reduction, Wolff Kishner reductio, oppeaneaur oxidation, and Dakin reaction. Beckmann rearrangement, Schmidt rearrangement. condensation
BP402.6	To understand the chemistry of drugs with respect to their pharmacological activity.
BP402.1	To understand the drug metabolic pathways, adverse effects and therapeutic value of the drug.
BP402.2	To Know the structure activity relationship (SAR) of different class of drugs.
BP402.3	To be able to write the chemical synthesis of some drugs.
BP402.4	To perform the various experiments related to preparation of drugs/intermediates and also to determine parttion coefficient for any two drugs.
BP402.5	Apply the knowledge ofclassification, mode of action, synthesis and structure activity relationship of anaesthetics.

BP402.6	Remember the classification, mode of action, synthesis and structure activity relationship of Anti-inflammatory agents
BP403.1	Understand the importance of degradation constant, ICH guidelines, drug stability and expiration dating. Different degradative pathways and its prevention.
BP403.2	Understand and apply the various parameters and equipments used in preparation of suspension and emulsion.
BP403.3	To have idea of HLB and methods of HLB determination, Micelle and their role in cleaning and solubility. Role of HLB of surfactants.
BP403.4	Understand rheology, Newtonian and non-Newtonian flow, mixing, and effects of particle size on pharmaceuticals. Deformation of solids.
BP403.5	To understand the concept of particle Morphometric analysis and role in drug dissolution, release and bioavailability. Fundamental and derived properties of powder.
BP403.6	To have basic understanding of types of dispersion systems and methods of their assessment such as colloidal dispersion and its characteristics. Role of colloids in pharmaceuticals.
BP404.1	Remember the pharmacological actions of different categories of drugs.
BP404.2	Understand the mechanism of drug action at organ system/sub cellular/ macromolecular levels.
BP403.3	Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
BP404.4	Analyze the effect of drugs on animals by simulated experiments.
BP404.5	Apply the correlation of pharmacology with other bio medical sciences.
BP404.6	Understand the clinical uses, interactions, doses, contraindications and routes of administration of different classes of drugs.
BP405.1	To understand the basic concepts of Pharmacognosy and Quality control of natural drugs
BP405.2	To describe the cultivation, collection and processing of crude drugs and to understand application biotechnological techniques to medicinal plants
BP405.3	To understand the basics of Plant Tissue Culture and Edible Vaccines

BP405.4	To analyze the importance of traditional systems of medicine and to understand the basics of secondary metabolites.
BP405.5	To describe the biological source, chemical nature and uses of drugs of natural origin containing carbohydrates, lipids, proteins, fibres and so on.
BP405.6	Remember the therapeutic uses and commercial utility as Pharmaceutical Aids and/or Medicines for the Primary metabolites.
FIFTH SEMESTER	
BP 501.1	Knowledge of classification, mode of action, uses and recent advances of drugs acting as Antihistaminic agents: H1–antagonists, H2-antagonists, Gastric Proton pump inhibitors, Anti-neoplastic agents
BP 501.2	Knowledge of classification, mode of action, uses and recent advances of drugs acting as Anti-anginals, vasodialators, calcium channel blockers,diuretics and antihypertensives
BP 501.3	Knowledge of classification, mode of action, uses and recent advances of drugs acting as Anti-arrythmics, antihyperlipidimics, coagulants and anticoagulants and drugs used in CHF
BP 501.4	Knowledge of drugs acting on endocrine system: Nomenclature, stereochemistry and metabolism of steroids
BP 501.5	Knowledge of sex hormones, corticosteroids, thyroid and antithyroid drugs. Drugs used for erectile dysfunction and oral contraceptives
BP 501.6	Knowledge of antidiabetic agents and local anaesthetics
BP502.1	Remember the pre-formulation, physical and chemical properties of drugs and its signification in selection of dosages forms.
BP502.2	Understanding for conventional and novel dosages forms, classification of dosages form, their preparation and evaluations.
BP502.3	Apply the theoretical understanding in learning outcomes for industrial pharmacy, manufacturing and troubleshoot of problems related to different dosages forms.
BP502.4	Analyze the correlation of active pharmaceutical ingredients, excipients, formulation parameters. Need for sterile dosages forms and different drug delivery routes.
BP502.5	Evaluate the learning about how to troubleshoot the in-process or finished dosages form problems. What's the role of packaging material in pharmaceutics?
BP502.6	Create experimental learning about cosmeceuticals, cognitive learning of thrust area of industrial pharmacy, scale up of manufacturing and combination of physical and digital technologies.
BP503T.1	Remember the mechanism of drug action and its relevance in the treatment of different diseases.
BP503T.2	Understand the isolation of different organs/tissues from the laboratory animals by simulated experiments.

