

Adarsh Shikshan Prasarak Mandal's

K.T.PATIL COLLEGE OF PHARMACY

Siddharth Nagar, Barshi Road, OSMANABAD- 413 501 (M.S)

(Recognized by PCI New Delhi, Approved by DTE Mumbai & Government of Maharashtra

Affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.)

NAAC Accredited 'B' Grade

An ISO 9001:2015 Certified Institute

PhD Research Centre

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Semester I

Human Anatomy and Physiology I

	CO No.	COURSE OUTCOMES
BP101T	1	Understand the a fundamental knowledge on the structure and functions of human body
	2	Understand the gross structure, histology and functions of various organs of human body.
	3	Understand the hemostatic mechanism and their imbalance of various system.
	4	Appriciate coordinated working pattern of different organs of each system.
	5	Appriciate the interlinked mechanisms in the maintenance of normal functioning of human body.
BP107P		COURSE OUTCOMES
	1	Identification of various tissues and organs of different systems of human body.
	2	Perform body temperature tests.
	3	Record visual acuity, nerve examination and respiratory volumes.

Pharmaceutical Analysis I

	CO No.	COURSE OUTCOMES
BP-102T	1	Explain the principles of volumetric analysis and preparation and standardization of various compounds.
	2	Carryout various acid base titration and non aqueous titration.
	3	Describe the applications of various volumetric methods of analysis for the pharmaceuticals.
	4	Understand the concept of oxidation, reduction & redox titration.
	5	Electrochemical methods of analysis Conductometry, Potentiometry and Polarography
BP-108P		COURSE OUTCOMES
	1	Carryout the limit test of various compounds
	2	Preparation and standardization of various compounds & Determination of Normality by electro-analytical methods.
	3	Perform various assays of compounds along with Standardization of Titrant.

Pharmaceutics I

	CO No.	COURSE OUTCOME
	1	Understand the Pharmacy Profession in India and understanding of the basics of different dosage forms.

BP- 103T	2	Understand the Prescription, parts of prescription and demonstrate understanding of the professional way of handling the prescription
	3	Understand the Posology and pharmaceutical calculations.
	4	Understand the monophasic and biphasic liquids.
	5	Understand the definitions and classification of suppositories and semi-solid dosage forms.

Pharmaceutical Inorganic Chemistry

	CO No.	COURSE OUTCOME
BP- 104T	1	Explain impurities present in pharmaceuticals and preparation of organic compounds
	2	Write the properties and uses of inorganic pharmaceutical agents
	3	Summarize radioisotopes in diagnosis and therapeutics
	4	Explain applications of buffers, acids and bases in Pharmacy

Communication Skill

BP111T	1	The Subject Communication Skills is Kept in the B Pharm First Year First sem with the Purpose To enhance the Communication Skills for better Performance in Professional life.
	2	Learner should get knowledge about the Importance of communication in daily life and know how they make their communication effective.
	3	Student will be able to present themselves in a better way.
	4	To develop the reading ,writing, speaking and listening skill in students so that they may communicate effectively.
	5	The Subject Communication Skills is Kept in the B Pharm First Year First sem with the Purpose To enhance the Communication Skills for better Performance in Professional life.
	6	Learner should get knowledge about the Importance of communication in daily life and know how they make their communication effective.
	7	Student will be able to present themselves in a better way.
	8	To develop the reading ,writing, speaking and listening skill in students so that they may communicate effectively.

Semester II

Human Anatomy and Physiology- II

BP- 201T	CO No.	COURSE OUTCOMES
	1	Impart the concept of basic life process and levels of structural organization and physiology of human body
	2	To correlate the concepts of homoeostasis and its significance with different systems
	3	To relate the pathological changes in various diseases.
	4	To build the skills for estimation of haematological parameters and its significance
	5	Make use of the acquired facts and relate them in treatment

Pharmaceutical Organic Chemistry I

BP- 202T	CO No.	COURSE OUTCOMES
	1	Discuss the classification of organic compounds and the IUPAC nomenclature of organic compounds.
	2	Discuss isomerism and explain structural isomerism. and types of structural isomerism of organic compound
	3	Explain the hybridization in alkane, alkene and the stabilities of alkene and conjugated dienes
	4	Discuss the mechanism orientation of elimination, electrophilic, free radical and nucleophilic addition reaction
	5	Discuss the mechanism, kinetics, stereochemistry and factors affecting SN1 & SN2 reaction.
	6	Discuss the acidity of carboxylic acids and basicity of amines
	7	Discuss the reaction, name of reaction, and orientation of the reaction
	8	Discuss the application, qualitative test and structure of organic compounds
BP- 208P	CO No.	COURSE OUTCOMES
	1	Perform systematic qualitative analysis of unknown organic compounds, including preliminary tests for color, odor, aliphatic/aromatic nature, and saturation.
	2	Conduct Lassaigne's test to detect elements like Nitrogen, Sulphur, and Halogens.
	3	Perform solubility tests to determine compound properties.
	4	Conduct functional group tests for Phenols, Amides/Urea, Carbohydrates, Amines, Carboxylic acids, Aldehydes and Ketones, Alcohols, Esters, Aromatic and Halogenated Hydrocarbons, Nitro compounds, and Anilides.
	5	Measure melting and boiling points of organic compounds.
6	Identify unknown compounds using literature data on melting and boiling points.	

BP203T	CO No.	COURSE OUTCOMES
	1	Describe processes taking place at molecular level inside living cells
	2	Summarize the metabolic pathway of biomolecules
	3	Classify biomolecules and write their structure
	4	Explain enzymes and their role in metabolism

Pathophysiology - Theory

BP-204T	CO No.	COURSE OUTCOMES
	1	Describe the etiology and pathogenesis of selected diseases.
	2	Name the sign and symptoms of various diseases
	3	Mention the diagnosis, Prevention and Complications of selected diseases.

