



**Nashik Gramin Shikshan Prasarak Mandal's,
College of Pharmacy
Brahma valley educational campus,
Anjaneri, Nashik – 422 213
Phone No. : (02594) 220146, 220147**

Academic Year 2021-2022 (Theory)

Course Outcome

Course code/ Course name	Course outcomes
Academic year 2021-2022	First Year B. Pharm (SEM-I) Pattern-2019
Human Anatomy & Physiology-I BP101T	The student should able to:
	CO1: Define anatomy and physiology and list basic terminologies used in anatomy and physiology
	CO2: Explain structure of cell, its components and their function
	CO3: List the functions and disorders of cardiovascular system (CVS)
	CO4: Appraise anatomy and physiology of digestive system
BP102T Pharmaceutical Analysis	CO5: Build balanced diet plan for diabetes/ nutritional deficiency disorders
	The student should able to:
	CO1: Summarize basic principles of data treatment and data handling.
	CO2: Outline basic concepts and principle of aqueous acid base titration.
	CO3: Illustrate need and basic principles of non-aqueous acid base titration.
CO4: Classify different term, types and basic principle of precipitation and complexation	



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		titration.
		CO5: Understand basic concept and application of redox and gravimetric analysis
Pharmaceutics -I BP103T		The student should able to:
		CO1: Recall the history of pharmacy, development of pharmacy profession and industry in India and Explain alternative system of medicines.
		CO2: Classify various routes of drug administration and explain design of pharmaceutical dosage forms
		CO3: Categorize and compare the various dosage and routes of administration
		CO4: Identify and select the choice of route of administration based on dosage form.
		CO5: Define Preformulation and concepts in preformulation studies.
BP104T Pharmaceutical Chemistry	Inorganic	The student should able to:
		CO1: Relate the relevance of Inorganic chemistry to pharmaceutical sciences and differentiate various pharmacopoeias with contents
		CO2: Classify and explain Inorganic agents used as GIT agent and Topic agent
		CO3: Understand meaning of impure and pure chemical compound and describe different official methods of analysis.
		CO4: Define and elaborate the details of various in organic medicinal agents like expectorants, antidepressant, antidotes, cytotoxic agents, dental agent and radio opaque medium etc
		CO5: Explain important functions of ions and trace elements in the body and treatment of disorders associated with it.
BP105T Communication Skill		The student should able to:
		CO1: : Explain the four basic communication skills – Listening, Speaking, Reading and Writing
		CO2: Make students reflect and improve their use of body language – posture, gesture.



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	facial expression, tone
	CO3: Discuss role of skills in real-life work situations with case studies, role play, etc.
	CO4: Develop creativity and other latent talents with proper goal setting so that self esteem gets enhanced.
	CO5: Identify the concept of positive thinking which will keep the students in a good stead at the time of crisis.
BP106 BT Remedial Biology	The student should able to:
	CO1: :Discuss classification and salient features of five kingdoms of life
	CO2: understand the basic components of anatomy & physiology of plant
	CO3: know understand the basic components of anatomy & physiology animal with special reference to human
BP106 MT Remedial Mathematics	The student should able to:
	CO1: : Know the theory and their application in Pharmacy
	CO2: Solve the different types of problems by applying theory
	CO3: Appreciate the important application of mathematics in Pharmacy
Course code/ Course name	Course outcomes
Academic year 2021-2022	First Year B. Pharm (SEM-II) Pattern-2019
BP201T Human Anatomy And Physiology	The student should able to:
	CO1: Recall basic fundamental structural features of neurons along with process of neurotransmission
	CO2: Compare and contrast physiology of sense organs
	CO3: Identify functional unit of kidney and its role in maintenance of homeostasis
	CO4: Explain and discuss importance of endocrine system in maintenance of homeostasis and continuity of life
	CO5: Elaborate importance of genetic and aging processes in reproduction, growth and



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	development
BP202T Pharmaceutical Organic Chemistry-I	The student should able to:
	CO1: Clarify basic principles concepts of organic chemistry. Explain basic functional groups, IUPAC Nomenclature and aromaticity of Organic Compounds.
	CO2: Describe Isomerism & apply that knowledge in understanding the Structure Property Relationship.
	CO3: Compare different Reaction Intermediates & their role in reaction mechanism.
	CO4: Discuss factors affecting strength of acid & base.
	CO5: Study reaction mechanism of Addition & Elimination Reactions of Alkenes, alkynes and reactions of aromatic compound.
BP203T Biochemistry	The student should able to:
	CO1: Understanding of structure of cell, cell organelles and various metabolic processes in cell metabolism
	CO2: Outline the structure, function and mechanism of enzyme and its application
	CO3: elaborates synthesis and break down of purines and pyrimidines in nucleic acid metabolism
	CO4: Explain types, structure, and other biochemical function and importance of vitamins
BP204T Pathophysiology	The student should able to:
	CO1: Define terminologies of pathophysiology
	CO2: Classify etiopathogenesis of cell injury, pain and inflammation
	CO3: Categorize different types of cardiovascular disorders



