



SRI SHANMUGHA COLLEGE OF PHARMACY

Approved by Government of Tamilnadu & All India Council for Technical Education, New Delhi

Recognized by Pharmacy Council of India, New Delhi

Affiliated to The Tamilnadu Dr. M.G.R Medical University, Chennai

Sankari-Tiruchengode Main Road, Pullipalayam, Morur (Po), Sankari (Tk), Salem (Dt), Tamilnadu, Pin-637304

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COURSE OUTCOMES FOR B. PHARM

Semester-1

Course Code	Course Name
BP101T	HUMAN ANATOMY AND PHYSIOLOGY-I

Course Outcome	Description of Course Outcome
CO1	Analysing the handling of compound microscope and to memorize various animal tissues.
CO2	Evaluating the summarize characteristics of different bones (skeletal system).
CO3	Applying the bleeding/clotting time and blood group.
CO4	Analysing the blood cells using heamocytometry.
CO5	Understanding the hemoglobin concentration of human blood and blood pressure.

Principal

Sri Shanmugha College of Pharmacy
Sankari - Tiruchengode Main Road,
Pullipalayam, Morur (PO). - 637 304.
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Course Code	Course Name
BP102T	PHARMACEUTICAL ANALYSIS - I

Course Outcome	Description of Course Outcome
CO1	Understanding about various methods and techniques in analytical chemistry for the study of various drugs.
CO2	Applying the knowledge of quantitative and qualitative analysis.
CO3	Analyzing the properties and complete profile of drugs using various methods that include titrimetric and electro chemical methods.
CO4	Evaluating the profile of existing drugs and chemicals for its safety.
CO5	Remembering various analytical methods for the preparation and determining the properties of chemicals.

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Course Code	Course Name
BP103T	PHARMACEUTICS -I

Course Outcome	Description of Course Outcome
CO1	Understanding the history of pharmacy profession and its scope and way of handling prescription
CO2	Analyzing basic concept in fundamental pharmaceutical calculations
CO3	Creating the monophasic and biphasic dosage forms
CO4	Understanding method for pharmaceutical incompatibility in the formulation
CO5	Evaluating conventional dosage forms.

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Course Code	Course Name
BP104T	PHARMACEUTICAL INORGANIC CHEMISTRY

Course Outcome	Description of Course Outcome
CO1	Understanding with the monographs of inorganic drugs and pharmaceuticals
CO2	Understanding the medicinal and pharmaceutical importance of inorganic compounds
CO3	Analysing the sources of impurities in pharmaceutical inorganic compounds
CO4	Evaluating the study of radioactive substances
CO5	Applying the assay, physico-chemical properties and molecular formula of various inorganic compounds

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Course Code	Course Name
BP105T	COMMUNICATION SKILLS

Course Outcome	Description of Course Outcome
CO1	Understanding the behavioral needs for a pharmacist to function effectively in pharmaceutical operations
CO2	Communicating effectively (verbal and non-verbal)
CO3	Managing a team effectively as a team player
CO4	Developing interview skills
CO5	Developing leadership qualities and essentials


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Course Code	Course Name
BP106T	REMEDIAL BIOLOGY

Course Outcome	Description of Course Outcome
CO1	Know the classification and salient features of the five kingdoms of life
CO2	Understand the basic components of anatomy and physiology of plants
CO3	Understand the basic components of anatomy and physiology of animals with special reference to humans
CO4	Compare and contrast the anatomical and physiological features of plants and animals, highlighting similarities and differences in their adaptations and survival strategies.
CO5	Apply knowledge of plant and animal anatomy and physiology to solve practical problems, such as identifying plant diseases or understanding human health conditions, using relevant case studies and experimental techniques.

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Course Code	Course Name
BP106T	REMEDIAL MATHEMATICS

Course Outcome	Description of Course Outcome
CO1	Understand key theories in pharmaceutical sciences, including drug formulation and pharmacodynamics.
CO2	Apply theoretical knowledge to solve problems related to drug dosages and interactions.
CO3	Recognize the importance of mathematical principles in pharmaceutical calculations and data analysis.
CO4	Analyze real-world pharmaceutical scenarios to optimize drug therapy and evaluate new products.
CO5	Develop and implement solutions to pharmaceutical problems, including dosage design and quality control.

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Course Code	Course Name
BP107P	HUMAN ANATOMY AND PHYSIOLOGY-I

Course Outcome	Description of Course Outcome
CO1	Analysing the handling of compound microscope and to memorize various animal tissues.
CO2	Evaluating the summarize characteristics of different bones (skeletal system).
CO3	Applying the bleeding/clotting time and blood group.
CO4	Analysing the blood cells using heamocytometry.
CO5	Understanding the hemoglobin concentration of human blood and blood pressure.
CO6	Applying the erythrocyte sedimentation rate of human blood and heart rate/ pulse rate.