Computer Applications in Pharmacy

BP205T	CO No.	COURSE OUTCOMES
	1	Ability to classify and use computers and identify various input and output devices
	2	Gain basic knowledge of various computer languages
	3	Ability to use Ms-word, Ms-excel, Ms-PowerPoint for creating documents, sheets and presentation
	4	Ability to operate Emails and browse Internet.

Environmental Science

BP206T	CO No.	COURSE OUTCOMES
	1	Students will able to understand the multiple nature of Environment.
	2	Students will understand the environmental resources and their uses.
	3	Students will able to understand ecosystem & different types of ecosystem.
	4	Environmental studies major will be able to recognize the physical, chemical & biological components of the earth's system
	5	Understand and evaluate the global scale of environmental problems& environmental pollution.

Semester III

Pharmaceutical Organic Chemistry II

	CO No.	COURSE OUTCOMES
BP301T	1	Understands the structure, name and the type of isomerism of the organic compound.
	2	Know about how to write the reaction, name the reaction and orientation of reactions.
	3	Understand the account for reactivity/stability of compounds.
	4	Know about Preparation of organic compounds.
		COURSE OUTCOMES
BP305P	1	Understand purification techniques of solid and liquid organic compounds.
	2	Understand the standardization of oils, organic reagents.
	3	Understand preparation of organic compounds.

Physical Pharmaceutics - I

	CO No.	COURSE OUTCOMES
BP-302T	1	Understand the mechanisms of solute-solvent interactions
	2	Learn the steps involved in the preparation of pharmaceutical buffers and its importance
	3	Acquire skills and working knowledge of the principles and concepts of surface tension and its measurement
	4	Understand the various intermolecular forces involved in the formation of complexes and its applications
	5	Understand various physicochemical properties of drug molecules in the designing the dosage forms
	CO No.	COURSE OUTCOMES
BP-306P	1	Acquire skills and working knowledge of the principles and concepts of surface tension and its measurement
	2	To study quantitative approach to the factors influencing solubility of drugs
	3	To Study the limitations and applications of Distribution law

Pharmaceutical Microbiology

	CO No.	COURSE OUTCOMES
BP303T	1	Identify the key growth parameters required by micro-organisms and how to identify bacteria and able to cultivation and preservation of various microorganisms.
	2	Describe the principles and commonly used methods of sterilization and

		disinfection used in the pharmaceutical industry and to plan out the protocols for sterility checkups in labs and in industries
	3	Describe laminar air flow technology used to prevent contamination of pharmaceutical parental and ophthalmic products and to focus on health care of common individual.
	4	Describes and explains Microbiological standardization of Pharmaceuticals and Environmental safety.
	5	Describe the causes and control of microbial spoilage of pharmaceutical products and understands and highlights cell culture technology and applications in pharmaceutical industries
	6	To study the importance of how to maintain environment safety by sterility checkup of Labs and Household process and lifelong learning process in day-to-day life while water and food analysis process.

Pharmaceutical Engineering

BP-304T	CO No.	COURSE OUTCOMES
		1
	2	Describe and define the principles and methodology of various unit operation processes and its application in pharmaceutical industry
	3	Apply academic theory and knowledge to the solution of a real-life research, plant operational or management problem
	4	Ability to develop a comprehensive process flow diagram for a pharmaceutical process
	5	Ability to apply engineering principles to address issues in various pharmaceutical processes

Semester IV

Pharmaceutical Organic Chemistry III

BP 401 T	CO No.	COURSE OUTCOMES
	1	Understand the methods of preparation and properties of organic compounds
	2	Explain the stereochemical aspects of organic compounds and stereochemical reactions
	3	Know the medicinal uses and other applications of organic compounds

Medicinal Chemistry I

BP402T	CO No.	COURSE OUTCOMES
	1	Understand the chemistry of drugs with respect to their pharmaceutical activity.
	2	Understand the drug metabolic pathways, adverse effects and therapeutic value of drugs.
	3	Know the structural activity relationship (SAR) of different class of drugs.
	4	Write the chemical synthesis of some drugs.
BP406P	CO No.	COURSE OUTCOMES
	1	Synthesize benzimidazole, phenytoin, barbiturate, phenothiazine.
	2	Perform the assay of drugs chlorpromazine, phenobarbitone.
	3	Determination of partition coefficient for any two drugs.

Physical Pharmaceutics - II

BP-403T	CO No.	COURSE OUTCOMES
	1	Acquire working knowledge and understanding the concepts of colloids and its applications
	2	Understanding various Physicochemical properties of drug molecule in the designing of dosage form
	3	Study the reaction kinetics, reaction order, factors affecting the rate of the reactions
	4	Have basic understanding of degradation and stabilization of medicinal agents as well as accelerated stability testing
	5	Study the derived properties and flow properties of powders and its role in formulation development
BP-407P	CO No.	COURSE OUTCOMES

	1	Acquire skills and working knowledge of the principles and concepts of Viscosity and its measurement
	2	To study particle size, particle size distribution using different methods
	3	To Study the accelerated stability studies

Pharmacology I

BP-404T	CO No.	COURSE OUTCOMES
	1	Describe the basic scientific concepts and principles of pharmacology & pharmacokinetics.
	2	Relate with pharmacodynamics, mechanism of action, adverse drug reactions, drug interactions, drug discovery & clinical evaluation of new drugs.
	3	Choose and plan the applications, mechanism of action, adverse drug reactions, drug interactions of drugs affecting Peripheral Nervous System
	4	Demonstrate and find the applications, mechanism of action, adverse drug reactions, drug interactions of drugs affecting Central Nervous System
	5	Explain the pharmacological and psychological effects of drugs acting n CNS, opioid analgesics & antagonists, drug addiction, drug abuse, tolerance and dependence.