BP503T.3	Apply the various receptor actions using isolated tissue preparation.
BP503T.4	Analyze the correlation of pharmacology with related medical sciences.
BP503T.5	Evaluate the newer targets of several disease conditions for treatment.
BP503T.6	Understand the basic concepts of Bioaasay.
BP504.1	Recall basic Pharmacognostic features of plant (crude drugs) and the plant secondary metabolites.
BP504.2	Explain the basic principles metabolic pathways of secondary metabolite biosynthesis, Understand the Industrial production of phytoconstituents.
BP504.3	Apply the knowledge of plant secondary metabolites, to understand the chemistry of phytoconstituents, their therapeutic uses and commercial applications. Utilization of radioactive isotopes in investigation of biogenetic studies.
BP504.4	Analyze and assume the industrial production, estimation, and utilization of phytoconstituents for pharmaceutical applications.
BP504.5	Importance of modern method of extraction of crude drugs.
BP504.6	Specify the application of latest techniques like spectroscopy, chromatography and electrophoresis in the isolation, purification and identification of phytoconstituents.
BP505.1	Recall the major pharmaceutical laws, regulations, and the role of regulatory agencies.
BP505.2	Explain the importance of pharmaceutical laws in ensuring drug safety and ethical pharmacy practices.
BP505.3	To create a proposal for new or updated pharmaceutical legislation to address emerging issues in drug safety, ethical practice
BP505.4	Assess the effectiveness of pharmaceutical laws and regulations in ensuring public health safety and ethical pharmacy practice.
BP505.5	Analyze the implications of various legal provisions
BP505.6	Apply the pharmaceutical laws to resolve issues like non compliance, drug recalls, and licensing in a pharmacy setting.
SIXTH SEMESTER	

BP601.1	To understand and apply the knowledge of Nomenclature, Structure-Activity Relationship, mechanism of action, synthesis, and use of β-Lactam antibiotic
BP601.2	To understand Structure-Activity Relationship, mechanism of action, synthesis, and use of Macrolide, Chloramphenicol*, and Clindamycin and apply the knowledge of prodrugs.
BP601.3	To understand and apply the knowledge of Structure-Activity Relationship, mechanism of action, synthesis and uses ofAnti-tubercular Agent, anti UTIagents and Antiviral agents.
BP601.4	To understand and apply the knowledge of Structure-Activity Relationship, mechanism of action, synthesis and use of drugs,Antifungal agents,Anti-protozoal Agents, sulphonamides, and Anthelmintics.
BP601.5	To understand and apply the knowledge of Structure-Activity Relationship, mechanism of action, synthesis and use of drugs folate reductase inhibitors, sulfones
BP601.6	To understand and apply the knowledge of drug design and combinatorial chemistry
BP602.1	To understand the pharmacology of drugs acting on Respiratory system as well as pharmacology of drugs acting on the Gastrointestinal tract is essential for professionals in pharmaceuticals, healthcare, and research, allowing them to comprehend the actions and effects of drugs targeting for systems.
BP602.2	Remembering chemotherapy involves exploring treatments that utilize drugs to combat various diseases, with a focus on cancer management. This knowledge is vital for professionals in healthcare, pharmaceuticals, and research, offering insights into the application and principles of chemotherapy.
BP602.3	To analyze thechemotherapy ofAntitubercular agents,Antileprotic agents. This knowledge is vital for professionals in healthcare, pharmaceuticals, and research, offering insights into the application and principles of chemotherapy.
BP602.4	Applying pharmacological principles for addressing fungal infections involves the use of medications specifically designed to target and eliminate fungal pathogens
BP602.5	Evaluating the pharmacology of UTIs involves assessing medications designed to target and eliminate bacterial infections affecting the urinary system.
BP602.6	By creating knowledge about the principles of toxicology involves comprehending the study of poisons, toxins, and their effects on living organisms. This includes understanding mechanisms of toxicity, dose-response relationships, and risk assessment.
BP603.1	Understand the uses of Herbs as raw material, Biodynamics Agriculture and Indian System of Medicine
BP603.2	Apply and use the information of Nutraceuticals and Herbal-drug and Herbal food Interaction
BP603.3	Analysis & evaluation of Herbal Cosmetics, Herbal excipients and Herbal formulations
BP603.4	Evaluation of drugs, WHO and ICH guidelines
BP603.5	Recall the facts of Patenting, Regulatory requirements of natural products and Regulatory issues
BP603.6	Design of Herbal industry and Schedule T- GMP of Indian System of Medicine
BP604.1	Understands the basics of Biopharmaceutics and Pharmacokinetics, in-depth knowledge of ADME and significance