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Course Code	Course Name
BP108P	PHARMACEUTICAL ANALYSIS - I

Course Outcome	Description of Course Outcome
CO1	Creating new innovative methods for the analysis of various drug formulations.
CO2	Analyzing the safety and efficacy of chemicals and drugs
CO3	Remembering how to prepare various chemical solution based on concentration and analyze the purity of the same
CO4	Evaluating the full profile of drugs in the pharmaceutical market.
CO5	Understanding about various methods to determine the different properties of chemical compounds.

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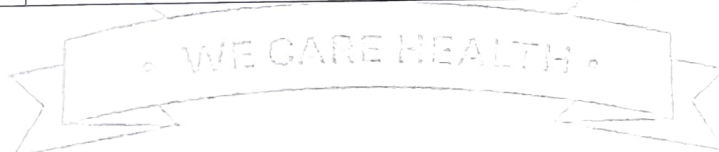
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Course Code	Course Name
BP109 P	PHARMACEUTICS –I

Course Outcome	Description of Course Outcome
CO1	Understanding the principles used in the preparation of solid ,liquid and semisolid dosage forms
CO2	Applying monophasic liquid dosage forms for internal and external administration
CO3	Applying biphasic liquid dosage forms
CO4	Creating powders
CO5	Creating semisolid dosage forms and formulate suppositories




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Course Code	Course Name
BP110P	PHARMACEUTICAL INORGANIC CHEMISTRY

Course Outcome	Description of Course Outcome
CO1	Understanding the sources of impurities present in the inorganic compounds
CO2	Analysing the qualitative analysis of unknown inorganic compounds
CO3	Evaluating the identification test of pharmaceutical inorganic drugs
CO4	Applying test for purity on pharmaceutical substances
CO5	Applying quantitative analysis of preparation, assay of various inorganic drugs



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Course Code	Course Name
BP111P	COMMUNICATION SKILLS

Course Outcome	Description of Course Outcome
CO1	Understand and apply basic communication skills, including meeting people, asking questions, and making friends
CO2	Demonstrate correct pronunciation of consonant and vowel sounds, and their application in nouns
CO3	Analyze and apply effective communication techniques in listening comprehension, direct and indirect speech, and figures of speech
CO4	Develop and practice effective writing skills, including email etiquette and interview handling
CO5	Create and deliver presentations using advanced communication strategies



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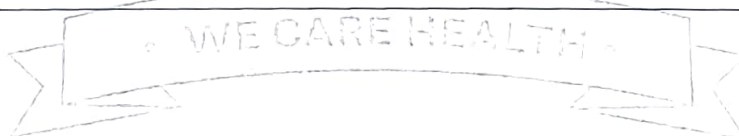
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Course Code	Course Name
BP112P	REMEDIAL BIOLOGY

Course Outcome	Description of Course Outcome
CO1	Demonstrate proficiency in basic biological techniques, including microscopy, section cutting, mounting, staining, and slide preparation
CO2	Identify and analyze the structures and inclusions of cells
CO3	Examine and describe anatomical features and modifications of plant organs such as stem, root, leaf, seed, fruit, and flower
CO4	Utilize computer models for a detailed study of frog anatomy
CO5	Perform microscopic analysis and identify tissues from various plant organs and classify different bones



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Semester-2

Course Code	Course Name
BP201T	HUMAN ANATOMY AND PHYSIOLOGY-II

Course Outcomes	Description of Course Outcome
CO1	Remembering the basic knowledge about central nervous system including nervous tissue, brain and spinal cord.
CO2	Analysing the structure and functions of gastrointestinal tract and to learn about ATP/CTP/BMR.
CO3	Applying the structure and functions of respiratory system and various mechanisms involved in regulation of respiration.
CO4	Understanding the anatomy of urinary system and physiology of urine formation/micturition.
CO5	Evaluating the physiology of male and female reproductive organs and concepts of genetics, Understanding the essentiality of endocrine glands and their hormones.

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Course Code	Course Name
BP202T	PHARMACEUTICAL ORGANIC CHEMISTRY I

Course Outcomes	Description of Course Outcome
CO1	Describe the classification of organic compounds and nomenclature.
CO2	Classify isomerism and explain structural isomerism.
CO3	Explain hybridisation in alkenes, alkynes and stabilities of alkenes, conjugated dienes.
CO4	Discuss the mechanism, kinetics, stereochemistry and factors affecting SN1 & SN2 reaction
CO5	Discuss the application, qualitative test and structure of organic compounds of medicinal importance.

