Teachers and students are aware of the stated Course outcomes of the Programme offered by the institution

B. Pharm Course Outcomes

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Semester-I
Subject: Human Anatomy and Physiology I – Theory
Subject Code: BP101T

Course Outcome	Description/Statement
CO1	My Student will able to describe the basic principal of analytical chemistry mention in PCI syllabus and relate to practical application
CO2	My Student will able to define errors classify, sources of errors , types of errors and state methods of minimizing errors
CO3	My Student will able to describe principle of acid base, Non aqueous titrations and its types mentioned in PCI syllabus
CO4	My student will able to describe basic principle of Precipitation titration, Complexometric titration, Gravimetry analysis, classify its types and relate to its application
CO5	My student will able to describe basic principle of Redox titrations and classify its types mentioned in PCI Syllabus
CO6	My student will able to describe basic principle of Electrochemical methods and classify its types mentioned PCI Syllabus

Subject: Human Anatomy and Physiology I - Practical
Subject Code: BP107P

Course Outcome	Description/Statement
CO1	To study gross morphology, structure, and functions of various organs of human body
CO2	To describe the various homeostatic mechanisms and their imbalances
CO3	To identify the various tissue and organs of different system of human body.
CO4	Appreciate coordinated working pattern of different organs of system of human body.
CO5	To impart fundamental knowledge on structure and functions of human body to better understand pharmacology.
CO6	To provide basic knowledge required to understand various disciplines of pharmacy.

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Subject: Pharmaceutical Analysis – Theory
Subject Code: BP102T

Course Outcome	Description/Statement
CO1	to impart practically fundamental knowledge of human anatomy and physiology
CO2	to develop practical skill about collection of blood and analysis normal homeostatic of body systems
CO3	Practical anatomy and physiology is complimentary to theoretical discussions through experiments on live tissues or models used.
CO4	to develop the responsibility of students for patients care and counseling in health and pharma sector,
CO5	To develop the ability of students about physiology and related pathophysiological condition of human body
CO6	to develop result oriented skill to interpret basic pharmacology concept

Subject: Pharmaceutical Analysis – Practical
Subject Code: BP108P

Course Outcome	Description/Statement
CO1	Student shall able to state principles of volumetric and electrochemical analysis
CO2	Student shall able to prepare various concentrations of solutions (Molar/Normal)
CO3	Student shall able to carry out various volumetric and electrochemical titrations
CO4	Student shall able to have analytical skills as mentioned in syllabus

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Subject: Pharmaceutics I – Theory
Subject Code: BP103T

Course Outcome	Description/Statement
CO1	Upon completion of this course student shall be able to understand the basic concept, history of Pharmacy in India. Also will be able to understand the Pharmacopoeia, various dosage forms, information about prescription and posology means calculation of doses.
CO2	Clear the concept of various systems of calculation of dose, solvents/solution, isotonic solution, freezing point etc. Also students will be well aware about the powder and liquids dosage form.
CO3	understand about various Monophasic and Biphasic liquids. Students will know abouts the methods of preparation of Gargles, Mouthwashes, Throat Paint, Eardrops, Nasal drops, Enemas, Syrups, Elixirs, Liniments, Lotions, Suspensions and Emulsion.
CO4	understand the about the suppositories, displacement value & its calculations. Also students will be able to understand types Pharmaceutical incompatibilities.
CO5	understand about various ointment bases, excipients and methods of preparation and evaluation tests of semisolids.

Subject: Pharmaceutics I Practical
Subject Code: BP109P

Course Outcome	Description/Statement
CO1	Understand the formulation parameters, method of preparations and applications of syrup and elixirs containing active pharmaceutical ingredients.
CO2	Understand the formulation parameters, method of preparations and applications of linctus and solutions containing active pharmaceutical ingredients.
CO3	Understand the formulation aspects, method of preparations and applications of suspensions and emulsions containing active pharmaceutical ingredients.
CO4	Clear concept of suppositories and gargles with their method of preparations and applications.

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Subject: Pharmaceutical Inorganic Chemistry (PIC) Theory
Subject Code: BP104T

Course Outcome	Description/Statement
CO1	Know the sources of impurities and methods to determine the impurities in inorganic drugs and pharmaceuticals.
CO2	Understand the medicinal and pharmaceutical importance of inorganic compounds.
CO3	Acquire the knowledge of acids, bases and buffers
CO4	understand the medicinal and pharmaceutical importance of Radiopharmaceuticals

Subject: Pharmaceutical Inorganic Chemistry (PIC) Practical
Subject Code: BP110P

Course Outcome	Description/Statement
CO1	Acquire knowledge of, and efficient training in, the procedure for identifying impurities in pharmaceuticals.
CO2	Acquire knowledge of, and training in, the procedure for identifying inorganic compounds and their purities
CO3	Learn and understand the method of preparation of inorganic pharmaceuticals

Subject: Remedial Mathematics – Theory
Subject Code: BP106RMT

Course Outcome	Description/Statement
CO1	Solve the different types of problems by applying theory
CO2	Know the theory and their application in Pharmacy
CO3	Appreciate the important application of mathematics in Pharmacy

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Subject: Communication skills – Theory
Subject Code: BP105T

Course Outcome	Description/Statement
CO1	Understand the behavioral needs for a Pharmacist to function effectively in the areas of pharmaceutical operation
CO2	Communicate effectively
CO3	Effectively manage the team as a team player
CO4	Develop interview skills
CO5	Develop Leadership qualities and essentials

Subject: Communication skills – Practical
Subject Code: BP111P

Course Outcome	Description/Statement
CO1	To know the basic communication covering parameters
CO2	To know the Pronunciations covering parameters
CO3	To know the Advanced Learning tools

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Subject: Remedial Biology Theory
Subject Code: BP106RBT

Course Outcome	Description/Statement
CO1	Know the 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

Subject: Remedial Biology – Practical
Subject Code: BP112RBP

Course Outcome	Description/Statement
CO1	Know the experimental parameters in biology
CO2	Know the morphological parameters of plants.
CO3	Experimental Knowledge of blood group and blood pressure
CO4	Know the Microscopic study and identification of tissues pertinent to Stem, Root Leaf, seed, fruit and flower

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SEM-II

Subject: Human Anatomy and Physiology II– Theory

Subject Code: BP 201T

Course Outcome	Description/Statement
CO1	To understand the gross morphology, structure and functions of various organs of the human body.
CO2	To learn the basis of various homeostatic mechanisms and their imbalances
CO3	Identification the various tissues and organs of different systems of human body.
CO4	To acquire knowledge about hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc and also record blood pressure, heart rate, pulse and respiratory volume along with its rationale
CO5	To understand and analyze the co-ordinated working pattern of different organs system.
CO6	To gained the knowledge about interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.