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	CO4: Explain pathophysiology of various neurodegenerative diseases
	CO5: Elaborate the development of infectious and parasitic diseases
BP205T Computer Application	The student should able to:
	CO1: know the various types of application of computers in pharmacy
	CO2: know the various types of databases
	CO3: know the various applications of databases in pharmacy
BP206T Environmental Sciences	The student should able to:
	CO1: Clarify basics of environment like ecology, ecosystem, food chain, food web and ecological pyramids.
	CO2: Understand the current problems of environment and how to solve them.
	CO3: To know and aware about factors of environmental pollution and hazards of disposal wastes from hospitals and pharmaceutical industries.
	CO4: Role of individual in conservation of natural resources and effort to save the environment

Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Second Year B. Pharm (SEM-III) Pattern-2019
BP301T Pharmaceutical Organic Chemistry II	The student should able to:
	CO1: Explain chemistry, method of preparation & chemical reactions of aldehyde and ketones, phenols sulphonic acid derivatives.
	CO2: Explain and clarify common and IUPAC nomenclatures of different alcohols and ethers. Synthesis and general reactions of the alcohols and ethers.
	CO3: Memorize chemistry of amines, separation of amines. Outline the synthesis




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	<p>chemical reactions of amines. Illustrate the use.</p> <p>CO4: Describe reactions and synthesis of esters and amide, cyanide and isocyanides, carboxylic acid</p> <p>CO5: Explain substitution Nucleophilic reactions.</p>
BP302T Physical Pharmaceutics I	<p>The student should able to:</p> <p>CO1: Understand the interrelationships between the physiochemical properties of a drug, its dosage form, route of administration and bioavailability</p> <p>CO2: Explain and apply the key physical pharmacy concepts of solubility and dissolution, partitioning phenomena, surface phenomena</p> <p>CO3: Acquire knowledge in Physical principles of states of matter and phase rule</p> <p>CO4: Explain various laws and theories of gases and correlate them with formation of aerosols.</p>
BP303T Pharmaceutical Microbiology and Immunology	<p>The student should able to:</p> <p>CO1: Explain the concept of microbiology and various microbes</p> <p>CO2: Aware about historical developments and contributions of scientists in the field of microbiology</p> <p>CO3: Understand the use of microorganism in pharmacy</p> <p>CO4: Explain disinfectant classification, their mechanism of action and their evaluations</p> <p>CO5: Gain the knowledge of various basic aspects of immunology.</p>
BP304T Pharmaceutical Engineering	<p>The student should able to:</p> <p>CO1: Understand molecular diffusion in gases and liquids</p> <p>CO2: Understand the concept of drying and classification dryers with respect to their applications in pharmacy.</p>

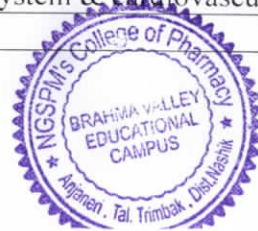


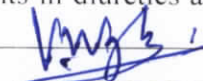

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	<p>CO3: Explain the various heat transfer techniques including their mechanism and applications in Pharmacy including the illustration of crystallizers.</p> <p>CO4: Elucidate graphical representation of various equipment for unit operations</p> <p>CO5: Understand the principles, mechanisms and theories of different unit operations</p>
Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Second Year B. Pharm (SEM-IV)
BP401T Pharmaceutical Organic Chemistry III-	The student should able to:
	CO1: Understand various molecular representations and their interconversions
	CO2: Examine relevance of stereochemistry & its significance in Pharmaceutical Sciences.
	CO3: Explain conformational Analysis and draw various conformational structures for different molecules.
	CO4: Explain mechanism and applications of rearrangement of electron deficient & electron rich systems and 5.basic concepts in pericyclic reactions.
	CO5: Explain the chemistry and preparation of amino acids and polypeptides.
BP402T Medicinal Chemistry I	The student should able to:
	CO1: Establish correlation of physicochemical properties affecting drug action and pharmacokinetics.
	CO2: Explain different types of receptors, forces involved in drug receptor interaction and signal transduction mechanism.
	CO3: Discuss classification, nomenclature, structure activity relationship, mechanism of action and synthesis including adrenergic agents, cholinergic agents and diuretics.
	CO4: Describe adverse effects, therapeutic uses and recent developments in diuretics and drugs acting on autonomic nervous system & cardiovascular system.
BP403T Physical Pharmaceutics II	The student should able to:

