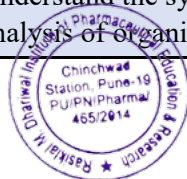


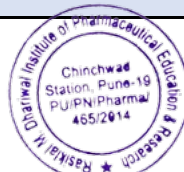


**Course Outcomes - A. Y. 2022-23 (TERM II)  
 F. Y. (SEM-II) - Pattern-2019**

Course/Subject (T/P)	Course Code/ Subject Code	Course Number	Course Outcomes
			Students will be able to
Human Anatomy Physiology-II (T)	CO BP 201 T	1	Summarize gross morphology, structure and functions of various organs of the human body.
		2	Correlate the various homeostatic mechanisms and their imbalances.
		3	Outline the various tissues and organs of different systems of human body.
		4	Experimenting the hematological tests like blood cell counts, haemoglobin estimation, bleeding/clotting time etc
		5	Assessing normal physiological parameter like blood pressure, heart rate, pulse and respiratory volume.
Human Anatomy Physiology-II (P)	CO BP 207 P	1	Investigate nematorological functions/parameters by direct participation in laboratory experimentation, data collection, and analysis including homeostasis.
		2	Demonstrate and aware the students related to various parameters used to check and regulate the normal functions of human body including visit to hospital /pathology laboratory.
		3	Clarify structural and microscopically aspects of various organs system of human.
		4	Investigate physiologic functions by direct participation in laboratory experimentation, data collection, and analysis for clinical experiments (Olfactory nerve, type of taste, reflex).
		5	Develop laboratory discipline organize the work in the laboratory. Follow the instructions given in the laboratory
Pharm. Organic Chemistry-I (T)	CO BP 202 T	1	Understand the basic principles of organic chemistry with reference to the structure of organic compounds and fundamentals of organic reactions.
		2	Acquint with structure, nomenclature, types and isomerism of organic compounds
		3	Understand methods of preparation and reactions including named reactions for organic compounds
		4	Acquire knowledge about the reactivity and stability of organic compounds
		5	Know about methods of preparation, industrial/ medicinal applications and identification of organic compounds
Pharm. Organic Chemistry-I (P)	CO BP 208 P	1	Know about safety measures and laboratory rules in Organic Chemistry laboratory
		2	Acquint with various basic organic laboratory techniques, purification techniques and experimental procedures
		3	Understand the systematic procedure involved in qualitative analysis of organic compounds



		4	Acquire knowledge on basic organic reactions and preparation of solid organic derivatives
		5	Understand the structure of organic compounds with building molecular models
Biochemistry (T)	CO BP 203 T	1	Understand the catalytic role of enzymes and importance of enzyme in biochemical processes
		2	Understand the metabolism of nutrient molecules in physiological and pathological conditions
		3	Understand the genetic organization of mammalian genome
		4	functions of DNA in the synthesis of RNAs and proteins
		5	understanding of the molecular levels of the chemical process associated with living cells
Biochemistry (P)	CO BP 209 P	1	Acquire practical training for qualitative and quantitative analysis of biological materials/molecules
		2	Learning multiple methods for estimation of protein, uric acid creatininie etc
		3	Exposure to the basic concepts of metabolic engineering and synthetic biology.
		4	To isolate and analyse protein from given samples
		5	To estimate biomolecules such as glucose , proteins,cholesterol in clinical samples
Pathophysiology (T)	CO BP 204 T	1	Explain the application, maintenance and uses of various instruments in clinical biochemistry.
		2	Know the echniques of biological fluid collection and seperation.
		3	Understand the importance and estimation of various markers for liver, kidney and heart diseases.
		4	Understand different techniques for the estimation blood glucose,CRP, HbA 1c and its clinical importance.
Computer applications in pharmacy (T)	CO BP 205 T	1	Understand the concept of number system in computers
		2	Comprehend different types of databases, applications of computersand databases in pharmacy.
		3	Assess the applications of computers in pharmacy such as drug information services, pharmacokinetics, mathematical model in drug design, hospital and clinical pharmacy etc.,
		4	Understand the use of web technologies such as HTML, XML, CSS,programming languages, Web servers and pharmacy drug database.
		5	Explain the applications of computers for data analysis in preclinical development.
		6	Describe about bioinformatics and its impact in vaccine discovery.



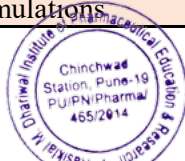
Computer applications in pharmacy (P)	CO BP 210 P	1	Design questionnaire by word processing and web page
		2	Retrieve information of drugs using online tools
		3	Generate mailing labels using label wizards
		4	Understand the applications of Ms Access
EVS (T)	CO BP 206 T	1	Understand basics of environment like ecology, ecosystem, food chain, food web and ecological pyramids.
		2	Know the different natural sources and their conservation to save the environment.
		3	Know the current problems of environment and how to solve them, Role of individual in conservation of environment and natural resources
		4	Understand the different factors of environmental pollution and measures to minimize it.
		5	Aware about hazards of disposal wastes from hospitals and pharmaceutical industries.
Democracy election and Governance		1	To introduce the students meaning of democracy and the role of the governance
		2	To help them understand the various approaches to the study of democracy and governance.