Pharmacognosy & Phytochemistry I

BP 405 T	CO No.	COURSE OUTCOMES
	1	Know the techniques in the cultivation and production of crude drugs
	2	Understand the crude drugs, their uses and chemical nature
	3	Understand the evaluation techniques for the herbal drugs.
4	Carry out the microscopic and morphological evaluation of crude drugs	
BP 409 P	CO No.	COURSE OUTCOMES
	1	Understand analysis of crude drugs by chemical tests.
	2	Perform microscopic evaluation of crude drugs by stomatal number, stomatal index, vein islet no, vein termination number, fiber length and width
	3	Understand physical evaluation of crude drugs such as ash value, extractive value, moisture content, swelling index

Semester V

Medicinal Chemistry II

BP501 T	CO No.	COURSE OUTCOMES
	1	Understand Definition, Classification of the drugs with examples and structures.
	2	Understand SAR of some important drug classes and mode of action at molecular level.
	3	Understand the synthesis of important class of compounds
	4	Understand the chemistry of drugs with respect to their pharmacological activity
	5	Understand the drugs acting on cardiovascular system, endocrine system, local anesthetics and anti-thyroid agents

Pharmacology II

BP503T	CO No.	COURSE OUTCOMES
	1	Choose and plan the applications, mechanism of action, adverse drug reactions, and drug interactions of drugs affecting cardiovascular system.
	2	Demonstrate and find the applications, mechanism of action, adverse drug reactions, drug interactions of drugs affecting cardiovascular and urinary system
	3	Choose and plan the biosynthesis, applications, mechanism of action and drugs related to Autocoids.
	4	Demonstrate and find the applications, mechanism of action, adverse drug reactions, drug interactions of drugs affecting endocrine system.
	5	Explain the principles and applications with types of Bioassays.

Pharmacognosy & Phytochemistry-II

BP504T	CO No.	COURSE OUTCOMES
	1	Explain basic metabolic pathways of plants and formation of different secondary metabolites through various biosynthetic pathways in plants
	2	Describe utilization of radioactive isotopes in the investigation of biosynthetic pathways
	3	Explain source, chemistry, therapeutic uses of various secondary metabolites containing drugs.

	4	Describe methods of extraction, analysis and commercial application of various secondary metabolites containing drugs.
	5	Describe methods for industrial production, estimation and utilization of some therapeutically important phytoconstituents.
	6	Describe various modern methods for extraction & Application of latest techniques for analysis of phytoconstituents.
BP508P	CO No.	COURSE OUTCOMES
	1	Understand various parts of microscope.
	2	Understand macroscopy, microscopy & powder characteristics of various crude drugs.
	3	Understand separation techniques for crude drugs.
	4	Understand isolation and detection of active constituents using various apparatus.

Pharmaceutical Jurisprudence

BP 505T	CO No.	COURSE OUTCOMES
	1	Understand the professional ethics.
	2	Understand the various concept of the pharmaceutical legislation in India.
	3	Know the various parameters in the Drug and Cosmetics act and rules.
	4	Know the Drug policy , DPCO, patent and design act.
	5	Understand the labeling requirements and packaging guidelines for drugs and cosmetics.
	6	Be able to understand the concept of dangerous drug, pharmacy act and excise duties act.
	7	Others laws as prescribed by the pharmacy council of India from time to time including international laws

Semester VI

Medicinal Chemistry III

BP601 T	CO No.	COURSE OUTCOMES
	1	Understand Definition, Classification of the drugs with examples and structures.
	2	Understand SAR of some important drug classes and mode of action at molecular level.
	3	Understand the synthesis of important class of compounds
	4	Understand the chemistry of drugs with respect to their pharmacological activity
	5	Understand the drugs acting as antibiotics, Anti-tubercular agents, Urinary Tract Anti-Infective agents, as well as CADD and Combinatorial chemistry
BP607 P	CO No.	COURSE OUTCOMES
	1	Understand the Physicochemical properties of drugs using drug design software
	2	Drawing of chemical structures and reactions by Chem draw software
	3	Analyze the purity of medicinal compounds.
	4	Synthesis of medicinal compounds and intermediates such as Sulphanilamide, Chlorobutanol, 7-Hydroxy-4-methyl coumarin, Triphenyl imidazole

Pharmacology-III Theory

	CO No.	COURSE OUTCOME
	1	Explain the Classification, Mechanism of Action, Therapeutic Effects Clinical Uses, Side Effects and Contraindications of drugs acting on respiratory and gastrointestinal system.
	2	Understand the principle of chemotherapy and details Pharmacology of Chemotherapy.

BP602T	3	Explain the pharmacology of chemotherapeutic drugs.
	4	Understand the Pharmacology of Urinary tract infections and sexually transmitted diseases.
	5	Understand the basic knowledge of toxicology and chronopharmacology

Herbal Drug Technology

	CO No.	COURSE OUTCOMES
BP603T	1	Explain method for identification and authentication of herbal drugs
	2	Explain methods for selection and processing of herbal drugs as raw materials for herbal drug preparation
	3	Explain methods of good agricultural practices for medicinal plants like organic farming and using biopesticides for pest control
	4	Explain basic principles of traditional medicinal systems with method of preparation and standardization of ayurvedic formulations
	5	Describe benefits of various plants as nutraceuticals in ailments and also the herb-food interaction of various plant drugs
	6	Describe about herbs or natural origin drugs as raw materials for preparation of cosmetics, excipients, conventional herbal formulation and novel dosage forms like phytosomes
	7	Describe rules and regulation for assessment of herbal drugs, patenting of natural products and manufacture of herbal formulations based on traditional medicinal system.
	8	Explain present status and prospects of herbal drug based industry and components for Good Manufacturing Practice for Indian systems of medicine
	CO No.	COURSE OUTCOMES
BP609P	1	Perform preliminary phytochemical screening for identification of crude drugs.
	2	Determine alcohol content in marketed ayurvedic formulations.
	3	Formulate pharmaceutical & cosmetic herbal preparations from standardized herbal extracts.
	4	Evaluate prepared herbal formulations & excipients of natural origin as per pharmacopoeial requirements.
	5	Analyze the herbal drugs as per the monographs given in recent Pharmacopoeias.