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Course Code	Course Name
BP203T	BIOCHEMISTRY

Course Outcome	Description of Course Outcome
CO1	Understanding the molecular levels of the chemical process associated with living cells
CO2	Analysing biochemical facts and metabolism of nutrient molecules in physiological and pathological condition
CO3	Understanding the genetic organization of mammalian genome and functions of DNA in the synthesis of RNAs and proteins.
CO4	Evaluating the biological role of carbohydrates, amino acids, proteins and lipids
CO5	Understanding the pathways of Glycolysis, Citric acid cycle, HMP Shunt, Gluconeogenesis

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Course Code	Course Name
BP204T	PATHOPHYSIOLOGY

Course Outcome	Description of Course Outcome
CO1	Understanding the etiology and pathogenesis of the selected disease states
CO2	Understanding the knowledge of signs and symptoms of the diseases
CO3	Remembering the complications of the disease
CO4	Remembering most commonly encountered pathophysiological state (s)
CO5	Analyzing the disease mechanism as well as any clinical testing requirements

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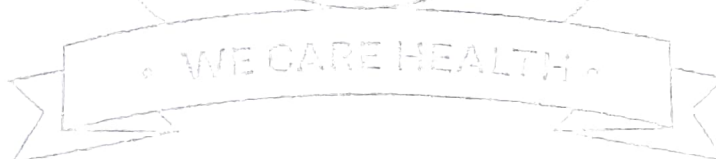
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Course Code	Course Name
BP205T	COMPUTER APPLICATIONS IN PHARMACY

Course Outcome	Description of Course Outcome
CO1	Know the various types of applications of computers in pharmacy
CO2	Know the various types of databases used in pharmacy
CO3	Know the various applications of databases in pharmacy
CO4	Comprehend key pharmaceutical theories, including drug formulation and effects.
CO5	Apply theoretical knowledge to solve drug-related problems and optimize therapy.



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Course Code	Course Name
BP206T	ENVIRONMENTAL SCIENCES

Course Outcome	Description of Course Outcome
CO1	Create awareness about environmental problems among learners
CO2	Impart basic knowledge about the environment and its associated problems
CO3	Develop an attitude of concern for the environment
CO4	Motivate learners to actively participate in environmental protection and improvement
CO5	Acquire skills to help individuals identify and solve environmental problems
CO6	Strive to attain harmony with nature

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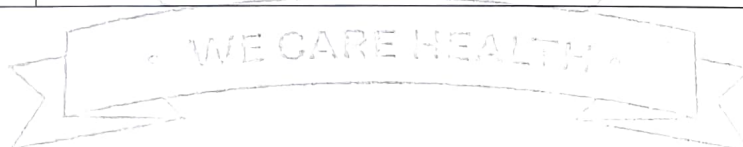
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Course Code	Course Name
BP207P	HUMAN ANATOMY AND PHYSIOLOGY II

Course Outcome	Description of Course Outcome
CO1	Demonstrate proficiency in using a compound microscope and performing microscopic studies of epithelial, connective, muscular, and nervous tissues
CO2	Identify and classify axial and appendicular bones
CO3	Conduct hemocytometry, including the enumeration of white blood cells (WBCs) and red blood cells (RBCs)
CO4	Perform and interpret various blood tests, such as bleeding time, clotting time, hemoglobin content, blood group determination, and erythrocyte sedimentation rate



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Course Code	Course Name
BP208P	PHARMACEUTICAL ORGANIC CHEMISTRY I

Course Outcome	Description of Course Outcome
CO1	Perform systematic qualitative analysis of unknown organic compounds, including preliminary tests, detection of elements, solubility tests, and functional group tests
CO2	Determine the melting point and boiling point of organic compounds to aid in their identification
CO3	Identify unknown organic compounds from literature using physical properties like melting point and boiling point
CO4	Prepare derivatives of organic compounds and confirm their identity through melting point/boiling point analysis
CO5	Construct molecular models to visualize and understand the structure of organic compounds

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Course Code	Course Name
BP209P	BIOCHEMISTRY

Course Outcome	Description of Course Outcome
CO1	Understanding an identification test of carbohydrates and proteins
CO2	Applying to determination of blood creatinine, blood sugar level and serum cholesterol level
CO3	Analysing the study of enzymatic hydrolysis of starch
CO4	Evaluating the quantitative analysis of DNSA Method and Biuret Method
CO5	Remembering the Preparation of buffer solution and measurement of pH

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Course Code	Course Name
BP210P	COMPUTER APPLICATIONS IN PHARMACY

Course Outcome	Description of Course Outcome
CO1	Demonstrate proficiency in using various types of computer applications relevant to pharmacy, including pharmacy management software and drug information systems
CO2	Utilize different types of databases to manage and retrieve pharmaceutical data, including drug interactions, patient records, and clinical information
CO3	Apply database management tools to create, update, and query pharmaceutical databases for effective data management and decision-making
CO4	Analyze and interpret pharmaceutical data using computer applications to support clinical decision-making and patient care
CO5	Develop and maintain reports and presentations using computer software to communicate pharmaceutical data and research findings effectively