Subject: Human Anatomy and Physiology II– Practical

Subject code: BP 207P

Course Outcome	Description/Statement
CO1	To learn the anatomy and physiology of organs of digestive system like salivary glands, stomach, intestine, pancreas and liver and process of Carbohydrate, Protein and Fat digestion and absorption.
CO2	To learn the Organization and functions of brain, Spinal cord, afferent and efferent nerves.
CO3	To learn the anatomy and physiology of urinary system, structure of Nephron, formation of urine, mechanism of micturition and regulation of body fluid volume
CO4	To learn the Physiology of hormones of hypothalamus-pituitary gland, adrenal gland, thyroid gland, pancreas and gonads (testis and ovary).
CO5	To learn the anatomy and functions of organs of respiratory system, exchange of respiratory gases, transport of respiratory gases, regulation of respiration, respiratory volumes and vital capacity.
CO6	To learn the Anatomy and physiology of reproductive organs, pregnancy.

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Subject: Pharmaceutical Organic Chemistry-I (POC-I) Theory
Subject Code: BP202T

Course Outcome	Description/Statement
CO1	Describe the classification of organic compounds and write the structure, name and the type of isomerism of the organic compounds.
CO2	Explain hybridization in alkanes, alkenes and alkynes, and stabilities in alkene and conjugated dines.
CO3	Acquire knowledge about preparation, reactivity, properties and uses of compounds with functional groups, such as Alkane, Alkenes, Dines, alkyl halides, alcohols, aldehydes, ketones, carboxylic acids, and amines.
CO4	Explain the mechanism involved in the substitution, addition, nucleophilic and elimination reactions.

Subject: Pharmaceutical Organic Chemistry-I (POC-I) Practical
Subject Code: BP208P

Course Outcome	Description/Statement
CO1	Acquire knowledge of, and training in systematic qualitative analysis of unknown organic compounds.
CO2	Acquire knowledge of, and training in Identification of the unknown compound from the literature using melting point/ boiling point.
CO3	Learn and understand the method of preparation of suitable solid derivatives from organic compounds

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Subject: Biochemistry- Theory
Subject Code: BP203T

Course Outcome	Description/Statement
CO1	My student will be able to Classify & explain the chemical nature & biological role of bio- molecules & also Identify the concepts of bioenergetics included inthe syllabus
CO2	My student will be able to Describe the metabolic pathways fornutrient molecules in physiological and pathological condition given in the syllabus
CO3	My student will be able to Explain the Biological Oxidation process & Describe the metabolic pathways for lipid metabolism, theirbiological significance & disorders included in the syllabus
CO4	My student will be able to Describe the amino acid metabolism & Outline the genetic organization of mammalian genome and functions ofDNA in the synthesis of RNAs and proteins
CO5	My student will be able to State the Biosynthesis of purine , pyrimidine nucleotides & Catabolismof purine nucleotides
CO6	My student will be able to Explain the catalytic role of enzymes, importance of enzyme inhibitors in design of new drugs, therapeutic and diagnostic applications of enzymes

Subject: Biochemistry Practical
Subject Code: BP209P

Course Outcome	Description/Statement
CO1	My student will be able to Recognize the class of biomolecules& reducing sugars given in the syllabus by qualitative analysis of theunknown sample
CO2	My student will be able to Identify the types of Protein present inthe unknown sample
CO3	My student will be able to Predict the amount of essential components present in the given sample of blood mentioned in thesyllabus
CO4	My student will be able to Describe the methods of preparationof buffers of different pH & their measurement
CO5	My student will be able to Study the Enzymatic Hydrolysis ofstarch
CO6	My student will be able to Estimate the effect of Temperature, substrate concentration on salivaryamylase activity

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Subject: Pathophysiology – Theory
Subject Code: BP 204T

Course Outcome	Description/Statement
CO1	To understand the basic concept of cell injury and inflammation
CO2	To learn and acquire knowledge about etiology and pathogenesis of the disease
CO3	Identification of signs and symptoms of the diseases along with diagnosis
CO4	To analyze and understand the co-relation of complications associated with selected diseases states

Subject Code: Environmental Sciences– Theory
Subject Code: BP206T

Course Outcome	Description/Statement
CO1	Student should able to explain basics of environment like ecology, ecosystem, food chain, food web and ecological pyramids
CO2	Student should able to list natural resources and explain their conservation
CO3	Student should able to describe the current problems of environment and how to solve them, role of individual in conservation of environment.
CO4	Student should able to understand the different types of environmental pollution and measures to minimize it
CO5	Student should able to know the concept of ecosystem, structure, function of forest ecosystem, grass ecosystem, desert ecosystem & aquatic ecosystem.
CO6	Student should able to understand the components of Ecosystem and Energy flow within it.

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Subject: Computer Applications in Pharmacy – Practical
Subject Code: BP210P

Course Outcome	Description/Statement
CO1	Design and develop solutions to analyze pharmaceutical problems using computers
CO2	Integrate and apply efficiently the contemporary IT tools to all Pharmaceutical related activities
CO3	Know various types process over data storage, retrival, updation in database of using MS office Access tools
CO4	know about programming languages like HTML, XML Desired Attainment

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SEM-III

Subject: Pharmaceutical Organic Chemistry II– Theory
Subject Code: BP301T

Course Outcome	Description/Statement
CO1	The students should be able to:Write the structures and name the various organic compounds like benzene, phenols, aromatic amines aromatic acids etc.
CO2	The students should be able to:Explain the concepts of aromaticity of aromatic hydrocarbons.
CO3	The students should be able to:Write the aromatic electrophilic reaction name and explain effect of substitution on orientation of aromatic electrophilic reactions.
CO4	The students should be able to:Explain the use of analytical constants in analysis of fats and oils
CO5	The students should be able to:Relate the reactivity and stability of cyclo alkanes.
CO6	The students should be able to:Write the reaction, mechanism and outline the synthesis of benzene and its derivatives, phenols, aromatic amines and acids, polynuclear hydrocarbons and cycloalkanes like cyclopropane and cyclobutane

Subject: Pharmaceutical Organic Chemistry II– Practical
Subject Code: BP305P

Course Outcome	Description/Statement
CO1	The students should be able to describe about the different mechanistic steps involved in synthesis of organic compounds like benzanilide, bezoic acid etc. as given in syllabus.
CO2	The students should be able to explain different purification methods like re-crystallization and steam distillation
CO3	The students should be able to determine acid value, saponification value and iodine value.
CO4	The students should be able to explain the different reaction and mechanism involved in synthesis of organic compounds like acylation, bromination, nitration, oxidation, diazotization, hydrolysis, Claisen-Schimidt reaction and Perkin reaction.