Biopharmaceutics & Pharmacokinetics

BP604T	CO	COURSE OUTCOMES
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No.	
1	Understand various factors affecting drug absorption, such as drug properties, dosage form, and physiological factors.
2	Understanding how drugs are distributed in the body, including concepts like volume of distribution and tissue binding.
3	Understand metabolism of drugs, including Phase I and Phase II reactions, enzyme systems involved, and factors influencing drug metabolism.
4	Studying how drugs are eliminated from the body, including renal clearance, hepatic clearance, and factors affecting excretion.
5	Understanding the concept of bioavailability, factors affecting it, and its importance in drug efficacy.
6	Applying principles learned to the design of dosage forms for optimal drug delivery.
7	Exploring how biopharmaceutics principles apply to special populations such as pediatric, geriatric, and pregnant patients.
8	Understanding the basic principles of pharmacokinetics, including drug concentration-time profiles and mathematical models.
9	Learning about key parameters such as clearance, volume of distribution, half-life, and area under the curve (AUC).

Pharmaceutical Biotechnology

CO No.	COURSE OUTCOMES
1	Understanding the importance of Immobilized enzymes in Pharmaceutical Industries
2	Genetic engineering applications in relation to production of pharmaceuticals
3	Importance of Monoclonal antibodies in Industries
4	Appreciate the use of microorganisms in fermentation technology

Quality Assurance

CO No.	COURSE OUTCOMES
1	Understand the the cGMP aspects in a pharmaceutical industry, Appreciate the importance of documentation.

	2	Understand the scope of quality certifications applicable to pharmaceutical industries.
	3	Understand the responsibilities of QA & QC departments.
	4	Perform validation of Process & analytical instruments, Importance of Calibration.
	5	Understanding Of GLP, GWP, SOP, VMP & its Implementation.

Semester VII

Instrumental Methods of Analysis

	CO No.	COURSE OUTCOMES
BP701T	1	Understand the interaction of matter with electromagnetic radiations and its application in drug analysis
	2	Understand the different spectrophotometric methods of analysis of drugs.
	3	Understand the chromatographic separation and analysis of drugs.
	4	Perform quantitative & qualitative analysis of drugs using various analytical instruments.
	5	Correlate and apply the knowledge Practically.
	CO No.	COURSE OUTCOMES
BP705P	1	Understand Instruments handling, Learn Practical's on instruments such as Colorimeter, Uv, Flame Photometry, Fluorimetry, in experimental process.
	2	Understand Instruments handling, Learn Praticals Chromatographic Techniques TLC, & on instruments such as HPLC
	3	Understand Qualitative & Quantative analysis of various compounds.

Industrial Pharmacy II

	CO No.	COURSE OUTCOMES
BP-702T	1	Understand the process of pilot plant and scale up techniques of pharmaceutical dosage forms.
	2	Understand the process of technology transfer from lab scale to commercial batch as per WHO guidelines
	3	Understand the Regulatory affairs and roles and responsibility of regulatory affairs professionals
	4	Understand the approval process and regulatory requirements for drug products.
	5	Understand the quality management system in the pharmaceutical industry.

Pharmacy Practice

	CO No.	COURSE OUTCOMES
BP-703T	1	To understand hospital and its organization, hospital pharmacy and it's organization, To understand adverse drug reaction reporting and management.
	2	To understand drug interactions and their methods of detection, community pharmacy setup, drug storemanagement and inventory control, interpretation of clinical laboratory tests.
	3	To understand the drug distribution system in a hospital, community pharmacy management, patient medication history interview, medication adherence,
	4	To understand therapeutic drug monitoring, hospital formulary, drug distribution

		system in a hospital, prescribed medication order and communication skills, education and training program in the hospital, patient counselling.
	5	To understand, to provide information services, functions in a pharmacy and therapeutic committee, budget preparation and implementation, clinical pharmacy, over the counter (OTC) sales.

Novel Drug Delivery System

	CO No.	COURSE OUTCOMES
BP-704T	1	Understand various approaches for development of novel drug delivery systems.
	2	Understand the criteria for selection of drugs and polymers for the development of Novel drug delivery systems, their formulation and evaluation.
	3	Understand the Various novel ideas, methods, technologies used for preparation of novel formulations.
	4	Understand the Various novel formulations applications in curing of various diseases.
	5	Correlate and apply the knowledge therapeutically.

Semester VIII

Biostatistics & Research Methodology

BP801T	CO No	COURSE OUTCOMES
	1	To understand the applications of Biostatistics in Pharmacy
	2	Know the operation of M.S. Excel, SPSS, and MINITAB
	3	Know the various statistical techniques to solve statistical problems
	4	Use statistical techniques in solving the problems
	5	To Understand various phases of Clinical trials and observation, experimental study.

Social and Preventive Pharmacy

BP-802T	CO No	COURSE OUTCOMES
	1	<p>Describe and explain the Concept of health and disease: Definition, concepts and evaluation of public health.</p> <p>Understanding the concept of prevention and control of disease, social causes of diseases and social problems of the sick</p> <p>Social and health education: Food in relation to nutrition and health, Balanced diet, Nutritional deficiencies, Vitamin deficiencies, Malnutrition and its prevention.</p> <p>Sociology and health: Socio cultural factors related to health and disease, Impact of urbanization on health and disease, Poverty and health Hygiene and health: personal hygiene and health care; avoidable habits</p>
	2	Describe and define the Preventive medicine: General principles of prevention and control of diseases such as cholera, SARS, Ebola virus, influenza, acute respiratory infections, malaria, chicken guinea, dengue, lymphatic filariasis, pneumonia, hypertension, diabetes mellitus, cancer, drug addiction-drug substance abuse
	3	Describe and define National health programs, its objectives, functioning and outcome of the following: HIV AND AIDS control Programme, TB, Integrated disease surveillance program(IDSP), National leprosy control Programme, National mental health program, National Programme for prevention and control of deafness, Universal immunization Programme,
	4	Describe and explain National health intervention Programme for mother and child, National family welfare Programme, National tobacco control Programme, National Malaria Prevention Program, National Programme for the health care for the elderly,

		Social Health Programme; role of WHO in Indian national Programme
	5	Describe and explain Community services in rural, urban and school health: Functions of PHC, Improvement in rural sanitation, national urban health mission, Health promotion and education in school.