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Semester-3

Course Code	Course Name
BP301T	PHARMACEUTICAL ORGANIC CHEMISTRY II

Course Outcome	Description of Course Outcome
CO1	Understanding about the aromaticity, various reaction mechanism of aromatic compounds
CO2	Analyzing the analytical constants of various fats and oils
CO3	Understanding the isomerism of organic compounds
CO4	Understanding various basic concepts of organic chemistry
CO5	Applying the various reactions to Aromatic Compounds

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Course Code	Course Name
BP302T	PHYSICAL PHARMACEUTICS-I

Course Outcome	Description of Course Outcome
CO1	State the physicochemical properties of drug molecules, pH, and solubility.
CO2	Explain physical principles of states of matter and phase rule
CO3	Explain the role of surfactants, interfacial phenomenon and thermodynamics
CO4	Understand the various intermolecular forces involved in the formation of complexes and its applications.
CO5	Assess the importance of pH and buffers in manufacturing pharmaceutical dosage forms and maintaining stability.

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Course Code	Course Name
BP303T	PHARMACEUTICAL MICROBIOLOGY

Course Outcome	Description of Course Outcome
CO1	Understand methods of identification, cultivation, and preservation of various microorganisms
CO2	To understand the importance and implementation of sterilization in pharmaceutical processing and industry
CO3	Learn sterility testing of pharmaceutical products.
CO4	Carried out microbiological standardization of Pharmaceuticals.
CO5	Understand the cell culture technology and its applications in pharmaceutical industries

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Course Code	Course Name
BP304T	-PHARMACEUTICAL ENGINEERING

Course Outcome	Description of Course Outcome
CO1	Evaluate various unit operations used in Pharmaceutical industries.
CO2	Understand the various laws, mechanisms of unit operations.
CO3	Understand the various processes involved in Pharmaceutical manufacturing process.
CO4	Understand the material handling techniques.
CO5	Understand the principle, construction, working, uses, advantages and disadvantages of Pharmaceutical equipment's used for various unit operations.

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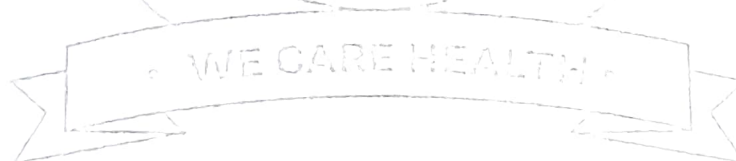
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Course Code	Course Name
BP305P	PHARMACEUTICAL ORGANIC CHEMISTRY -II

Course Outcome	Description of Course Outcome
CO1	Understand procedure for preparation of organic compounds
CO2	Identification test help to interpret and arrive to valid conclusions about the prepared organic samples.
CO3	Gain practical knowledge from various determinations and standardization of reagents.
CO4	Know about handling of various instruments
CO5	Able to carry out purification methods adopted for organic compounds.



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Course Code	Course Name
BP306P	PHYSICAL PHARMACEUTICS – I

Course Outcome	Description of Course Outcome
CO1	Determine the solubility of drugs at room temperature and apply principles of solubility in pharmaceutical formulations
CO2	Measure and calculate the pKa value of compounds using Half-Neutralization and Henderson-Hasselbalch equations
CO3	Determine the partition coefficient of various compounds between different solvents to understand drug distribution
CO4	Assess the surface tension of liquids and calculate the Hydrophilic-Lipophilic Balance (HLB) number of surfactants
CO5	Determine the stability constants and donor-acceptor ratios of drug complexes using solubility and pH titration methods

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Course Code	Course Name
BP307P	PHARMACEUTICAL MICROBIOLOGY

Course Outcome	Description of Course Outcome
CO1	Understanding the importance of micro-organisms able to cultivate, identify & preserve microorganism
CO2	Applying the knowledge of sterilization & disinfection process in pharmaceutical industry
CO3	Remembering above the sterility test for various pharmaceutical products
CO4	Analysing about the design and plan a sterile area, sources & prevention of contamination.
CO5	Evaluating the different types of spoilage & use of preservatives, and able to cultivate animal cell in vitro.

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Course Code	Course Name
BP308P	PHARMACEUTICAL ENGINEERING

Course Outcome	Description of Course Outcome
CO1	Determine the radiation constant of various materials (brass, iron, glass) and understand their thermal properties
CO2	Calculate the efficiency of steam distillation and understand its application in pharmaceutical processes
CO3	Determine the overall heat transfer coefficient using a heat exchanger and interpret its significance in thermal processes
CO4	Analyze drying curves, moisture content, and loss on drying for pharmaceutical materials, and study factors affecting filtration and evaporation rates
CO5	Perform size analysis by sieving, verify laws of size reduction using a ball mill, and evaluate the performance of various pharmaceutical machinery

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Semester-4

Course Code	Course Name
BP401T	PHARMACEUTICAL ORGANIC CHEMISTRY – III

Course Outcomes	Description of Course Outcome
CO1	Understanding the method of preparation of organic compounds and there derivatives
CO2	Applying the synthetic importance for new drug design
CO3	Analyzing the chemistry of organic compounds through stereo chemical aspects
CO4	Evaluating the activity and all other property of chemical compounds.
CO5	Remembering the structure and stereochemistry of hetero cyclic compounds.