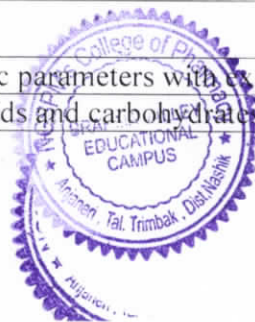



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	<p>CO1: Explain chemical and Physical phenomena that govern the in vivo and in vitro actions of pharmaceutical products.</p> <p>CO2: Understand and describe reaction kinetics, reaction order</p> <p>CO3: Explain properties and applications of colloids in formulation</p> <p>CO4: Memorize and recall properties of particles and powder.</p> <p>CO5: Summarize physicochemical properties of drugs and assessment of physical stability</p>
2.4.4T Pharmaceutical Analysis-II	<p>The student should able to:</p> <p>CO1: Understand the importance of various electro-analytical techniques in quality control of various API, formulation in pharmaceutical industry</p> <p>CO2: Knows instrumentation and application of potentiometry, conductometry used in pharmaceutical analysis.</p> <p>CO3: Understand basic concepts, instrumentation and applications of Refractometer and Polarimeter.</p> <p>CO4: illustrate the fundamental concepts of Karl Fischer apparatus</p>
BP404T Pharmacology I	<p>The student should able to:</p> <p>CO1: Outline definitions, history, scope and general principles of pharmacology</p> <p>CO2: Explain drug discovery and development process</p> <p>CO3: Identify drug receptors and classify drugs on the basis of drug-receptor interactions</p> <p>CO4: List and explain pathophysiological and pharmacological importance of autacoids</p> <p>CO5: Discuss developmental changes influencing pharmacokinetic and pharmacodynamics in and geriatrics</p>
BP405T Pharmacognosy and Phytochemistry I	<p>The student should able to:</p> <p>CO1: List the various pharmacognostic parameters with example.</p> <p>CO2: Classify glycosides, tannins, lipids and carbohydrates.</p>



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	CO3: Compare the crude drugs from their macroscopy, microscopy and chemical constituents.
	CO4: Judge the relevant pharmacognostic parameter to identify the crude drug part.
	CO5: Discuss the uses of crude drugs.

Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Third Year B. Pharm (SEM-V) Pattern-2018
BP501T Medicinal Chemistry II	The student should able to:
	CO1: Understand drug metabolism and extend its application to drug design.
	CO2: Discuss classification, nomenclature, structure activity relationship and mechanism of action of drugs acting on Central Nervous System.
	CO3: Study and summarize classification, nomenclature, structure activity relationship, mechanism of action and synthesis of drugs acting on Local anesthetics and oral Anti-hyperglycemic drugs.
	CO4: Discuss classification, nomenclature, structure activity relationship, mechanism of action and synthesis of drugs acting on drugs used in Neurodegenerative diseases and in migraine.
BP502T Industrial Pharmacy-I-	CO5: Study and Compare different Diagnostic agents.
	The student should able to:
	CO1: Understand the concepts of dosage form design & formulation strategies.
	CO2: Explain excipients, formulation, evaluation and identify defects of tablets.
	CO3: Explain the concepts, technique and equipment's used in tablet coating
CO4: Describe capsules is types, additives, size, manufacturing, evaluation, equipment's.	

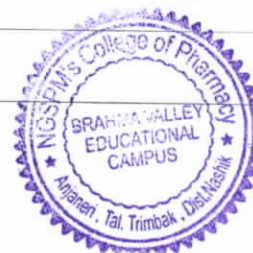


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	defects.
	CO5: Understand the concept of technology transfer.
BP503T Pharmacology II	The student should able to:
	CO1: Define physiological basis of autonomic nervous system (ANS) and endocrine system
	CO2: Summarize the drugs acting on ANS and endocrine system
	CO3: Analyze pharmacotherapy of glaucoma and myasthenia gravis
	CO4: Justify pharmacotherapy of DM
	CO5: Discuss recent advanced in the field of neurology and endocrinology
BP504T Pharmacognosy and Phytochemistry II	The student should able to:
	CO1: Recall the various pharmacognostic parameters with example
	CO2: Classify alkaloids, terpenoids, resin and resin combination drugs.
	CO3: Compare the crude drugs from their macroscopy, microscopy and chemical constituents.
	CO4: Judge the relevant pharmacognostic parameter to identify the crude drug part.
	CO5: Discuss the uses of crude drugs.
BP505 Pharmaceutical Jurisprudence	The student should able to:
	CO1: Understand the significance and relevance of Pharmaceutical laws in India
	CO2: Describe the qualifications for membership and the make-up of the Board
	CO3: Understand the responsibilities of the Board
	CO4: Understand significance of Schedule M and Schedule Y related Manufacturing & clinical trials
	CO5: Gain the knowledge about Patents, procedure for patent application and IPR
Course Code / Course Title	Course Outcomes (CO's)