	of plasma drug concentration measurement
BP604.2	Apply the basics of Compartment model &non-compartment modelto calculate the Pharmacokinetics parameters by various methods.
BP604.3	Evaluate and analyze volume of distribution and pharmacokinetic parameters from plasma and urine data after drug administration by intravascular and oral route.
BP604.4	Apply the concepts of clinical pharmacokinetics in dosage adjustment in patients with and without renal and hepatic failure.
BP604.5	Remember the basic concept of bioavailability, C-max, and area under the curve (AUC).
BP604.6	Create a basic idea about review of regulatory requirements for conduction of bioequivalent studies.
BP605.1	Understand Study of various new approaches for developments in diagnosis, prevention and cure of diseases
BP605.2	Analyze the importance of Immobilized enzymes in Pharmaceutical Industries
BP605.3	Genetic engineering applications in relation to production of pharmaceuticals
BP605.4	Importance of Monoclonal antibodies in Industries
BP605.5	Appreciate the use of microorganisms in fermentation technology
BP605.6	Create the concept of producing transgenic crops and animals for future development of new and cheaper pharmaceutical drugs
BP606.1	To Understand the cGMP aspects and various guidelines in the field of pharmacy.
BP606.2	To Remember the concept of documentation and complaints in Pharmaceutical field.
BP606.3	To Analyze the scope of quality certifications applicable to pharmaceutical Industries
BP606.4	To Apply the concepts of QA & QC department in the pharmaceutical industries.
BP606.5	To Evaluate the various principles of calibration and validation and warehousing in pharmaceutical development.
BP606.6	To Create the basic good laboratory and manufacturing practices and good quality control management to develop good quality product.
SEVENTH SEMESTER	
BP 701.1	To Define basic terminology used in Analytical chemistry. How electromagnetic waves Interact with molecules and produce changes in them.
BP701.2	To Explain the principle,theory involved behind the spectroscopy techniques, fluorimetery,photometery, turbidometry & chromatography
BP701.3	To Apply principle for Identify the working methods of instruments used in different analytical procedures.
BP701.4	To classify & distinguish different methods in performing assay & separations of Chemical Compounds,Extract &

	Drugs
BP701.5	To compare and evaluate the functions of different analytical techniques in development of analytical method validations
BP701.6	To Design,estimate and develop new methods for analytical method validation /testing
BP 702.1	Understand the general considerations and regulatory requirements involved in the pilot plant process and scale-up of pharmaceutical dosage forms.
BP 702.2	Apply the process of technology transfer from lab scale to commercial batch. Understand Terminology, documentation, risk management and remember the functions of the various TT agencies in India.
BP 702.3	Informationconcerning history and apply the different Laws and Acts that regulate the pharmaceutical industry.
BP 702.4	Introductory knowledge about the drug approval processand regulatory requirements for drug products in India and abroad (FDA).
BP 702.5	Knowledge of quality management systems: Six Sigma, Qbd , etc.
BP 702.6	Create an insight into Indian Regulatory Requirements.
BP 703.1	Create community pharmacy setup to know about the fundamentals of pharmacy practice, including communication, health behavior, social and administrative facets.
BP 703.2	Evaluate the adverse drug reaction forms for safe and appropriate medication use in the society
BP 703.3	Understand the basic design of hospital formulary, therapeutic drug monitoring & patient counseling
BP 703.4	Analyze the drug related problems by studying about medication chart review, medication history interview and patient counseling
BP 703.5	Remember the basic concept of clinical pharmacy, clinical laboratory tests, budget & over the counter drugs
BP 703.6	Apply effectively the principles of drug store management and inventory control to medication use.
BP704.1	Understand the general considerations and regulatory requirements involved in the pilot plant process and scale-up of pharmaceutical dosage forms.
BP704.2	Apply the process of technology transfer from lab scale to commercial batch. Understand Terminology, documentation, risk management and remember the functions of the various TT agencies in India.
BP704.3	Informationconcerning history and apply the different Laws and Acts that regulate the pharmaceutical industry.
BP704.4	Introductory knowledge about the drug approval processand regulatory requirements for drug products in India and abroad (FDA).
BP704.5	Knowledge of quality management systems: Six Sigma, Qbd , etc.
BP704.6	Classify approaches to design, application of Targeted drug Delivery, liposomes, niosomes, nanoparticles, monoclonal antibodies and their application
EIGHTH SEMESTER	