Pharma Marketing Management

BP-803ET	CO No	COURSE OUTCOMES
	1	Apply marketing strategies to maximize healthcare product value.
	2	Improve patient access to innovative medical treatments.
	3	Employ data-driven marketing and analytics to improve strategic insights and planning.
	4	Contribute functional expertise on interdisciplinary teams creating solutions to complex problems.
	5	Maintain high professional and ethical standards in the advancement and innovation of healthcare for all stakeholders.

Cosmetic Science

BP-809ET	CO No	COURSE OUTCOMES
	1	Study Classification of cosmetic and cosmeceutical products
	2	Know about Cosmetic excipients
	3	Role of herbs in cosmetics
	4	To understand the Principles of Cosmetic Evaluation
	5	To understand the principles of formulation and a building block of cosmetics.

All Pharm D (Doctor of Pharmacy) Course Outcomes

Pharm D I Year

Human Anatomy & Physiology

PD-1.1T	CO No.	COURSE OUTCOMES
	1	Understand the a fundamental knowledge on the structure and functions of human body
	2	Understand the gross structure, histology and functions of various organs of human body.
	3	Understand the hemostatic mechanism and their imbalance of various system.
	4	Appriciate coordinated working pattern of different organs of each system.
	5	Appriciate the interlinked mechanisms in the maintenance of normal functioning of human body.
PD-1.1P	CO No.	COURSE OUTCOMES
	1	Identification of various tissues and organs of different systems of human body.
	2	Perform hematological tests.
	3	Record blood pressure, heart rate, pulse rate and respiratory volumes.

Pharmaceutics

PD1.2T	CO No	COURSE OUTCOMES
	1	Know the formulation aspects of different dosage forms.
	2	Do different calculations involved in formulations..
	3	Formulate different types of dosage forms.
	4	Appreciate the importance of good formulation for effectiveness..
PD1.2P	CO No	COURSE OUTCOMES
	1	Prepare syrup, Elixir, Linctus, Liniments, Suspensions, Emulsions, Power and Suppositories.
	2	Apply the principles of compoundingto prepare syrup, Elixirs, Suspensions, Emulsions, Powders , Suppositories etc. .
	3	Identify and explain physical, chemical, therapeutic incompatibilitiesin pharmaceutical mixtures.

Medicinal Biochemistry

	CO No	COURSE OUTCOMES
PD-1.3T	1	Understand the catalytic activity of enzymes and importance of isoenzymes in diagnosis of diseases.
	2	Know the metabolic process of biomolecules in health and illness (metabolic disorders).
	3	Know the metabolic process of biomolecules in health and illness (metabolic disorders).
	4	Know the biochemical principles of organ function tests of kidney, liver and endocrine gland.
	5	Do the qualitative analysis and determination of biomolecules in the body fluids.
	CO No	COURSE OUTCOMES
PD-1.3P	1	Understand principle behind estimation of biomolecules in the urine and serum and the factors affecting enzyme activity. (pH & Temp.)
	2	Perform Quantitative estimation of biomolecules in the urine and serum.
	3	Perform Qualitative estimation of and determination of biomolecules in the urine and serum and preparation of standard buffers.

Pharmaceutical Organic Chemistry

	CO No.	COURSE OUTCOMES
PD-1.4T	1	Discuss the classification of organic compounds and the IUPAC nomenclature of organic compounds.
	2	Discuss isomerism and explain structural isomerism. and types of structural isomerism of organic compound
	3	Explain the hybridization in alkane, alkene and the stabilities of alkene and conjugated dienes
	4	Discuss the mechanism orientation of elimination, electrophilic, free radical and nucleophilic addition reaction
	5	Discuss the mechanism, kinetics, stereochemistry and factors affecting SN1 & SN2 reaction.
	6	Discuss the acidity of carboxylic acids and basicity of amines
	7	Discuss the reaction, name of reaction, and orientation of the reaction
	8	Discuss the application, qualitative test and structure of organic compounds

Pharm D II Year

Pathophysiology

	CO No	COURSE OUTCOMES
PD-2.1T	1	Describe the etiology and pathogenesis of selected diseases.
	2	Name the sign and symptoms of various diseases
	3	Mention the diagnosis, Prevention and Complications of selected diseases.

Pharmaceutical Microbiology

	CO No	COURSE OUTCOMES
PD-2.2T	1	Understand the anatomy, identification, growth factors of microorganisms which include bacteria, virus, and fungus and understand the cultivation and identification of the microorganisms in the laboratory
	2	Understand the estimation and potency of antibiotic by various microbial assay
	3	Understand the Identification of diseases by performing the diagnostic tests.

Pharmacotherapeutics-I

	CO No	COURSE OUTCOMES
PD-2.3T	1	Understand etiopathogenesis and pharmacotherapy of diseases associated with gastrointestinal system, hematological system, nervous system, psychiatry disorders
	2	Understand the effective use of nonpharmacological therapeutic interventions in the treatment of specific diseases, conditions and symptoms.
	3	Understand the clinical skills required in the therapeutic management of these conditions.
	4	Understand to provide patient – centered care to diverse patients using the evidence based medicine.
	5	Correlate and apply the knowledge therapeutically.

Pharmacognosy & Phytochemistry

	CO No	COURSE OUTCOMES
PD-2.4T	1	Understand the basic principles of cultivation, collection and storage of crude drugs.
	2	Know the source, active constituents and uses of crude drugs.