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Subject: Physical Pharmacy – I - Theory
Subject Code: BP302T

Course Outcome	Description/Statement
CO1	Describe and discuss the concept of solubility, mechanism behind solute-solvent interactions and predict the factors influencing solubility of the drugs.
CO2	Identify different states of matter, define latent heat, vapour pressure, sublimation critical point, describe polymorphism and differentiate between amorphous solids and crystalline solids.
CO3	Explain the physicochemical properties of the drug involved in formulation and development of dosage forms.
CO4	Differentiate between surface and interface and identify surface and interfacial tension, classify and list different surface active agents and recall HLB scale.
CO5	Classify complexation, write its application, and interpret methods of analysis.
CO6	Recall Sorensen's pH scale, estimate pH, describe buffer and its applications.

Subject: Physical Pharmacy – I Practical
Subject Code: BP306P

Course Outcome	Description/Statement
CO1	Understand the term solubility, types of solvent and methods of determination of solubility. Student will also able understand the solubilization process.
CO2	Understand the concept of Partition co- efficient in different organic solvent and water. Student will know the separating funnel and titration method of determination of concentration of given substances in both slovents. Critical solution temperature concept will also best understand doing practical on phenol-water system.
CO3	The concept of surface tension and methods of determination of surface tension will be understood by capillary, rise, stalagnometer (drop count and drop weight) and others.
CO4	Understand the concept of HLB and detrmination of HLB number of a surfactant by saponification method. Students can also understand the adsorption constant by Freundlich and Langmuir constants using activated charcoal
CO5	The concept of [CMC] critical micellar concentration of surfactants will be understand by the students. The complexation phenomenon will be best understood by donor acceptor ratio of PABA-Caffeine complex by solubility method and also by Cupric-Glycine complex by pH titration method

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Subject: Pharmaceutical Microbiology – Theory
Subject Code: BP303T

Course outcome	Description
CO1	My student will be able to recognize the different equipment useful for microbiology practical
CO2	My students will be able to explain the various sterilization technique useful for sterilization of glassware, loop, media etc.
CO3	My students will be able to prepare the nutritional requirement of microorganism.
CO4	My students will be able to perform cultivation and isolation of bacteria by different technique along with study zone of Inhibition

Subject: Pharmaceutical Microbiology – Practical
Subject Code: BP307P

Course outcome	Description
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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Subject: Pharmaceutical Engineering– Theory
Subject Code: BP304T

Course outcome	Description
CO1	My students shall be able to explain various Unit Operation mentioned asper in syllabus
CO2	My students shall be able to demonstrate and operate variousmachines used in mentioned in syllabus.
CO3	My students shall be able to explain the material handling techniques as mentioned in syllabus which will alsohelp them in research and development.
CO4	My students shall be able to practicevarious steps to prevent environmental pollution.
CO5	My students shall be able to recall and describe various process involved in manufacturing of pharmaceuticals like Tablets, solution etc.
CO6	My students shall be able to summarize about significance of plant-layout, corrosion and industrialhazards.

Subject: Pharmaceutical Engineering– Practical
Subject Code: BP308P

Course outcome	Description
CO1	My students shall be able to explain various Unit Operation mentioned as per in syllabus
CO2	My students shall be able to demonstrate and operate various machines used in mentioned in syllabus.
CO3	My students shall be able to explain the material handling techniques as mentioned in syllabus which will also help them in research and development.
CO4	My students shall be able to practice various steps to prevent environmental pollution.
CO5	My students shall be able to recall and describe various process involved in manufacturing of pharmaceuticals like Tablets, solution etc.
CO6	My students shall be able to summarize about significance of plant-layout, corrosion and industrial hazards.

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Semester-IV

Subject: Pharmaceutical Organic Chemistry III– Theory
Subject Code: BP401T

Course Outcome	Description/Statement
CO1	The students should be able to:Explain the concepts of stereo chemistry, their structural representation.
CO2	The students should be able to:Write and compare the three dimensional structure of Lactic acid and tartaric acid
CO3	The students should be able to:Classify and describe stereo isomerism in optical isomers with R/S nomenclature, geometrical isomers with cis-trans and E/Z nomenclature, atropisomers and conformational isomers and discuss the stability of conformation of ethane, n-butane and cyclohexane
CO4	The students should be able to:Classify, write and name the structures of heterocyclic compounds under study
CO5	The students should be able to:Write the reactions of and outline the synthesis of heterocyclic compounds under study.
CO6	The students should be able to:Write the reactions and mechanism of various reactions of synthetic importance under study.

Subject: Medicinal Chemistry-I: – Theory
Subject Code: BP402T

Course Outcome	Description/Statement
CO1	Student shall able to memorize the different Physicochemical properties which affects biological action of drugs
CO2	Student will able to Understand drug metabolism and able to explain the factors affecting drug metabolism
CO3	Student will able to explain development, Classification, mechanism of action, uses of drugs acting on Autonomic Nervous system and will able to outline the Structure activity relationship and synthesis of drugs acting on Autonomic Nervous system along with Bio synthetic pathway of endogenous Neurotransmitters involve in ANS
CO4	Student will able to describe the Development, Classification mechanism of action, SAR, uses and synthesis of Sedatives Hypnotics and Anti psychotics given in syllabus
CO5	Student will able to recognize the Development, Classification mechanism of action, SAR, uses and synthesis of, Anti-convulsants and General anesthetics given in syllabus

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CO6	student will able to Explain the Development, Classification mechanism of action, SAR, uses and synthesis of Narcotic and non-narcotic analgesics including Non-steroidal anti-inflammatory drugs mention in syllabus along with Drug metabolism, types of biotransformation and factor affecting biotransformation

Subject: Medicinal Chemistry-I Practical

Subject Code: BP406P

Course Outcome	Description/Statement
CO1	Student will able to outline the procedure, principle, mechanism and documentation of synthesis of drug sand their intermediate given in syllabus
CO2	Student will able to describe the method for isolation, purification and characterization of drugs and intermediate given in syllabus
CO3	Student will able to perform the assay of drugs and their preparation by pharmacopoeia method for drugs given in syllabus
CO4	Student will capable to determine the partition coefficient of drugs given in syllabus