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Course Code	Course Name
BP402T	MEDICINAL CHEMISTRY – I

Course Outcome	Description of Course Outcome
CO1	Understand about Principle of medicinal chemistry.
CO2	Understand Mechanism/cause of disease or disorder.
CO3	Applying chemistry of drugs in respect to their pharmacokinetic & pharmacological profile of drugs.
CO4	Recall of Structural Activity Relationship (SAR) of different class of drugs with relate their biological activity.
CO5	Understand Synthetic procedure of the drug with classification based on chemical structure.

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Course Code	Course Name
BP 403 T	PHYSICAL PHARMACEUTICS-II

Course Outcome	Description of Course Outcome
CO1	Understand various physicochemical properties of drug molecules in the designing the dosage forms
CO2	Demonstrate use of physicochemical properties in evaluation of dosage forms.
CO3	Understand the various properties of pharmaceutical suspensions and colloids.
CO4	Evaluate particle size distribution of given material
CO5	Know the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations

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Course Code	Course Name
BP404T	PHARMACOLOGY I

Course Outcome	Description of Course Outcome
CO1	Understand the pharmacological actions of different categories of drugs.
CO2	Explain the mechanism of drug action at organ system/sub cellular/ macromolecular levels.
CO3	Apply the basic pharmacological knowledge in the prevention and treatment of various diseases.
CO4	To evaluate the pharmacology of Psychopharmacological agents.
CO5	To evaluate the effects of drugs against neurodegenerative disorders and to elaborate the concepts of drug addiction/abuse/tolerance/ dependence.

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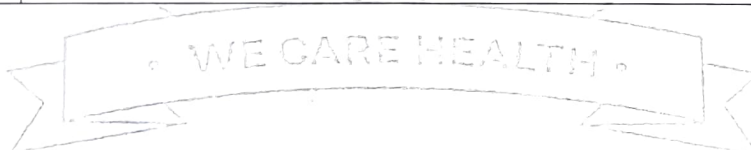
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Course Code	Course Name
BP405T	PHARMACOGNOSY & PHYTOCHEMISTRY-I

Course Outcome	Description of Course Outcome
CO1	Understanding about the techniques in the cultivation and production of crude drug.
CO2	Understanding the crude drugs, their uses and chemical nature.
CO3	Analyzing about the evaluation techniques for the herbal drugs.
CO4	Analyzing the microscopic and morphological evaluation of crude drug.
CO5	Understanding the various system of medicine




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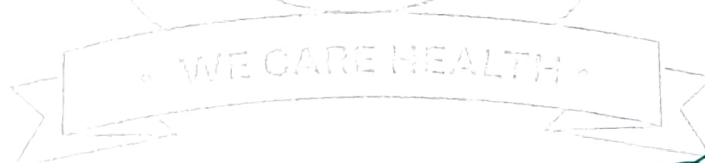
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Course Code	Course Name
BP406P	MEDICINAL CHEMISTRY – I

Course Outcome	Description of Course Outcome
CO1	Applying synthetic mechanism to make new drug preparation.
CO2	Understand the chemistry of drugs
CO3	Analysing the percentage purity of the drug.
CO4	Recall the synthesis of organic compounds.
CO5	Understand the partition coefficient of drug molecule.




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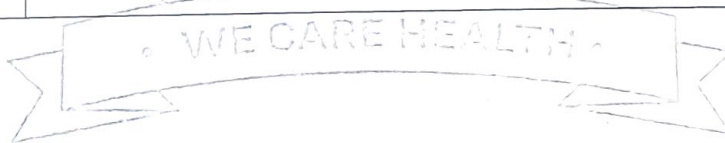
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Course Code	Course Name
BP407P	PHYSICAL PHARMACEUTICS-II

Course Outcome	Description of Course Outcome
CO1	Evaluate surface tension, viscosity, specific surface area,
CO2	Evaluate particle size distribution of given material
CO3	Calculate energy of activation of acid hydrolysis, order of given reaction, relative strength of two acids
CO4	Calculate Cloud point, critical micelle concentration and HLB value of given surfactant.
CO5	Find out composition of binary mixture by viscosity method.