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Academic year 2021-2022	Third Year B. Pharm (SEM-VI) Pattern-2019
BP601T Medicinal Chemistry III	The student should able to:
	CO1: Classify Medicinal Agents used as Narcotic analgesics, NSAIDs, steroidal anti-inflammatory agents, analgesics, antipyretics, autacoids, Drugs Acting on Respiratory Tract and GIT.
	CO2: structure activity relationship, synthesis and applications NSAIDS.
	CO3: Summarize and understand influence of structural features on biological activity and therapeutic uses of Steroidal anti-inflammatory agent.
	CO4: Understand and explain pharmacology, drug used in respiratory & GI tract diseases.
BP602T Pharmacology III	CO5: Discuss chemistry, structure activity relationship and rational use of Narcotic analgesics.
	The student should able to:
	CO1: Recall pathophysiological role of central nervous system (CNS) neurotransmitters and neuromodulators
	CO2: Compare and contrast pharmacology of general and local anaesthetics.
	CO3: Identify neurochemical basis and plan pharmacotherapy of neurodegenerative diseases
BP603T Herbal Drug Technology	CO4: Categorize and justify pharmacotherapy of pain, inflammation, respiratory and gastrointestinal (GI) disorders
	CO5: Discuss recent advanced in the field of psychopharmacology
	The student should able to:
	CO1: understand raw material as source of herbal drugs from cultivation to herbal drug product
	CO2: know the WHO and ICH guidelines for evaluation of herbal drugs
	CO3: know the herbal cosmetics, natural sweeteners, nutraceuticals.
	CO4: appreciate patenting of herbal drugs, GMP .
	CO5: Study and Compare different herbal drug
	The student should able to:




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BP604T Biopharmaceutics and Pharmacokinetics – Theory	CO1: Illustrate the concept of biopharmaceutics and its applications in formulation development.
	CO2: Interpret the pharmacokinetic processes and their relevance in efficacy of dosage form
	CO3: Understand the concepts of bioavailability and bioequivalence studies
	CO4: Explain various compartmental models and non compartmental analysis method
	CO5: Understand concept and mechanisms of dissolution and in vitro in vivo correlation
BP605T Pharmaceutical Biotechnology	The student should able to:
	CO1: Describe scope of biotechnology in pharmacy
	CO2: Explain the basis of techniques used in biotechnology
	CO3: Understand the methods of genetic engineering
	CO4: Elaborate uses of enzymes by immobilization
CO5: Illustrate the uses of fermenter	
BP606T Quality Assurance	The student should able to:
	CO1: Elucidate meaning of quality in Pharmaceutical manufacturing
	CO2: Explain role of Regulatory Agencies in deciding Quality Standards
	CO3: Explicate significance of validation in quality assurance
	CO4: Describe role and application of cGMP, GLP and GDP in Pharmaceutical industry
CO5: Explain the concept of QbD	

Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Final Year B. Pharm (SEM-VII) Pattern-2018
BP701T Instrumental	The student should able to:

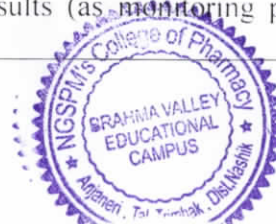



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Methods of Analysis	CO1: Upon completion of the course the student shall be able to
	CO2: Illustrate the interaction of matter with electromagnetic radiations and justify its applications in drug analysis
	CO3: Classify the chromatographic separation methods and choose appropriate technique for analysis of drugs
	CO4: Design methods for performing quantitative & qualitative analysis of drugs using various analytical instruments. C
BP702T Industrial Pharmacy-II	The student should able to:
	CO1: Explain principles, theories and stability considerations of disperse systems.
	CO2: Describe suspensions its types, excipients used, theories, formulation and evaluation of suspensions.
	CO3: Summarize emulsion its properties theories, excipients, formulation, evaluation and stability issues thereof.
	CO4: Explain anatomy & physiology of skin with Percutaneous absorption.
	CO5: Explain semi-solids its bases, formulation, penetration enhancers & evaluation thereof.
	CO6: Construct layout for manufacturing of liquids & semi-solids as per schedule M.
BP703T Pharmacy Practice	The student should able to:
	CO1: Know various drug distribution methods in a hospital
	CO2: Appreciate the pharmacy stores management and inventory control
	CO3: Monitor drug therapy of patient through medication chart review and clinical review.
	CO4: Obtain medication history interview and counsel the patients
	CO5: Identify drug related problems
	CO6: Detect and assess adverse drug reactions
	CO7: Interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states