	3	Appreciate the applications of primary and secondary metabolites of the plant
	4	Understand the cell wall and cell inclusions.
	5	Understand different methods of adulteration of crude drugs.

Pharmacology - I

	CO No	COURSE OUTCOMES
PD-2.5T	1	Understand drug pharmacokinetics, Pharmacodynamics aspects of including drug interactions.
	2	Understand the pharmacological aspects of drugs acting on ANS, CNS, CVS and respiratory system.
	3	Understand the Pharmacology of hormones and hormone antagonists.
	4	Understand the Pharmacology of autacoids and their antagonists.
	5	Correlate and apply the knowledge therapeutically.

Community Pharmacy

	CO No	COURSE OUTCOMES
PD-2.6T	1	Know professional practice & pharmaceutical care services.
	2	Know the business & professional practice management skills, inventory control in community pharmacy.
	3	Do patient counselling & provide health screening services to public in community pharmacy.
	4	Respond to minor ailments, provide appropriate medications & role of pharmacist in community.
	5	Understand the code of ethics during pharmaceutical practice.

Pharm D III Year

Pharmacology-II

	CO No.	COURSE OUTCOMES
PD-3.1T	1	Understand the pharmacological aspects of drugs acting on Blood, Renal system and Chemotherapy for various infectious diseases.
	2	Understand the pharmacological chemotherapeutics for various infectious diseases.
	3	Understand the Immunopharmacology and principles of animal toxicology.
	4	Understand the dynamic cell: The structures and functions of the components of the cell including gene studies.
	5	Correlate and apply the knowledge therapeutically.
	CO No.	COURSE OUTCOMES
PD-3.1P	1	Understand animal handling, route of drug administration, common types of equipment used, and PSS use in experimental pharmacology.
	2	Perform bioassay of Ach, Histamine using suitable tissue preparation.
	3	Understand in-vitro pharmacological screening for analgesic, anti-inflammatory, anticonvulsant, antidepressant, etc activities.

Pharmaceutical Analysis

	CO No.	COURSE OUTCOMES
PD-3.2T	1	Help in imparting theoretical & practical aspects, instrumentation and application of various techniques like spectroscopy, chromatography etc
	2	Illustrate principle, types of electrode, instrumentation and applications of Potentiometry, Conductometry and Polarography
	3	Able to handle instrument like HPLC, HPTLC, UV, Flame photometer etc.

Pharmacotherapeutics-II

	CO No.	COURSE OUTCOMES
PD-3.3T	1	Understand the underlying physiological disruptions in specific disease conditions and the logic behind choosing appropriate drug treatments
	2	Grasp the strategic methods for managing various diseases through drug interventions
	3	Recognize the ongoing debates and uncertainties surrounding pharmacological treatments
	4	Comprehend the significance of tailoring individualized treatment plans based on accurate diagnoses.
	5	Acknowledge the necessity of identifying patient-specific factors that influence the initiation and monitoring of drug therapy

Pharmaceutical Jurisprudence

	CO No.	COURSE OUTCOMES
PD-3.4T	1	Understand the professional ethics.
	2	Understand the various concepts of pharmaceutical legislation in India.
	3	Know the various parameters in the Drug and Cosmetics Act and rules.

Medicinal Chemistry

PD-3.5T	1	Discuss the relationship between the structures of medicinal compounds with their biological activity.
	2	Explain the concept of rational drug design including combinatorial chemistry and computer aided drug design.
	3	Identify the structures of given medical compound and give the nomenclature.
	4	Synthesize a drug molecule using available synthetic and new pathways.
	5	Explain the mode of action, mode of resistance, therapeutic uses and side effects of drugs.
	6	Discuss the relationship between the structures of medicinal compounds with their biological activity.
	7	Explain the concept of rational drug design including combinatorial chemistry and computer aided drug design.
	8	Identify the structures of given medical compound and give the nomenclature.

Pharmaceutical Formulations

	CO No.	COURSE OUTCOMES
PD-3.6T	1	Understand the principle involved in Formulation of various pharmaceutical dosage forms
	2	Understand the preparation methods of various pharmaceutical formulation
	3	Understand the quality control test and evaluation of pharmaceutical formulation
	4	Understand the concept of bioavailability and bioequivalence, their role
	5	Understand the concept of controlled & novel drug delivery system
PD-3.6P	CO No.	COURSE OUTCOMES
	1	Understand the principal involved in formulation of various pharmaceutical dosage forms
	2	Understand the practical aspects of various formulations including cosmetics
	3	Understand the perform evaluation of pharmaceutical dosage forms
	4	Understand the quality control test and evaluation of pharmaceutical formulations

Pharm D IV Year

Pharmacotherapeutics-III

	CO No.	COURSE OUTCOMES
PD-4.1T	1	Understand etiopathogenesis and pharmacotherapy of diseases associated with gastrointestinal system, hematological system, nervous system, psychiatry disorders
	2	Understand the effective use of nonpharmacological therapeutic interventions in the treatment of specific diseases, conditions and symptoms.
	3	Understand the clinical skills required in the therapeutic management of these conditions.
	4	Understand to provide patient – centered care to diverse patients using the evidence based medicine.
	5	Correlate and apply the knowledge therapeutically.
	CO No.	COURSE OUTCOMES
PD-4.1P	1	Understand to identify drug interactions and rationalize the prescription.
	2	Perform patient counseling and conduct planned case studies and prepare case report in a standard format.
	3	Understand the therapeutic approach to management of selected diseases.