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Course Code	Course Name
BP408P	PHARMACOLOGY I

Course Outcome	Description of Course Outcome
CO1	To remembering about basic instruments, common laboratory animals used in experimental pharmacology
CO2	To analyse the effects of various drugs on rabbit eye and ciliary motility of frog oesophagus in correlation with humans
CO3	To analyse the effect of drugs acting as enzyme inducers, skeletal muscle relaxants and affecting locomotor activity in laboratory animals
CO4	To evaluate various screening models for anticonvulsant and anxiolytic activity
CO5	To evaluate the stereotype and anticatatonic activity of drugs in rats/mice



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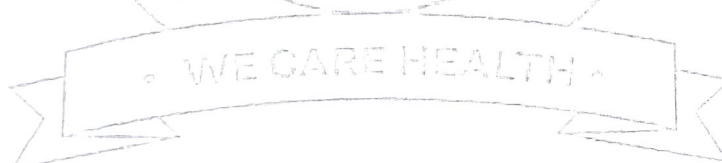
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Course Code	Course Name
BP409P	PHARMACOGNOSY & PHYTOCHEMISTRY -I

Course Outcome	Description of Course Outcome
CO1	Analysing of crude drugs by chemical test.
CO2	Applying leaf constants for crude drugs.
CO3	Analysing of crude drugs by lycopodium spore methods.
CO4	Applying ash value for crude drugs
CO5	Understanding the loss on drying method for crude drugs.



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Semester-5

Course Code	Course Name
BP501T	MEDICINAL CHEMISTRY II

Course Outcome	Description of Course Outcome
CO1	Understand about Principle of medicinal chemistry.
CO2	Understand Mechanism/cause of disease or disorder.
CO3	Applying chemistry of drugs in respect to their pharmacokinetic & pharmacological profile of drugs.
CO4	Recall of Structural Activity Relationship (SAR) of different class of drugs with relate their biological activity.
CO5	Understand Synthetic procedure of the drug with classification based on chemical structure.

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Course Code	Course Name
BP502T	INDUSTRIAL PHARMACY-I

Course Outcome	Description of Course Outcome
CO1	Understanding the preformulation of drugs, excipients and their role in formulation design
CO2	Applying the knowledge on tablet and liquid dosage form and their processing problems with QC test
CO3	Analysing the ability on capsule production and pellets with QC tests
CO4	Describing the sterile preparation and their QC evaluation tests
CO5	Give a note on formulation of cosmetics & packaging material sciences

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Course Code	Course Name
BP503 T	PHARMACOLOGY II

Course Outcome	Description of Course Outcome
CO1	To Understand the relative pros and cons in the use of drugs for various cardiac complications.
CO2	To illustrate the drugs acting on hematopoietic system, shock diuretics and anti-diuretics.
CO3	To identify the role of autocooids and related drugs.
CO4	To analyze and summarize the drugs acting on endocrine system.
CO5	To predict principles of bioassay and to construct the bioassay methods of various compounds.

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Course Code	Course Name
BP504	PHARMACOGNOSY & PHYTOCHEMISTRY- II

Course Outcomes	Description of Course Outcome
CO1	Understanding the metabolic pathway of different secondary metabolite.
CO2	Understanding preparation and development of herbal formulation.
CO3	Analyzing about the isolation and identification phytoconstitutents.
CO4	Analyzing the herbal drug interactions.
CO5	Understanding the extraction methods of phytoconstitutents.

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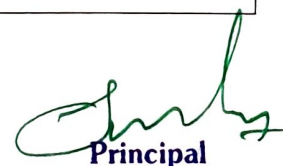
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Course Code	Course Name
BP 505T	PHARMACEUTICAL JURISPRUDENCE

Course Outcome	Description of Course Outcome
CO1	To explain regulations and regulatory agencies for import and manufacturing of Drug and Cosmetics.
CO2	To explain provisions for sales and labeling of Drug and Cosmetic products
CO3	To describe regulatory requirements for Alcoholic and narcotic preparation and pharmacy regulatory bodies.
CO4	To understand rules and provisions for advertisement of drug, drug price and animal wellbeing.
CO5	To summarize of Right to information, medical termination and Intellectual property right.



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Course Code	Course Name
BP506P	INDUSTRIAL PHARMACY-I

Course Outcome	Description of Course Outcome
CO1	To explain regulations and regulatory agencies for import and manufacturing of Drug and Cosmetics.
CO2	To explain provisions for sales and labeling of Drug and Cosmetic products.
CO3	To describe regulatory requirements for Alcoholic and narcotic preparations and pharmacy regulatory bodies.
CO4	To understand rules and provisions for advertisement of drugs, drug pricing, and animal wellbeing.
CO5	To summarize the Right to Information, medical termination, and Intellectual Property Rights.

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Course Code	Course Name
BP507 P	PHARMACOLOGY II

Course Outcome	Description of Course Outcome
CO1	To understand the importance of physiological salt solutions and to identify the effect of various drugs on isolated frog heart, blood pressure and heart rate of dog.
CO2	To illustrate the diuretic activity of drugs in mice/rats
CO3	To identify the dose response relationship, effect of drugs on DRC and to construct the drug concentrations by various bioassay methods using animal simulator software.
CO4	To categorize the PA2 and PD2 value of drugs using rat anococcygeus muscle and guinea pig ileum.
CO5	To predict various screening models for analgesic and anti-inflammatory.