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	CO8: Know pharmaceutical care services
	CO9: Do patient counseling in community pharmacy
	CO10: Appreciate the concept of rational drug therapy
BP704T Novel Drug Delivery System	CO1: To understand various approaches for development of novel drug delivery systems.
	CO2: To understand the criteria for selection of drugs and polymers for the development of novel drug delivery systems, their formulation and evaluation

Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Final Year B. Pharm (SEM-VIII)
BP801T Biostatistics and Research Methodology	The student should able to:
	CO1: Know the operation of M.S. Excel, SPSS, R and MINITAB®, DoE (Design of 2. Experiment)
	CO2: Know the various statistical techniques to solve statistical problems
BP802T Social and Preventive Pharmacy	The student should able to:
	CO1: Acquire high consciousness/realization of current issues related to health and pharmaceutical problems within the country and worldwide.
	CO2: Develop a critical way of thinking based on current healthcare development
BP803ET Pharma Marketing Management	CO3: Evaluate alternative ways of solving problems related to health and pharmaceutical issues.
	The student should able to:
BP804ET	CO1: The course aims to provide an understanding of marketing concepts and techniques and their applications in the pharmaceutical industry
	The student should able to:

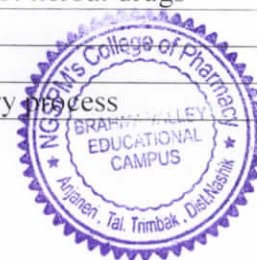


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Pharmaceutical Regulatory Science	CO1: Know about the process of drug discovery and development
	CO2: Know the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
	CO3: Know the regulatory approval process and their registration in Indian and international markets.
BP805ET PHARMACOVIGILAN CE	The student should able to:
	CO1: Understand importance of drug safety monitoring monitoring.
	CO2: . Explain History, development, National and international scenario of pharmacovigilance & comprehend dictionaries, coding and terminologies used in pharmacovigilance
	CO3: Understand detection and assessment of new adverse drug reactions, Adverse drug reaction reporting systems and communication in pharmacovigilance, Pharmacovigilance Program of India (PvPI) requirement for ADR reporting in India ICH guidelines for ICSR, PSUR, expedited reporting, pharmacovigilance planning. CIOMS requirements for ADR reporting
	CO4: Comprehend methods of safety data during pre-clinical, clinical and post approval phases of drugs' life cycle
	CO5: Write case narratives of adverse events and their quality..
BP806ET Quality Control and Standardizations of Herbals	The student should able to:
	CO1: Know WHO guidelines for quality control of herbal drugs
	CO2: Know Quality assurance in herbal drug industry
	CO3: Know the regulatory approval process and their registration in Indian and international markets
	CO4: Appreciate EU and ICH guidelines for quality control of herbal drugs
BP807ET COMPUTER AIDED DRUG DESIGN	The student should able to:
	CO1: Understand the design and discovery of lead molecule
	CO2: Classify the role of drug design tools for drug discovery process



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	CO3: Understand and analyse concepts of QSAR and docking
	CO4: Analyse and apply various strategies to develop new drug like molecules
	CO5: Use various molecular modeling software to design new drug molecule

BP808ET CELL AND MOLECULAR BIOLOGY	The student should able to:
	CO1: Summarize cell and molecular biology history, cellular functioning and Composition & describe the chemical foundations of cell biology.)
	CO2: Describe cellular membrane structure and function properties and functions of DNA, Cell Cycle.
	CO3: Describe basic molecular genetics mechanisms
	CO4: Understand the cell signaling pathways with their regulations and role in disease process.
BP809ET COSMETIC SCIENCE	The student should able to:
	CO1: Understand the concepts of cosmetics; anatomy of skin v/s hair, general excipients used in cosmetic
	CO2: Explain the concept of cosmeceuticals, history, difference between cosmetics & cosmeceuticals& cosmeceuticals agents
	CO3: Know different Laws and Acts that regulate pharmaceutical industry
	CO4: Understand the approval process and regulatory requirements for drug products
BP810ET EXPERIMENTAL PHARMACOLOGY	The student should able to:
	CO1: Understand the applications of various commonly used laboratory animals.
	CO2: Demonstrate the various screening methods used in preclinical research
	CO3: Comprehend and demonstrate the importance of biostatistics and research methodology
	CO4: Design and execute a research hypothesis independently.
BP811ET ADVANCED INSTRUMENTATION	The student should able to:
	CO1: Express the principle of the advanced instruments used and justify its applications in