Hospital Pharmacy

	CO No.	COURSE OUTCOMES
PD-4.2 T	1	Know various drug distribution methods.
	2	Know the professional practice management skills in hospital pharmacies.
	3	Know the manufacturing practices of various formulations in hospital set up.
	4	Provide unbiased drug information to the doctors.
	5	Appreciate the stores management and inventory control.
	CO No.	COURSE OUTCOMES
PD-4.2 P	1	Develop hospital pharmacy operations, and manage formulary for a 300-bed teaching hospital.
	2	Access unbiased drug information, understand clinical trial phases and elements.
	3	Apply ABC analysis, manufacture parenteral formulations, and powders using aseptic techniques.
	4	Grasp P&T committee organization, functions, and limitations within hospital settings.
	5	Evaluate hospital prescriptions, and devise strategies for potential drug

Clinical Pharmacy

PD-4.3T	CO No.	COURSE OUTCOMES
	1	Monitor drug therapy of patients through medication chart review & Clinical review
	2	Obtain medication histories interview & counsel the patient
	3	Identify and resolve drug-related problems, retrieve, analyse, interpret and formulate drug
	4	or medication information
	5	Detect, assess & monitor ADR

Biostatistics & Research Methodology

PD-4.4T	CO No.	COURSE OUTCOMES
	1	To understand the applications of Biostatistics in Pharmacy
	2	Know the operation of M.S. Excel, SPSS, and MINITAB
	3	Know the various statistical techniques to solve statistical problems
	4	Use statistical techniques in solving the problems
	5	To Understand various phases of Clinical trials and observation, experimental study.

Biopharmaceutics & Pharmacokinetics

PD-4.5T	CO No.	COURSE OUTCOMES
	1	Understand the concept of Biopharmaceutics i.e. factors affecting ADME.
	2	Understand the different parameters of pharmacokinetics for optimization of dose of drug
	3	Understand the reasons on nonlinear pharmacokinetics like improper activity of ADME.
	4	Understand the reasons on nonlinear pharmacokinetics like improper activity of ADME.
	5	Understand the concept of the compartment and non-compartment modelling for

Clinical Toxicology

PD-4.6T	CO No.	COURSE OUTCOMES
	1	Identify General principles involved in the management of poisoning
	2	Know the Antidotes and their clinical applications.
	3	To Understand Clinical symptoms and management of acute poisoning
	4	To Understand Clinical symptoms and management of chronic poisoning

Pharm D V Year

Clinical Research

	CO No.	COURSE OUTCOMES
PD-5.1T	1	Know the new drug development process.
	2	Understand the regulatory and ethical requirements.
	3	Appreciate and conduct the clinical trial activities
	4	Know the safety monitoring and reporting in clinical trials.
	5	Manage the trial co-ordination process.

Pharmacoepidemiology and Pharmacoeconomics

	CO No.	COURSE OUTCOMES
PD-5.2T	1	Understand Pharmacoepidemiology Concepts
	2	Master Pharmacoepidemiological Methods
	3	Utilize Data Sources for Pharmacoepidemiology
	4	Apply Pharmacoepidemiology in Special Contexts
	5	Grasp Pharmacoeconomics Principles and Applications

Clinical Pharmacokinetics and Pharmacotherapeutic Drug Monitoring CPPDM (T)

	CO No.	COURSE OUTCOMES
PD-5.3T	1	Understand the concepts of Pharmacokinetics to individualize the drug dosage regimen in clinical settings and able to design a dosage regimen of a drug based on its route of administration.
	2	Understand the concept of to design and implement pharmacokinetic services such as Intravenous to Oral conversion of dosage regimens.
	3	Understand the significance of altered pharmacokinetics, Pharmacogenetics and Pharmacometrics.
	4	Understand the concept of to adjust the dosage regimen for patients with renal / hepatic impairments and able to assess the drug interaction issues in the clinical settings.
	5	Understand the concept of to design and implement therapeutic drug monitoring services for various drugs.

M. PHARM I SEMESTER

Pharmaceutics

Modern Pharmaceutical Analytical Techniques

MPH 101T	CO No.	COURSE OUTCOMES
	1	Explain the advance methods of analysis of pharmaceuticals
	2	Select appropriate analytical technique for a given analytical problem
	3	Corelate analytical data with quantitative analytical result
	4	Interprete spectroscopic date and propose structure features present in compound

Modern Pharmaceutics

MPH 102T	CO No.	COURSE OUTCOMES
	1	Apply the knowledge for pre-formulation studies of various formulations.
	2	Understand and apply the optimization techniques and statistics in formulation research.
	3	Ability to professionally manage various activities in industry
	4	To understand various concepts and principal in dosage form design
	5	Ability to validate various processes in pharmaceutical industry

Drug Delivery Systems

MPH 103T	CO No.	COURSE OUTCOMES
	1	Apply the knowledge for pre-formulation studies of various formulations.
	2	Understand and apply the optimization techniques and statistics in formulation research.
	3	Ability to professionally manage various activities in industry
	4	To understand various concepts and principal in dosage form design
	5	Ability to validate various processes in pharmaceutical industry
MQA 103T	CO No.	COURSE OUTCOMES
	1	Ability to understand and apply Quality management system , regulatory guidelines and tools in a pharmaceutical industry.
	2	Quality control evaluation of materials
	3	Ability to address manufacturing operation and control over post manufacturing operations

Regulatory Affair

MPH 104T	CO No.	COURSE OUTCOMES
	1	Ability to prepare documentation as per regulatory requirement of various regulatory bodies
	2	Application of various regulations and guidelines prepared by various agencies in research, quality assurance and marketing approval process of pharmaceutical products.
	3	Knowledge about ICH guidelines NDA, ANDA, CTD and e.CTD.
	4	Ability to understand and draft clinical trial protocols.

Pharmaceutical Quality Assurance

Modern Pharmaceutical Analytical Techniques

MQA 101T	CO No.	COURSE OUTCOMES
	1	Understand the various advance Analytical Techniques for identification, Characterization & quantization of drug molecules by using Instruments.
	2	Understand the different spectrophotometric methods of analysis of drugs.
	3	Understand the chromatographic separation and analysis of drugs. Types of Chromatography
	4	Perform quantitative & qualitative analysis of drugs using various analytical instruments.
	5	Correlate and apply the knowledge Practically.