Subject: Physical Pharmaceutics II – Theory

Subject Code: BP403T

Course Outcome	Description/Statement
CO1	My student shall be able to explain complete information about the Colloidal Dispersion as per the syllabus
CO2	My student shall be able to explain Newtonian system, Non Newtonian system and Deformation of Solids atthe completion of the syllabus
CO3	My student shall be able to summarize Coarse Dispersion andcan demonstrate the preparation techniques and problem in the preparation of emulsion
CO4	My student shall be able to recall micromeritics and can employ powder characteristics and its evaluation techniques in designing of dosage form like tablets
CO5	My student shall be able to describe Drug Stability and its factor, Accelerated stability study and relatethem in development of the formulation like tablets, colloidal solutions etc.
CO6	My student shall be able to apply theirknowledge of physical and chemical properties of drug molecule in development of the formulation like tablets, colloidal solutions etc

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Subject: Physical Pharmaceutics II – Practical
Subject Code: BP407P

Course Outcome	Description/Statement
CO1	My student shall be able to explain complete information about the Colloidal Dispersion as per the syllabus
CO2	My student shall be able to explain Newtonian system, Non Newtonian system and Deformation of Solids at the completion of the syllabus
CO3	My student shall be able to summarize Coarse Dispersion and can demonstrate the preparation techniques and problem in the preparation of emulsion
CO4	My student shall be able to recall micromeritics and can employ powder characteristics and its evaluation techniques in designing of dosage form like tablets
CO5	My student shall be able to describe Drug Stability and its factor, Accelerated stability study and relate them in development of the formulation like tablets, colloidal solutions etc.
CO6	My student shall be able to apply their knowledge of physical and chemical properties of drug molecule in development of the formulation like tablets, colloidal solutions etc

Subject: Pharmacology-I Theory
Subject Code: BP 404T

Course Outcome	Description/Statement
CO1	To understand the basic concept in pharmacology & pharmacological actions of different categories of drugs
CO2	To learn and acquire the knowledge about mechanism of drug action at receptor /organ system/sub cellular/ macromolecular levels.
CO3	To improve the applicability of the basic pharmacological knowledge in the prevention and treatment of various diseases
CO4	To learn and understand the co-relation of pharmacology with other bio medical sciences

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Subject: Pharmacology-I Practical
Subject Code: BP 408P

Course Outcome	Description/Statement
CO1	To learn and acquire the knowledge about instruments and animals used in experimental pharmacology
CO2	To gained the knowledge about CPSCEA guidelines for maintenance of laboratory animals
CO3	To learn the skills about blood withdrawal , collection , separation of plasma and serum along with anesthesia and euthanasia
CO4	To observe and understand the effect of drugs on animals by simulated experiments

Subject: Pharmacognosy and Phytochemistry -I - Theory
Subject: **BP405T**

Course Outcome	Description
CO1	My students will be able to discuss history, scope, crude drug, classification of crude drug, adulteration & drug evaluation in pharmacognosy.
CO2	My students will be able to explain the cultivation, collection, processing and storage of crude drug along with factors influencing cultivation of medicinal plant & its conservation.
CO3	My students will be able to explain historical development, types of culture, Nutritional requirements, growth and their maintenance along with application of plant tissue culture.
CO4	My students will be able to discuss the traditional system of medicine such as Ayurveda, Unani, Siddha, Homeopathy and Chinese system of medicine.
CO5	My students will be able to explain the definition, classify, properties and identification test for Alkaloids, Glycoside, Tannins, Flavonoids, Volatile Oil and Resins
CO6	My students will be able to recall the study of biological source, chemical nature, uses, and commercial utility of plant products and primary metabolites as per mention in syllabus.

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Subject: Pharmacognosy and Phytochemistry -I - Practical
Subject Code: BP409P

Course Outcome	Description
CO1	My students will be able to identify the equipment used in the pharmacognosy laboratory.
CO2	My students will be able to examine the morphological and microscopical evaluation of crude drug.
CO3	My students will be able to recognize the analysis of the crude drug by chemical test.
CO4	My students will be able to analyse the purity and quality crude drug by quality control test.

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Semester-V

Subject: Medicinal Chemistry-II Theory
Subject Code: BP501T

Course Outcome	Description/Statement
CO1	Upon completion of the course the student shall be able to understand the chemistry of the drug included in syllabus with respect to their pharmacological Action
CO2	Student will Recognized the different classes of drugs included in syllabus based on chemical structure
CO3	Students will able to explain structure activity relationship of different classes of drugs included in syllabus.
CO4	Students will able to Describe the Pathophysiology of different diseases related to Autacoid system, Cancer, Cardiovascular system, Endocrine System, diabetes mellitus Along with pharmacology of Local Anesthesia
CO5	Student will explain the physicochemical properties, Metabolic pathway, Mechanism of action, adverse effect of the drugs included in syllabus
CO6	Student will capable to sketch synthesis reaction of different drugs given in syllabus

Subject: Industrial Pharmacy I – Theory

Subject Code: BP502T

Course Outcome	Description
CO1	My students will be able to explain various physicochemical properties of drug and their influence on product
CO2	My students will be able to classify and explain tablet, capsule and liquid dosage form.
CO3	My students will be able to explain formulation, processing and evaluation aspect of parenteral and ophthalmic products.
CO4	My students will be able to describe formulation and preparation of cosmetic products.
CO5	My students will be able to explain aerosol and its examination parameters.
CO6	My students will be able to identify various packaging material with their merits and demerits.

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Subject: Industrial Pharmacy I – Practical

Subject Code: BP506T

Course Outcome	Description
CO1	My students will be able to demonstrate and operate tablet punching machine.
CO2	My students will be able to reproduce the formulation of unit solid dosage form and able to identify their defects.
CO3	My students will be able to reproduce the formulation of cosmetic such as vanishing cream, cold cream and shampoo
CO4	My students will be able to reproduce the formulation of sterile products such as injection and eye drops.