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TECHNIQUES	drug analysis
	CO2: Understand the principles of analytical techniques and its application in analysis of drugs
	CO3: . Explain the importance and methods for the calibration of various analytical instruments
	CO4: . Formulate and justify techniques for the analysis of drugs using various analytical instruments.
BP812ET DIETARY SUPPLEMENTS AND NUTRACEUTICALS	The student should able to:
	CO1: Understand the need of supplements by the different group of people to maintain healthy life.
	CO2: Understand the outcome of deficiencies in dietary supplements.
	CO3: . Recognize the components in dietary supplements and the application
	CO4: Acquaint with the regulatory and commercial aspects of dietary supplements including health claims




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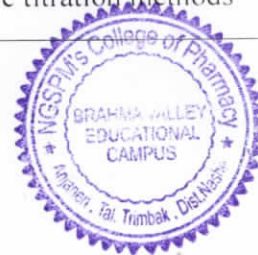


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Academic Year 2021-2022(Practical)

Course Outcome

Course code/ Course name	Course outcomes
Academic year 2021-2022	First Year B. Pharm (SEM-I) Pattern-2019
Human Anatomy and Physiology BP107 P	The student should able to:
	CO1: Explain different parts of microscope and its use of microscope in the study of histology.
	CO2: Determine hematological indices of own blood sample.
	CO3: Evaluate different cardiovascular parameters like blood pressure (BP), pulse rate etc.
	CO4: Elaborate significance of electrocardiogram (ECG).
BP108P Pharmaceutical Analysis- I	The student should able to:
	CO1: Understand the correct use, calibration of various equipment use in analytical laboratory
	CO2: Develop practical hands in titrimetric analysis by estimation of analyte concentration in pure form and formulation
	CO3: Analyze various drug by aqueous, non-aqueous, precipitation titration
	CO4: Estimate drug by complexometric titration methods



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	CO5: Understanding of principle and procedure used in different titration methods
BP109P Pharmaceutics I	The student should able to:
	CO1: Recall the correct use of various equipments in Pharmaceutics laboratory relevant to practicals.
	CO2: formulation evaluation and labeling of aromatic water, glycerides, syrups, elixirs and powder preparations.
	CO3: Solve pharmaceutical calculations to determine evaluation parameters for powder flow properties
	CO4: Analyze and differentiate between various dosage and routes of administrations.
	CO5: Discuss the factors influencing formulation of various dosage form
	CO6: Select the suitable packaging material (container-closure) for the preparation.
BP1010P Pharmaceutical Inorganic Chemistry	The student should able to:
	CO1: Demonstrate method of preparation and use of important inorganic substances used for pharmaceutical purpose.
	CO2: Perform qualitative analysis for detection of acidic and basic radicals from given inorganic binary mixture.
	CO3: Identify impurities from pharmaceutical substances by performing limit tests.
	CO4: Determine swelling power, acid neutralizing capacity and adsorption property of various inorganic compounds.
BP1011P Communication skills	The student should able to:
	CO1: : Explain the four basic communication skills – Listening, Speaking, Reading and Writing
	CO2: Make students reflect and improve their use of body language posture, gesture, facial expression, tone



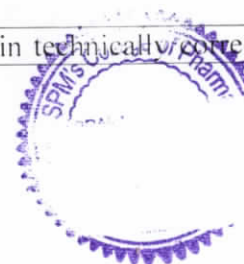

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	CO3: Discuss role of skills in real-life work situations with case studies, role play, etc.
	CO4: Develop creativity and other latent talents with proper goal setting so that self esteem gets enhanced.
	CO5: Identify the concept of positive thinking which will keep the students in a good stead at the time of crisis.
BP1012RBP Remedial Biology	The student should able to:
	The student should able to:
	CO1: :Introduction to experiment in biology
	CO2:understand the basic components of anatomy & physiology of plant
	CO3:know understand the basic components of anatomy & physiology animal with special reference to human

BP207P Human Anatomy and Physiology II	The student should able to:
	CO1:Relate the influence of hypotonic, hypertonic and isotonic solutions on cellular integrity of red blood cells (RBCs)
	CO2:Compare and contrast physiological functions of granulocytes and agranulocytes
	CO3: Identify the bones of axial and appendicular skeleton
	CO4: Analyze and conclude physiology of autonomic nervous system (ANS) and central nervous system (CNS)
BP208P Pharmaceutical Organic Chemistry I	The student should able to:
	CO1: Explain correct use of various equipments.
	CO2: Understand and implement Safety measures in Pharmaceutical Chemistry laboratory.
	CO3: Match calibration of thermometer in technically correct way & Explain the simple