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Course Code	Course Name
BP508 P	PHARMACOGNOSY & PHYTOCHEMISTRY -II

Course Outcome	Description of Course Outcome
CO1	Understanding morphology, histology and powder characteristics of crude drug.
CO2	Applying isolation & detection of active principles.
CO3	Analysing sugar by paper chromatography.
CO4	Applying TLC method for crude drug
CO5	Analysing the crude drugs by chemical test.


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Semester-6

Course Code	Course Name
BP601T	MEDICINAL CHEMISTRY III

Course Outcome	Description of Course Outcome
CO1	Remembering the chemical classification, structure, synthesis, mechanism of action and uses of antibiotics
CO2	Analyzing the SAR of antibiotics
CO3	Applying the concept in the application of combinatorial chemistry
CO4	Understanding the drug design and its approaches used in drug design and physicochemical used in QSAR
CO5	Remembering the physicochemical parameters used in QSAR

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Course Code	Course Name
BP602 T	PHARMACOLOGY III

Course Outcome	Description of Course Outcome
CO1	To understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
CO2	To comprehend the principles of toxicology and treatment of various poisonings.
CO3	To analyze correlation of pharmacology with related medical sciences.
CO4	To remembering the biological clock and its significance leading to chronotherapy.
CO5	To analyze the chemotherapy of UTI's, STD's, anti-cancer drugs and to categorize the immuno pharmacology.

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Course Code	Course Name
BP603 T	HERBAL DRUG TECHNOLOGY

Course Outcome	Description of Course Outcome
CO1	Understand raw material as source of herbal drugs from cultivation to herbal drug product
CO2	Applying the WHO and ICH guidelines for evaluation of herbal drugs
CO3	Understanding about the herbal cosmetics, natural sweeteners, nutraceutical
CO4	Analysing patenting of herbal drugs, GMP.
CO5	Understanding the various system of medicine and their preparation and standardization

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Course Code	Course Name
BP604T	BIO PHARMACEUTICS AND PHARMACOKINETICS

Course Outcome	Description of Course Outcome
CO1	Remembering the basic concepts in Bio pharmaceuticals and their significance
CO2	Applying plasma drug concentration time data to calculate the pharmacokinetic parameters to describe the kinetics of drug Absorption, Distribution, Metabolism, Excretion
CO3	Understanding the concept of Bioavailability and Bioequivalence of drug product and their significance
CO4	Understanding the multi compartment model and their significance
CO5	Analysing about the Non-linear pharmacokinetics

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Course Code	Course Name
BP605	PHARMACEUTICAL BIOTECHNOLOGY

Course Outcomes	Description of Course Outcome
CO1	Understanding the importance of microbes in enzyme biotechnology, protein engineering and biosensor application.
CO2	Applying the knowledge of genetic engineering for the production of rDNA products.
CO3	Understanding the immune mechanism and apply it for the production of new immunological products.
CO4	Analysing the Importance of microbial genetics and its application in biotechnology.
CO5	Listing various process involved in the fermentation technology and apply them in the production of pharmaceutical products.



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Course Code	Course Name
BP606	PHARMACEUTICAL QUALITY ASSURANCE

Course Outcomes	Description of Course Outcome
CO1	Understand the cGMP aspects in a pharmaceutical industry.
CO2	Appreciate the importance of documentation.
CO3	Understand the scope of quality certifications applicable to pharmaceutical industries.
CO4	Understand the responsibilities of QA & QC departments.
CO5	Understanding and Application of Regulatory Requirements.


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Course Code	Course Name
BP607 P	MEDICINAL CHEMISTRY III

Course Outcome	Description of Course Outcome
CO1	Apply the basic concepts of chemistry for the synthesis of medicinal compounds
CO2	Analyze the percentage purity of the given sample.
CO3	Apply the new tools for the synthesis of medicinal compounds
CO4	Apply the new tools for the determination of physicochemical properties using drug design software.
CO5	Apply the chemdraw software for Drawing the structures and reactions

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Course Code	Course Name
BP 608 P	PHARMACOLOGY III

Course Outcome	Description of Course Outcome
CO1	To understanding the dose calculations in pharmacological experiments, and to relate the antiallergic activity / anti-ulcer activity in rat models.
CO2	To demonstrate of effect of drugs on gastrointestinal motility and the effect of agonist/antagonists on guinea pig ileum
CO3	To analyze effect of saline purgative on frog intestine, insulin hypoglycemic effect and test for pyrogens using rabbit method.
CO4	To evaluate acute oral toxicity (LD50), acute skin irritation / corrosion and acute eye irritation / corrosion of a test substance
CO5	To construct serum biochemical parameters by using semi auto analyzer.

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Course Code	Course Name
BP609 P	HERBAL DRUG TECHNOLOGY

Course Outcome	Description of Course Outcome
CO1	Analysing the preliminary phytochemical screening of crude drug.
CO2	Evaluating the excipients of natural origin.
CO3	Analysing the herbal drugs monograph
CO4	Evaluating the cosmetic formulations.
CO5	Understanding the aldehyde and phenol content.