Subject : Pharmacology-II Theory
Subject Code: BP 503T

Course Outcome	Description/Statement
CO1	To learn and understand the basic concept of CVS & pharmacological actions of different categories of drugs on cardiovascular diseases
CO2	To learn & understand mechanism of drug action and its relevance in the treatment of disease related to Urinary system
CO3	To learn & understand the basic concept along with relevance of autacoids & related drugs in the treatment of various diseases
CO4	To learn & understand basic concept of hormone, biological role along with mechanism of drug action and its relevance in the endocrine disorders

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Subject: Pharmacology-II Practical
Subject Code: BP 507P

Course Outcome	Description/Statement
CO1	To gain the knowledge about basic experimental pharmacology i.e. in-vivo and in-vitro pharmacology
CO2	To impart practical knowledge of preparation of different Physiological salt solution and its application in experimental pharmacology
CO3	To demonstrate isolation of different organs/tissues from the experimental animals by simulated experiments
CO4	To demonstrate & learn the various receptor actions using isolated tissue preparation
CO5	To learn & study correlation of pharmacology with related biological sciences

Subject Code: Pharmacognosy and Phytochemistry – II– Theory
Subject Code: BP504T

Course Outcome	Description/Statement
CO1	My student will be able to explain basic metabolic pathways and formation of different secondary metabolites through various pathways included in the syllabus
CO2	My student will be able to explain General introduction, composition, chemistry & chemical classes, biosources, therapeutic uses and commercial applications of secondary metabolites included in the syllabus.
CO3	My student will be able to explain about General Isolation, Identification and Analysis of Phytoconstituent included in the syllabus.
CO4	My student will be able to Industrial production, estimation and utilization of the phytoconstituents included in the syllabus.
CO5	My student will be able to compare and contrast about the traditional as well as modern extraction techniques included in the syllabus.
CO6	My student will be able to explain about various separations techniques and spectroscopic included in the syllabus.

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Subject : Pharmacognosy and Phytochemistry – I – Practical
Subject Code: BP508P

Course Outcome	Description/Statement
CO1	My student will be able to identify the various crude drug included in the Syllabus
CO2	My student will be able to carry out the isolation of Various phytoconstituents included in the syllabus
CO3	My student will be able to carry out the isolation volatile oil from crude drug included in the syllabus
CO4	My student will be able to carry out the separation of Phytoconstituents from mixture by Means of Chromatography

Subject : Pharmaceutical Jurisprudence-Theory
Subject Code: BP505T

Course Outcome	Description/Statement
CO1	The Pharmaceutical legislations and their implications in the development and marketing of pharmaceuticals
CO2	Knowledge and understanding of Various Indian pharmaceutical Acts and Laws
CO3	Knowledge of the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals
CO4	The code of ethics during the pharmaceutical practice

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SEMESTER-VI

Subject: Medicinal Chemistry- III Theory
Subject Code: BP601T

Course Outcome	Description/Statement
CO1	My students shall able to Explain Historical Development, Nomenclature and steriochemistry of Antibiotics given in syllabus
CO2	My students shall able to discuss the classification of antibiotics along with their SAR, mechanism of action, chemical degradation and uses
CO3	Students shall able to classify the antimalarial drugs given in syllabus and able to recall concept of prodrug, its design and application
CO4	Students shall able to summarize historical development, nomenclature chemistry, classification and steriochemistry of Anti-infective agents
CO5	Students shall able to recognize mechanism of action, SAR, uses and synthesis of Anti-infective agents
CO6	Student shall able to discuss the various approach in drug design and importance of drug design

Subject: Medicinal Chemistry- III Practical
Subject Code: BP607P

Course Outcome	Description/Statement
CO1	To write the chemical synthesis of some drugs
CO2	To know the structural activity relationship of different class of drug
CO3	Identification and characterization of different class of medicinal compounds
CO4	To understand the chemistry of drugs with respect to their pharmacological action

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Subject: Pharmacology-III Theory
Subject Code: BP 602T

Course Outcome	Description/Statement
CO1	To learn the theory, etiopathogenesis and pharmacotherapy of diseases/disorders associated with Respiratory & GIT System
CO2	To learn and understand the basic mechanism of drug action and its relevance in the treatment of different infectious diseases
CO3	To learn, identify & understand the basic principles along with mechanism of toxicology and its relevance in the treatment and complications of various poisoning conditions
CO4	Appreciate correlation of pharmacology with related medical sciences

Subject: Pharmacology-III Practical
Subject Code: BP 608P

Course Outcome	Description/Statement
CO1	To impart basic practical knowledge of dose calculation & its application in experimental pharmacology
CO2	To observe and understand the effect of drugs on various organ system of animals by simulation
CO3	To acquire the knowledge about toxicity guidelines for determination toxicities in experimental animals and its relevance in preclinical pharmacology
CO4	To gain the knowledge about pharmacokinetic parameter by using biostatistics method and its application in experimental pharmacology

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Subject: Herbal Drug Technology Theory
Subject Code: BP603T

Course Outcome	Description/Statement
CO1	My student will be able to explain about raw material as source of herbal drugs, good agricultural practices of medicinal plants including organic farming, and use of pesticide and insecticide included in the syllabus.
CO2	My student will be able to compare and Contrast in Basic principles involved in Ayurveda, Siddha, Unani and Homeopathy system and explain about Preparation and standardization of Ayurvedic formulations viz Aristas and Asawas, Ghutika, Churna, Lehya and Bhasma included in the syllabus.
CO3	My student will be able to explain about General aspects, Market, growth, scope and types of products available in the market. Health benefits and role of Nutraceuticals in ailments like Diabetes, CVS diseases, Cancer, Irritable bowel syndrome and various Gastro intestinal diseases included in the syllabus.
CO4	My student will be able to classify interaction of drugs and their possible side effects included in the syllabus.
CO5	My student will be able to explain about herbal cosmetics and Significance of substances of natural origin as excipients included in the syllabus.
CO6	My student will be able to summaries WHO and ICH guidelines for evaluation of herbal drugs and patenting of herbal drugs included in the syllabus.
CO7	My student will be able to explain about plant based industries and institutions involved in work on medicinal and aromatic plants in India and their GMP included in the syllabus.

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Subject: Herbal Drug Technology Practical
Subject Code: BP 609P

Course Outcome	Description/Statement
CO1	My student will be able to perform Phytochemical screening of crude drugs and to determine Alcohol content in ayurvedic Formulation
CO2	My student will be able to perform various Evaluation Parameters of Crude drugs
CO3	My student will be able to prepare the various herbal formulation as well as Monograph of crude drugs
CO4	My student will be able to perform titrimetric analysis of Crude drugs

Subject : Biopharmaceutics and Pharmacokinetics – Theory
Subject Code: BP604T

Course Outcome	Description
CO1	My students will be able to explain the absorption and distribution process of drug
CO2	My students will be able to explain the process of drug elimination and discuss about bioavailability of drug
CO3	My students will be able to write and explain one compartment models of pharmacokinetic
CO4	My students will be able to write and explain multi compartment models of pharmacokinetic.
CO5	My students will be able to justify the concept of linear and non-linear pharmacokinetic
CO6	My students will be able to define various terms of biopharmaceutics.