BP 801.1	To create Measure of central tendency, dispersion, correlation and regression for Pharmaceutical applications.
BP 801.2	To apply probability, Parametric test, t-test, ANOVA, non parametric test in Pharmaceutical applications.
BP 801.3	Understand basic components of Introduction of research and Data presentation, Design of experiment.
BP 801.4	Statistical Analysis Using Excel, SPSS, MINITAB®, Design of experiment, R- Online Statistical Software's to Industrial and Clinical trial approach.
BP 801.5	To evaluate Practical components of Industrial and Clinical Trials Problems, Regression modeling, Blocking and Confounding in Pharmaceuticals.
BP 801.6	To remember the fact of Factorial Design and Response Surface Methodology to use in Pharmaceutical applications
BP802.1	**Concept of health and disease:** Definition, concepts and evaluation of public health. Social and health education: Food in relation to nutrition and health, Balanced diet, Nutritional deficiencies, Vitamin deficiencies, Malnutrition and its prevention. Sociology and health: Socio cultural factors related to health and disease, Impact of urbanization on health and disease, Poverty and health. Hygiene and health: personal hygiene and health care; avoidable habits.
BP802.2	**Preventive medicine:** General principles of prevention and control of diseases such as cholera, SARS, Ebola virus, influenza, acute respiratory infections, malaria, chicken guinea, dengue, lymphatic filariasis, pneumonia, hypertension, diabetes mellitus, cancer, drug addiction-drug substance abuse.
BP802.3	**National health programs, its objectives, functioning and outcome of the following:** HIV AND AIDS control programme, TB, Integrated disease surveillance program (IDSP), National leprosy control programme, National mental health program, National programme for prevention and control of deafness, Universal immunization programme, National programme for control of blindness, Pulse polio programme
BP802.4	National health intervention programme for mother and child, National family welfare programme, National tobacco control programme, National Malaria Prevention Program, National programme for the health care for the elderly, Social health programme; role of WHO in Indian national program.
BP802.5	**Community services in rural, urban and school health:** Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school.
BP802.6	Students will be able to understand the community health services in rural, urban and school health. Also will know the functions of PHC, and Improvement in rural sanitation.

BP 805.1	Understand the history & development of pharmacovigilance; the basics of ADRs; & terminologies used in pharmacovigilance
BP 805.2	Understand and remember dictionaries & coding in pharmacovigilance; Understand the establishment process of the national programme of PV
BP805.3	Apply the knowledge of effective communication in Pharmacovigilance & its methods; Understand Vaccine safety surveillance
BP 805.4	Remember ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning and safety data generation
BP 805.5	Evaluation of drug safety in pediatrics, geriatrics, pregnancy and lactation; Analyze the CIOMS requirements for ADR reporting.
BP 805.6	Apply the knowledge of D & C Act and Schedule Y and identify the differences in Indian and global pharmacovigilance requirements.
BP 813ET.1	Understand pharmaceutical product development, and objectives
BP 813ET.2	Remember and analyze regulations related to the process of product development
BP 813ET.3	Remember about Pharmaceutical Excipients in pharmaceutical product development
BP 813ET.4	Understand, analyze, and apply Optimization techniques in pharmaceutical product development
BP 813ET.5	Understand, create, and apply the concept of QbD.
BP 813ET.6	Evaluate selection and quality control of packaging materials for pharmaceutical product development.

Programme Outcomes (POs)

1. Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioural, social, and administrative pharmacy sciences; and manufacturing practices.

2. Planning Abilities: Demonstrate 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: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

4. Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of the limitations.

5. Leadership skills: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and wellbeing.

6. Professional Identity: Understand, analyze and communicate the value of their professional
roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).

7. Pharmaceutical Ethics: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behaviour that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; 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 contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.

10. Environment and sustainability: Understand the impact of professional pharmacy solutions in societal and environmental contexts, and demonstrate 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 access and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.