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Semester-7

Course Code	Course Name
BP701T	INSTRUMENTAL METHODS OF ANALYSIS

Course Outcome	Description of Course Outcome
CO1	Understanding the interaction of matter with electromagnetic radiation and its application in the pharmaceutical science.
CO2	Applying various analytical instruments and other various methods for qualitative and quantitative determination.
CO3	Remembering the working principle, SOP, calibration of analytical instruments.
CO4	Creating new innovative method for the analysis of chemicals using spectroscopic and chromatographic methods.
CO5	Evaluating the various physical and chemical properties of chemical compounds that include structural elucidation and other advanced properties.


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Course Code	Course Name
BP702T	INDUSTRIAL PHARMACY-II

Course Outcome	Description of Course Outcome
CO1	Understanding about the process of pilot plant and scale up of Pharmaceutical dosage forms
CO2	Applying the process of technology transfer from lab scale to commercial batch
CO3	Analyzing about the different laws and acts that regulate Pharmaceutical industry
CO4	Understanding the approval process and regulatory requirements for drug
CO5	Remembering the NABL, TQM, GLP, OOS, QbD

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Course Code	Course Name
BP 703T	PHARMACY PRACTICE

Course Outcome	Description of Course Outcome
CO1	To understanding the 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	Detect and assess adverse drug reactions.

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Course Code	Course Name
BP 704T	NOVEL DRUG DELIVERY SYSTEMS

Course Outcome	Description of Course Outcome
CO1	understand the criteria for selection of a drugs and polymers for the development of Novel drug delivery systems
CO2	Outline the various approaches for development of novel drug delivery systems.
CO3	Explain the formulation and characterization of transdermal drug Delivery systems
CO4	Outline the formulation and evaluation of Gastro retentive & Nasopulmonary drug delivery systems
CO5	State the development of ocular formulations and intra uterine devices (IUDs) and it's applications

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Course Code	Course Name
BP705P	INSTRUMENTAL METHOD OF ANALYSIS

Course Outcome	Description of Course Outcome
CO1	Creating new scheme for the analysis of various components in drug formulation
CO2	Remembering the working principle and calibration methods for spectroscopic instruments and chromatographic techniques.
CO3	Analyze the full chemistry profile of various drug formulation and other chemicals by using analytical techniques.
CO4	Evaluate the various properties of chemicals by quantitative and qualitative methods.
CO5	Understanding the knowledge about spectroscopy and chromatography in depth.

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Semester-8

Course Code	Course Name
BP801T	BIOSTATISTICS AND RESEARCH METHODOLOGY

Course Outcome	Description of Course Outcome
CO1	Understanding the principal concept about biostatistics
CO2	Analysing statistical techniques in solving the problems
CO3	Understanding of M.S. Excel, SPSS, R and MINITAB [®] , DoE (Design of Experiment)
CO4	Applying various statistical techniques to solve statistical problems
CO5	Understanding the appropriate framework for research studies

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Course Code	Course Name
BP802T	SOCIAL AND PREVENTIVE PHARMACY

Course Outcome	Description of Course Outcome
CO1	Illustrating the concept of social and health education and explain the personal hygiene & health
CO2	Explaining the principles of prevention and control of communicable and non-communicable diseases
CO3	Identifying the national health program, its objectives, functioning and outcome of diseases
CO4	Understanding the national health intervention program , social health program for diseases
CO5	Recognising the community services in rural and urban states, promoting the school health

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Recognized by Pharmacy Council of India, New Delhi

Affiliated to The Tamilnadu Dr. M.G.R Medical University, Chennai

Sankari-Tiruchengode Main Road, Pullipalayam, Morur (Po), Sankari (Tk), Salem (Dt), Tamilnadu, Pin-637304

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Course Code	Course Name
BP805ET	PHARMACOVIGILANCE

Course Outcome	Description of Course Outcome
CO1	Understanding the history of pharmacoivigilance, adverse drug reactions and basic terminologies in Pharmacovigilance.
CO2	Understanding the use of various drug disease classifications, drug dictionaries and drug information resources in pharmacovigilance.
CO3	Understanding the various methods of pharmacovigilance and communication process during ADR reporting.
CO4	Evaluating the safety data generation and ICH guidelines in pharmacovigilance.
CO5	Evaluating drug and vaccine safety in special population and to appraise the process of haemovigilance and materiovigilance.

Principal

Sri Shanmugha College of Pharmacy
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Course Code	Course Name
BP806ET	QUALITY CONTROL AND STANDARDIZATION OF HERBALS

Course Outcome	Description of Course Outcome
CO1	Understanding of Quality Control Principles.
CO2	Application of Analytical Techniques.
CO3	Development of Standardization Protocols.
CO4	Regulatory Knowledge and Compliance.
CO5	Problem-Solving and Critical Thinking.

Principal

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