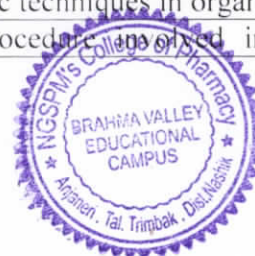
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	laboratory techniques.
	CO4: Describe significance of qualitative Analysis of organic compounds & synthesis of derivatives.
	CO5: Explain how to synthesize different organic compounds along with reaction & Mechanism.
BP209P Biochemistry	The student should able to:
	CO1: Analyze and estimate protein, amino acid, carbohydrate from given sample by qualitative, quantitative test
	CO2: To Study isolation and estimation of DNA from given sample
	CO3: To estimate quantity of ascorbic acid from given sample
	CO4: To know mechanism of action of salivary amylase on starch
BP2010P Computer Applications in Pharmacy	The student should able to:
	CO1: know the various types of application of computers in pharmacy
	CO2: know the various types of databases
	CO3: know the various applications of databases in pharmacy

Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Second Year B. Pharm (SEM-III) Pattern-2019
BP305P Pharmaceutical Organic Chemistry II	The student should able to:
	CO1: Synthesize & recrystallize the organic compounds based on rearrangement reactions and demonstrate techniques such as filtration, precipitation, etc.
	CO2: Understand the chromatographic techniques in organic chemistry
	CO3: Explain the principle and procedure used in column chromatographic



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	separation techniques and TLC.
	CO4: Explain and understand the principle behind various qualitative tests
	CO5: Analyze the given unknown Solid-Solid binary organic compounds having different functional groups.
BP306P Physical Pharmaceutics I	The student should able to:
	CO1: To Evaluate CST & effect of addition of electrolyte on CST of phenol-water system
	CO2: To construct of ternary phase diagram for three-component system
	CO3: Understand and Evaluate viscosity, Particle Size distribution of drug
	CO4: To predict solubility, molecular weight, cell constant, pKa of given compound.
	CO5: To evaluate unknown concentration by conductometric titration
BP307P Pharmaceutical Microbiology	The student should able to:
	CO1: Explain the principle, construction and working of various instruments and perform their operations.
	CO2: Handling of microscope & different staining techniques.
	CO3: Preparation and sterilization of nutrient broth, nutrient agar, slants, stabs and plates
	CO4: Adopt the skills required for maintaining strictly aseptic condition & handling inoculating loop, its sterilization and inoculation procedure.
	CO5: Determination of minimum inhibitory concentration and antibiotic assay.
BP 308P Pharmaceutical Engineering	The student should able to:
	CO1: Understand molecular diffusion in gases and liquids
	CO2: Understand the concept of drying and classification dryers with respect to their applications in pharmacy.
	CO3: Explain the various heat transfer techniques including their mechanism and applications in Pharmacy including the illustration of crystallizers.



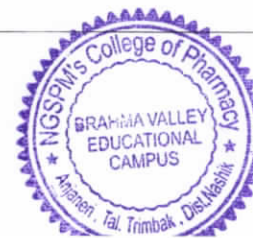
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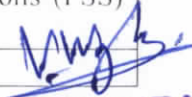


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	CO4: Elucidate graphical representation of various equipment for unit operations
	CO5: Understand the principles, mechanisms and theories of different unit operations

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Academic year 2021-2022	Second Year B. Pharm (SEM-IV)
BP406P Medicinal Chemistry I –	The student should able to:
	CO1: Establish correlation of physicochemical properties affecting drug action and pharmacokinetics.
	CO2: Explain different types of receptors, forces involved in drug receptor interaction and signal transduction mechanism.
	CO3: Discuss classification, nomenclature, structure activity relationship, mechanism of action and synthesis including adrenergic agents, cholinergic agents and diuretics.
	CO4: Describe adverse effects, therapeutic uses and recent developments in diuretics and drugs acting on autonomic nervous system & cardiovascular system.
BP407P Physical Pharmaceutics II	The student should able to:
	CO1: Predict surface tension of given liquid and are able to evaluate Kraft point, cloud point, CMC and HLB value of given surfactant
	CO2: Evaluate surface tension of given liquid
	CO3: Understand and Evaluate viscosity. Particle Size distribution of drug
	CO4: Determine Composition of binary Mixture by viscosity method
	CO5: Determine order of any reaction
BP408P Pharmacology I	The student should able to:
	CO1: List basic instruments and various types of physiological salt solutions (PSS) used in experimental pharmacology
	CO2: Outline guidelines for CPCSEA