MQA 102T	CO No.	COURSE OUTCOMES
	1	Define and understand the concept of quality , cost involved in quality and keys to customer satisfaction
	2	Discuss strategic planning for quality and implementation of quality systems
	3	Explain the concept of quality system, quality management and ISO quality management standards
	4	Learn different ICH guidelines related to Stability testing and quality risk management
	5	Describe the concept of statistical process control and benchmarking in pharmaceutical manufacturing

Product Development and Technology Transfer

	CO No.	COURSE OUTCOMES
MQA 104T	1	Explain the concepts of drug discovery and new product development process.
	2	Discuss product registration guidelines in India & United States of America.
	3	Describe Pilot plant scale-up of Pharmaceuticals.
	4	Explain Pharmaceutical dosage form and their packaging requirements.
	5	Describe the necessary information to transfer technology from R&D

M. PHARM II SEMESTER

Pharmaceutics

Molecular Pharmaceutics (Nano Tech and Targeted DDS)

MPH-201T	CO No.	COURSE OUTCOMES
	1	To remember, understand, apply the Concepts, Events and biological process involved in drug targeting, tumor and Brain targeting
	2	To analyse various methods of targeting. Apply for the preparation & evaluation of Nano Particles, Liposomes and Niosomes.
	3	Apply, analyse and evaluate the Microspheres, Aquasomes, Phytosomes, Electrosomes.
	4	To remember and understand the various methods of aerosol fillings, components for pulmonary and nasal dosage forms and its evaluation thereof.
	5	Remember the importance of Gene therapy, and understand the potential target diseases for gene therapy and its expression

Advanced Biopharmaceutics & Pharmacokinetics

MPH-202T	CO No.	COURSE OUTCOMES
	1	Impart the concept of basic life process and levels of structural organization and physiology of human body
	2	To correlate the concepts of homeostasis and its significance with different systems
	3	To relate the pathological changes in various diseases.
	4	To build the skills for estimation of haematological parameters and its significance
	5	Make use of the acquired facts and relate them in treatment

Computer Aided Drug Delivery System

MPH-203T	CO No.	COURSE OUTCOMES
	1	Impart the concept of basic life process and levels of structural organization and physiology of human body
	2	To correlate the concepts of homeostasis and its significance with different systems
	3	To relate the pathological changes in various diseases.
	4	To build the skills for estimation of haematological parameters and its significance
	5	Make use of the acquired facts and relate them in treatment

Cosmetic and Cosmeceuticals

MPH-204T	CO No.	COURSE OUTCOMES
	1	Apply the knowledge for pre-formulation studies to cosmetic formulations.
	2	Understanding of various regulatory aspects of cosmetics manufacturing, Export and Import and sales.
	3	Ability of designing and formulations of cosmetics
	4	To understand various concepts and principal in Design of cosmeceuticals

Pharmaceutical Quality Assurance

Hazards and Safety Management

MQA-201T	CO No.	COURSE OUTCOMES
	1	Define and understand the concept of ecosystem and environmental hazards
	2	Describe different air based hazards and chemical hazards, their control and regulation
	3	Explain different fire protection systems and the management of fire in industry
	4	Learn different ICH guidelines related to risk assessment and quality risk.

Pharmaceutical Validation

MQA-202T	CO No.	COURSE OUTCOMES
	1	Discuss about the concept and types of validation
	2	Demonstrate qualification and calibration of instruments and equipment.
	3	Explain the concepts of process validation of dosage forms.
	4	Explain the procedure of analytical method validation and cleaning validation.
	5	Discuss the concepts of Intellectual Property Rights.

Audits and Regulatory Compliance


MQA-203T	CO No.	COURSE OUTCOMES
	1	Discuss briefly about audit objectives and their management
	2	Understand the role of quality systems and audits in pharmaceutical manufacturing environment
	3	Frame a checklist for auditing pharmaceutical industries and learn about audit report
	4	Understand the basics of auditing various engineering systems in a manufacturing plant
	5	Learn the requirements for auditing vendors supplying various materials and equipment's

Pharmaceutical Manufacturing Technology

MQA-204T	CO No.	COURSE OUTCOMES
	1	Able to Interpret and apply knowledge in regulatory requirements, production planning and operations for manufacturing of product in a pharmaceutical industry.
	2	Able to relate to technological advances and automation in manufacturing operations and packaging science.
	3	Able to appreciate and implement concept of Quality by design (QbD) and



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(Recognized by PCI New Delhi, Approved by DTE Mumbai & Government of Maharashtra

Affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.)

NAAC Accredited 'B' Grade

An ISO 9001:2015 Certified Institute

PhD Research Centre

■ Website: www.ktpatilpharmacy.org ■ Email: ktpatilpharmacy@gmail.com

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PROGRAM OUTCOMES

1. Pharmacy Knowledge: Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy,

including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.

2. Planning Abilities: Demonstrate effective planning abilities including time management, resource management, delegation skills and

organizational skills. Develop and implement plans and organize work to meet deadlines.

3. Problem analysis: Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making

decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.

4. Modern tool usage: Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools

with an understanding of the limitations.

5. Leadership skills: Understand and consider the human reaction to change, motivation issues, leadership and team-building when planning

changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or

leadership roles when appropriate to facilitate improvement in health and wellbeing.

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

promoters of health, educators, managers, employers, employees).

7. Pharmaceutical Ethics: Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that

recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while

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making decisions and take responsibility for the outcomes associated with the decisions.

8. Communication: Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and

write effective reports, make effective presentations and documentation, and give and receive clear instructions.

9. The Pharmacist and society: Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the

consequent responsibilities relevant to the professional pharmacy practice.


10. Environment and sustainability: Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and

demonstrate the knowledge of, and need for sustainable development.

11. Life-long learning: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the

broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.




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