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Subject : Pharmaceutical Biotechnology – Theory
Subject Code: BP605T

Course Outcome	Description
CO1	My Student will be able to explain application of biotechnology in pharmaceutical sciences, Application of genetic engineering in medicine, Biosensors, DNA technology.
CO2	My Student will be able to describe about Protein engineering, PCR, Immuno blotting techniques, General method of the preparation of bacterial vaccines and different preparations.
CO3	My Student will be able to summarize Mutation, Genetic organization of Eukaryotes and Prokaryotes and Microbial genetics.
CO4	My Student will be able to memorize & explain about Structure of Immunoglobulins and MHC, Hypersensitivity reactions, Immune stimulation and suppressions, Genetic engineering.
CO5	My Student will be able to discuss use of microbes in industry, Production of enzymes, blood products and plasma substituents.
CO6	My Student will be able to describe large scale production fermenter design, production of different components (penicillins, citric acid, Vitamin B12, Glutamic acid, Griseofulvin,).

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Subject: Quality Assurance – Theory
Subject Code: BP606T

Course Outcome	Description
CO1	Students should able to explain the concepts of Quality control, Quality assurance and GMP
CO2	Students should write and explain about TQM,ICH guidelines,QbD, regulatory aspects of pharmaceuticals
CO3	Students should able explain the responsibilities of key personnel in a pharmaceutical manufacturing unit,training hygiene,discuss the important utilities in pharmaceutical industries,specific requirements for different ares in the pharmaceutical plant.equpment selection and raw materials handling.
CO4	Explain the quality control in pharmaceutical industry and explain the specific pharmaceutical test for containers, closures and secondary packing materials.Students can expain GLP and its scope
CO5	Students should write and explain about complaint and evaluation and handling of complaints,importance of documentations in pharmaceutical industry
CO6	Students should explain terms calibration, qualification and validation, explain the importance of validation. And also explain the good warehouse practice

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Semester-VII

Subject: Industrial Pharmacy II (Theory)
Subject Code: BP701 T

Course Outcome	Description/Statement
CO1	Understands the fundamental concepts of Instrumental techniques interaction of matter with electromagnetic radiations
CO2	Understands the instrumentation of spectroscopic techniques
CO3	Applications of spectroscopic techniques in qualitative and quantitative analysis of drugs
CO4	Understands the principle of chromatographic techniques.
CO5	Understands the instrumentation of Chromatographic techniques
CO6	Understands the applications of Chromatographic techniques

Subject: Industrial Pharmacy II (Theory)
Subject Code: BP705 P

Course Outcome	Description/Statement
CO1	Understand the principal and working of UV spectrophotometry
CO2	Understand the principal and working of Calorimetry
CO3	Understand the techniques for flame photometry
CO4	Understand the different techniques for development of chromatography.

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Subject: Industrial Pharmacy II (Theory)
Subject Code: BP702 T

Course Outcome	Description/Statement
CO1	To know the process of pilot plant and scale up of dosage forms
CO2	To understand the process of technology transfer from lab scale to commercial batch
CO3	To study different laws and acts that regulate pharmaceutical industry
CO4	To understand Quality Management System
CO5	To aware about concept of QbD

Subject Code: Pharmacy Practice
Subject Code: BP703T

Course Outcome	Description/Statement
CO1	Students will demonstrate knowledge of and ability to use principles of therapeutics, quality improvement, communication, economics, health behavior, social and administrative aspects, health policy and legal issues in the practice of pharmacy.
CO2	Students will use knowledge of drug distribution methods in hospital and apply it in the practice of pharmacy.
CO3	Students will effectively apply principles of drug store management and inventory control to medication use.
CO4	Students will provide patient-centered care to diverse patients using the best available evidence and monitor drug therapy of patient through medication chart review, obtain medication history interview and counsel the patients, identify drug related problems.
CO5	Students will exhibit professional ethics by producing safe and appropriate medication use throughout society

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Subject: Novel Drug Delivery System – Theory
Subject Code: BP 704T

Course Outcome	Description
CO1	To understand concept of controlled and sustained release drug delivery system and role of various polymers in the design and development of various novel drug delivery systems
CO2	To understand and remember the various processes of microencapsulation and evaluation of the microcapsules
CO3	To understand the concept of mucosal drug delivery system and its design considerations with respect to various theories of muco-adhesion
CO4	To understand the concept of transdermal drug delivery Systems, gastro retentive drug delivery systems, nasopulmonary drug delivery system and its design considerations
CO5	To understand the concept of various targeted drug delivery system and its design considerations
CO6	To understand the concept of ocular drug delivery systems and intrauterine drug delivery systems its design considerations

Subject: Practice School
Subject Code: BP706PS

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Semester-VIII

Subject: Biostatics and research methodology – Theory
Subject Code: BP801T

Course Outcome	Description
CO1	To understand and learn applications of biostatistics in pharmacy with the help measures of central tendency, measures of dispersion and correlation
CO2	To understand and learn regression analysis, probability, parametric tests and non-parametric tests
CO3	To understand the concept of research methodology and its applications while design of experiments using experimental design techniques. Also understand the significance of plagiarism while drafting the research articles and thesis
CO4	To learn and practices designing the methodology while report writing and presentation of data
CO5	To understand and learn design of experiments using statistical analysis in Excel, SPSS, MINITAB and DOE online software trials
CO6	To understand and the design and analysis of experiments using factorial designs and CCD for optimization of experiments

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Subject: Social and Preventive Pharmacy
Subject Code: BP802T

Course Outcome	Description/Statement
CO1	Students shall be able to understand the concept of health and disease and thereby understand concept of prevention and control of disease. Also students will know the knowledge regarding balanced diet, nutritional deficiencies and malnutrition. Also student shall understand the impact of urbanization on health and disease.
CO2	Student shall be able to understand the concept of preventive medicine: on various diseases, and concept of addiction -abuse for the drugs or substances.
CO3	Students shall be able to understand the importance of various National health programs on different diseases, its objectives, functioning and outcome.
CO4	Students shall be able to know the significance of various National health intervention programme for mother and child, tobacco control programme, Malaria Prevention Program and programme for the health.
CO5	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.