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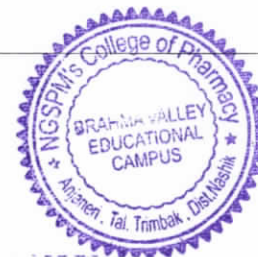
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	CO3: Identify various routes of drug administration and methods for body fluid collection from animals
	CO4: Examine the effect of different drugs on isolated tissue or organ preparations
	CO5: Interpret the action of various drugs using preclinical models/ computer simulation
BP409P Pharmacognosy and Phytochemistry I	The student should able to
	CO1: Explain morphology and microscopy of crude drugs.
	CO2: Make use of charts for chemical tests of unorganized drugs.
	CO3: Analyze the plants samples on the basis of physico-chemical parameters
	CO4: Explain identification of powdered crude drugs.
	CO5: Develop the skill of section cutting, staining, mounting and preliminary phytochemical tests.

Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Third Year B. Pharm (SEM-V)
BP506P Industrial Pharmacy-I	The student should able to:
	CO1: Experiment with formulation of tablet and capsules with evaluation thereof. .
	CO2: Perform pharmaceutical calculations to determine evaluation of powders and granules
	CO3: Describe use of ingredients in formulation and category.
	CO4: Operate equipments in Pharmaceutics laboratory relevant to tablets, Capsules as per SOP.
	CO5: Explain different packaging material for tablet and capsules.
BP507P Pharmacology II	The student should able to:



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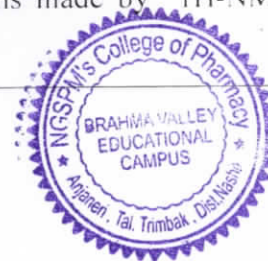
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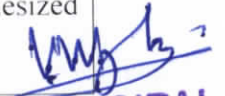
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	<p>CO1:List basic instruments and various types of physiological salt solutions (PSS) used in experimental pharmacology</p> <p>CO2: Outline guidelines for CPCSEA</p> <p>CO3: Identify various routes of drug administration and methods for body fluid collection from animals</p> <p>CO4:Examine the effect of different drugs on isolated tissue or organ preparations</p> <p>CO5: Interpret the action of various drugs using preclinical models/ computer simulation</p>
BP508P Pharmacognosy and Phytochemistry I	<p>CO1: Explain morphology and microscopy of crude drugs.</p> <p>CO2: Make use of charts for chemical tests of unorganized drugs.</p> <p>CO3: Analyze the plants samples on the basis of physico-chemical parameters</p> <p>CO4: Explain identification of powdered crude drugs.</p> <p>CO5: Develop the skill of section cutting, staining, mounting and preliminary phytochemical tests.</p>
Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Third Year B. Pharm (SEM-VI) Pattern-2019
BP607P Medicinal chemistry III	<p>The student should able to:</p> <p>CO1: Develop skills involved in thin layer chromatography techniques and purification of synthesized compounds by column chromatography.</p> <p>CO2: Synthesize, recrystallize and understand reaction mechanisms involved in synthesis of medicinally important organic compounds.</p> <p>CO3: Interpret the spectral characterizations made by IR of synthesized compound</p> <p>CO4: Interpret the spectral characterizations made by ¹H-NMRs of synthesized compound</p>




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BP609P Herbal Drug Technology	CO1: understand raw material as source of herbal drugs from cultivation to herbal drug product
	CO2: know the WHO and ICH guidelines for evaluation of herbal drugs
	CO3: know the herbal cosmetics, natural sweeteners, nutraceuticals.
	CO4: appreciate patenting of herbal drugs, GMP .
	CO5: Study and Compare different herbal drug
BP608P Pharmacology III	The student should able to:
	CO1: Understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
	CO2: Comprehend the principles of toxicology and treatment of various poisonings and appreciate correlation of pharmacology with related medical sciences.

Course Code / Course Title	Course Outcomes (CO's)
Academic year 2021-2022	Final Year B. Pharm (SEM-VII) Pattern-2018
BP705P Instrumental Methods of Analysis	The student should able to:
	CO1: Upon completion of the course the student shall be able to
	CO2: Illustrate the interaction of matter with electromagnetic radiations and justify its applications in drug analysis
	CO3: Classify the chromatographic separation methods and choose appropriate technique for analysis of drugs.
	CO4: Design methods for performing quantitative & qualitative analysis of drugs using various analytical instruments.



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