Subject: Pharmaceutical Regulatory Science (Theory)
Subject Code: BP804ET

Course Outcome	Description/Statement
CO1	Know about the process of drug discovery and development
CO2	Know the regulatory authorities and agencies governing the pharmaceuticals
CO3	Know the regulatory approval process and their registration in Indian and international markets
CO4	Understand the various aspects of Clinical Trials
CO5	Know the regulatory concepts

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Subject: Pharma Marketing Management
Subject Code: BP803ET

Course Outcome	Description/Statement
CO1	Understanding of marketing concepts and techniques
CO2	Understand the product specifications
CO3	Understand the promotional ideas for marketing
CO4	Understand the different Pharmaceutical marketing channels:
CO5	Understand the Emerging concepts in marketing

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Teachers and students are aware of the stated Course outcomes of the Programme offered by the institution

M. Pharm Course Outcomes

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Semester-I

Branch:Pharmaceutics

Subject: Modern Pharmaceutical Analytical Techniques– Theory

Subject Code: MPH101T

Course Outcome	Description/Statement
CO1	To understand the concepts of various analytical techniques and its application s in qualitative and quantitative analysis of drugs in single and combination dosage forms.
CO2	To understand the principle and applications of IR spectroscopy.
CO3	To understand the principle and applications of NMR spectroscopy
CO4	To understand the principle and applications of MASS spectrometry.
CO5	To understand the principle and applications of various chromatographic techniques
CO6	To understand theoretical and practical skills of instruments.

Subject: Drug Delivery System Theory

Subject Code: MPH102T

Course Outcome	Description/Statement
CO1	The various approaches for development of novel drug delivery systems
CO2	The criteria for selection of drugs and polymers for the development of delivering system
CO3	The formulation and evaluation of Novel drug delivery systems

Subject: Modern Pharmaceutics - Theory

Subject Code: MPH103T

Course Outcome	Description/Statement
CO1	Understand the concepts of preformulation and its various parameters, like compatibility study and stability study associated with dispersion system and parenterals. Also understand the concept of various optimization parameters.
CO2	Find out the scope, and significance of validation processes, various ICH & WHO guidelines and regulation associated with validations
CO3	Understand the objectives and policies of cGMP in industry and shall be able to understand the various parameters of industry management.
CO4	Understand the concepts of compression and compaction, thereby students will know about the physics of tablet, effect of friction and distribution forces. Also understand the various methods of solubility of drug.
CO5	After studying consolidation parameters like diffusion parameters, dissolution parameters and pharmacokinetic parameters, also students shall be able to understand the various model of dissolution and concept of standard deviation.

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Subject: Regulatory Affairs
Subject Code: MPH104T

Course Outcome	Description/Statement
CO1	Understand documentation in pharmaceutical industry
CO2	Know regulatory requirements for product approval
CO3	Understand the concept post approval regulatory affairs
CO4	Know various aspects of non clinical drug development
CO5	Understand clinical trials requirements

Subject: Pharmaceutics Practical I
Subject Code: MPH105P

Course Outcome	Description/Statement
CO1	Understand the elements of Preformulation studies
CO2	Conceptual understanding of Modern analytical Methods of drug analysis
CO3	Advance knowledge in formulation, quality control, and key process parameter on oral dosage forms
CO4	Knowledge of evaluation of various dosage forms

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Branch: Pharmaceutical Quality Assurance

Subject: Quality Management System

Subject Code: MQA102T

Course Outcome	Description/Statement
CO1	Various aspects of quality
CO2	Pharmaceutical quality Management
CO3	Management of Drug Stability
CO4	Statistical Process Control
CO5	Regulatory Compliance through Quality Management

Subject: Quality Control and Quality Assurance

Subject Code: MQA103T

Course Outcome	Description/Statement
CO1	Upon completion of this course the student should be able to understand the c GMP aspects in a pharmaceutical industry
CO2	To appreciate the importance of documentation
CO3	To understand the scope of quality certifications applicable to Pharmaceutical industries
CO4	To understand the responsibilities of QA & QC departments

Subject: Product Development & Technology Transfer

Subject Code: MQA104T

Course Outcome	Description/Statement
CO1	Understand the new product development process
CO2	Understand the necessary information to transfer technology from R&D to actual manufacturing by sorting out various information obtained during R&D
CO3	Elucidate necessary information to transfer technology of existing products between various manufacturing places.
CO4	Elucidate necessary information to pilot plant scale up studies

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Subject: Pharmaceutical Quality Assurance Practical I
Subject Code: MQA105P

Course Outcome	Description/Statement
CO1	To perform quantitative estimation of drugs from formulations
CO2	To give hands on training to students using different instruments like used for qualitative and quantitative analysis
CO3	To understand concept TQM, Six Sigma, change management, change control, Deviations out of specifications, out of trend, CAPA
CO4	To enable learners to understand pharmacopoeial requirements for pharmaceuticals

Branch: Pharmacology

Subject: Advanced Pharmacology-I
Subject Code: MPL102T

Course Outcome	Description/Statement
CO1	Discuss the pathophysiology and pharmacotherapy of certain diseases
CO2	Explain the mechanism of drug actions at cellular and molecular level
CO3	Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases

Subject: Pharmacological and Toxicological Screening Methods – I
Subject Code: MPL103T

Course Outcome	Description/Statement
CO1	Appraise the regulations and ethical requirement for the usage of experimental animals.
CO2	Describe the various animals used in the drug discovery process and good laboratory practices in maintenance and handling of experimental animals
CO3	Describe the various newer screening methods involved in the drug discovery process
CO4	Appreciate and correlate the preclinical data to humans

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Subject: Cellular and Molecular Pharmacology
Subject Code: MPL104T

Course Outcome	Description/Statement
CO1	Explain the receptor signal transduction processes
CO2	Explain the molecular pathways affected by drugs
CO3	Appreciate the applicability of molecular pharmacology and biomarkers in drug discovery process
CO4	Demonstrate molecular biology techniques as applicable for pharmacology

Subject: Pharmacological Practical - I
Subject Code: MPL105P

Course Outcome	Description/Statement
CO1	To learn and acquire the knowledge about advanced analytical instruments used preclinical research
CO2	To impart basic practical skills and knowledge of dose calculation, routes of drug administration, blood collection method along with anesthesia and euthanasia in experimental animals
CO3	To understand the basic concepts used in behavioral pharmacology for screening of drugs
CO4	To observe, understand , analyze and evaluate the effect of drugs in animals by in vivo-pharmacology

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SEMESTER-II

Branch: Pharmaceutics

Subject: Molecular Pharmaceutics
Subject Code: MPH201T

Course Outcome	Description/Statement
CO1	The various approaches for development of novel drug delivery systems
CO2	The criteria for selection of drugs and polymers for the development of NTDS
CO3	The formulation and evaluation of novel drug delivery systems

Subject: Advanced Biopharmaceutics & Pharmacokinetics
Subject Code: MPH202T

Course Outcome	Description/Statement
CO1	The basic concepts in biopharmaceutics and pharmacokinetics
CO2	The use raw data and derive the pharmacokinetic models and parameters the best describe the process of drug absorption, distribution, metabolism and elimination.
CO3	The critical evaluation of biopharmaceutic studies involving drug product equivalency.
CO4	The design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters.
CO5	The potential clinical pharmacokinetic problems and application of basics of pharmacokinetic

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Subject: Computer Aided Drug Development System- Theory
Subject Code: MPH203T

Course Outcome	Description/Statement
CO1	The history of computers in product development. also shall be able to understand about the various models/software, QbD as per ICH guidelines and regulatory and industry views on QbD.
CO2	Understand the, computers in Drug absorption, distribution, excretion, intestinal permeation and Solubility. Also how active transporter helps to move the drug molecules.
CO3	Understand the concept of optimization, parameters and role of computers in development of pharmaceutical emulsions and microemulsion. The rights, ethics and drug on computer use is also understand by students.
CO4	Understand the biopharmaceutical characterization with the help of computers including in-vitro and in-vivo correlation. Compuetrs in clinical data collection and simulation is also another concept will understand the students.
CO5	About Pharmaceutical Automation, applications, Advantages and Disadvantages of Artificial intelligence shall be understand by the students.

Subject: Cosmetics and Cosmeceuticals- Theory
Subject Code: MPH204T

Course Outcome	Description/Statement
CO1	Indian regulatory requirements for cosmetics
CO2	Biological aspects of cosmetics
CO3	Formulation aspects of cosmetics
CO4	Design of cosmeceutical products
CO5	Basics of herbal cosmetics

Subject: Pharmaceutics Practical II
Subject Code: MPH205P

Course Outcome	Description/Statement
CO1	Understanding of the formulation aspects of Pharmaceuticals
CO2	Knowledge of novel drug design and development
CO3	Evaluation studies for dosage form
CO4	Use of modern tools for the development for dosage forms

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Branch: Pharmaceutical Quality Assurance

Subject: Hazards and Safety Management
Subject Code: MQA201T

Course Outcome	Description/Statement
CO1	Understand about the multidisciplinary nature of environmental studies, various natural resources and its allied problems
CO2	Understand the concept, structure and function of an ecosystem
CO3	Learn about sources and type's industrial hazards and method of Hazard assessment, procedure, and methodology for provide safe industrial atmosphere.
CO4	Understand the prevention of air, chemical and fire hazards and critical hazard management systems
CO5	Learn the hazard and risk management in workplace, and the rules and guidelines on risk assessment and management

Subject: Pharmaceutical Validation– Theory
Subject Code: MQA202T

Course Outcome	Description/Statement
CO1	The students should be able to: Explain the concepts of qualification and validation including their types and significance.
CO2	The students should be able to: Explain the process of qualification of manufacturing equipment and analytical instruments.
CO3	The students should be able to: Explain the process of qualification of laboratory equipments and validation of utility system
CO4	The students should be able to: Explain the process of "process validation of various formulations", "analytical method validation", "guidelines on process validation" and "documentation of process validation".
CO5	The students should be able to: Explain the cleaning method development and cleaning validation of various equipment and facilities including sterile and non-sterile plant
CO6	The students should be able to: Explain the concept of intellectual property, its importance, mechanism, process of filing a patent applications, its rights and responsibilities there under.

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Subject: Audit & Regulatory Compliance
Subject Code: MQA203T

Course Outcome	Description/Statement
CO1	To understand the importance of auditing
CO2	To understand the methodology of auditing
CO3	To carry out the audit process
CO4	To prepare the auditing report

Subject: Pharmaceutical Manufacturer Technique
Subject Code: MQA204T

Course Outcome	Description/Statement
CO1	Student shall be able to understand the common practice in the pharmaceutical industry developments.
CO2	Student shall be able to understand the practices of aseptic process technology
CO3	Student shall be able to understand the practices of non-sterile manufacturing technology
CO4	Student shall be able to understand the practices of packaging technology
CO5	Student shall be able to understand understanding of principles and implementation of Quality by design (QbD)
CO6	Student shall be able to understand understanding of principles and implementation of process analytical technology (PAT) in pharmaceutical manufacturing

Subject: Pharmaceutical Quality Assurance Practical II
Subject Code: MQA205P

Course Outcome	Description/Statement
CO1	Understand Identification & estimation of drug in pharmaceuticals by various techniques
CO2	The learners learn and understand the basic principles and methods of validation of an analytical method for pharmaceuticals
CO3	understand and perform Qualification of Pharmaceutical Testing Equipment
CO4	Understand the principles and applications of QbD, Design of plant layout: Sterile and non-sterile

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Branch: Pharmacology

Subject: Advanced Pharmacology II– Theory
Subject Code: MPL201T

Course Outcome	Description/Statement
CO1	To acquire knowledge about pathophysiology and pharmacotherapy of certain diseases with its rationale
CO2	To understand the advanced mechanism of drug action at cellular and molecular level
CO3	To gained and understand the knowledge about adverse effect, contraindications along with clinical uses of drugs
CO4	To learn and update knowledge in the advancement of pharmacotherapy used in diseases

Subject: Pharmacological and Toxicological Screening Methods-II
Subject Code: MPL202T

Course Outcome	Description/Statement
CO1	Explain the various types of toxicity studies.
CO2	Appreciate the importance of ethical and regulatory requirements for toxicity studies.
CO3	Demonstrate the practical skills required to conduct the preclinical toxicity studies.

Subject: Principles of Drug Discovery
Subject Code: MPL203T

Course Outcome	Description/Statement
CO1	Explain the various stages of drug discovery.
CO2	Appreciate the importance of the role of genomics, proteomics and bioinformatics in drug discovery
CO3	Explain various targets for drug discovery
CO4	Explain various lead seeking method and lead optimization
CO5	Appreciate the importance of the role of computer aided drug design in drug discovery

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Subject: Pharmacological Practical II– Practical
Subject Code: MPL205P

Course Outcome	Description/Statement
CO1	To gain the knowledge about basics of experimental pharmacology i.e. in-vivo and in-vitro methods
CO2	To impart practical knowledge of preparation of different Physiological salt solution and its application in experimental pharmacology
CO3	To study the effect of drug and drug receptor interaction on isolated organs/tissues of animals by using different bioassay methods
CO4	To learn and understand the guidelines used in preclinical research for toxicity studies
CO5	To gain the knowledge about non-invasive techniques used in preclinical research
CO6	To understand the basic knowledge of different protocol design

RAJARSHI SHAHU COLLEGE OF PHARMACY ★ BULDANA ★

Principal
Principal
Rajarshi Shahu College of Pharmacy,
Malvihir, Buldana.