**Course Outcomes - A. Y. 2022-23 (TERM II)**  
**S. Y. (SEM-IV) - Pattern-2019**

Course/Subject (T/P)	Course Code/ Subject Code	Course Number	Course Outcomes
			Students will be able to
Pharm. Organic Chemistry-III (T)	CO BP 401 T	1	Explain stereoisomerism with chirality, racemic modification & its resolution and asymmetric synthesis with suitable examples
		2	Explain conformational isomerism and stereospecific and stereoselective reactions.
		3	Describe and categorise heterocyclic compounds with their structures, numbering, types, synthesis, reactivity and their
		4	Explain various name reactions along with their mechanism & synthetic importance.
Medicinal Chemistry I (T)	CO BP 402 T	1	Impart fundamental knowledge on the structure, chemistry and therapeutic value of drugs
		2	Emphasizes on structure activity relationships of drugs, importance of physicochemical properties and metabolism of drugs
		3	Understand the chemistry of drugs with respect to their pharmacological activity.
		4	Understand the drug metabolic pathways, adverse effect and therapeutic value of Drugs.
		5	Write the chemical synthesis of some drugs
Medicinal Chemistry I (P)	CO BP 406 P	1	Emphasizes on chemical synthesis of important drugs under each class
		2	Knowledge about the mechanism pathways of different class of medicinal compounds
		3	Understand the Role of medicinal chemistry in drug research
		4	Practicing synthetic methods and purification methods for chemical entity
		5	Various laboratory techniques for synthesis of heterocyclic moieties
Physical Pharmaceutics II (T)	CO BP 403 T	1	Relate various physicochemical properties of drug and excipient molecules in designing the dosage forms
		2	Distinguish the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations
		3	Demonstrate the behavior and mechanism of drugs and excipients in the formulation development and evaluation of dosage forms.
Physical Pharmaceutics II	CO BP 407 P	1	Distinguish the principles of chemical kinetics & to use them for stability testing and determination of expiry date of formulations



(P)		2	Understand the principles behind the particle size and distribution
Pharmacology I (T)	CO BP 404 T	1	Understand the pharmacological actions of different categories of drugs.
		2	Explain the mechanism of action at organ system/sub cellular/macromolecular levels.
		3	Apply the basic pharmacological knowledge in the prevention and treatment of various
		4	Observe the effects of drugs on animal by simulated experiments.
		5	Appreciate correlation of pharmacology with other bio medical sciences.
Pharmacology I (P)	CO BP 408 P	1	Identify the appliances used in experimental pharmacology
		2	Demonstrate routes of drug administration in animals
		3	Choose suitable anesthetics for animal studies
		4	Demonstrate drug action using computer models
		5	Perform common laboratory techniques in animals
		6	Recommend procedures for laboratory animal maintenance
Pharmacognosy & Phytochemistry I (T)	CO BP 405 T	1	Comprehend the introduction of Pharmacognosy
		2	Study source, classification, test for identification and techniques in the cultivation, processing, storage and production of crude drugs of natural origin
		3	Evaluate Quality control of Drugs of Natural Origin
		4	Know fundamental aspects of plant tissue culture and the applications of advanced technologies in medicinal plants.
		5	Understand systematic pharmacognostic study of plant products, primary metabolite and marine drugs.
Pharmacognosy & Phytochemistry I (P)	CO BP 409 P	1	Analysis of crude drugs by chemical tests
		2	understand the cellular structure of crude drugs.
		3	evaluate the crude drugs by quantitative evaluation methods.
		4	evaluate the crude drugs by physical methods of evaluation.



**Course Outcomes - A. Y. 2022-23 (TERM II)**  
**T. Y. (SEM-VI) - Pattern-2019**

Course/Subject (T/P)	Course Code/ Subject Code	Course Number	Course Outcomes
			Students will be able to
Medicinal Chemistry- III (T)	CO BP 601 T	1	To understand the chemistry of drugs with respect to their pharmacological Activity.
		2	To understand the drug metabolic pathways, adverse effect and therapeutic value of drugs.
		3	To know the Structural Activity Relationship (SAR) of different classof drugs.
		4	To study and write the chemical synthesis of selected drugs.
		5	Study of the development of the following classes of drugs, Classification, mechanism of action, uses of drugs mentioned in the course, Structure activity relationship of selective class of drugs as specified in the course and synthesis of drugs.
Medicinal Chemistry- III (P)	CO BP 607 P	1	Explain correct uses of various equipment's & take safety measures while working in Medicinal Chemistry Laboratory
		2	To draw the structures and reactions using Chemdraw®.
		3	To synthesize medicinally important compounds by microwave assisted synthesis
		4	Explain reaction mechanisms involved in synthesis of compounds.
		5	To determine the physicochemical properties such as logP, clogP, MR,Molecular weight etc.
		6	To calculate hydrogen bond donors and acceptors for class of drugs using drug design software Drug likeliness screening (Lipinski's RO5)
Pharmacology- III (T )	CO BP 602 T	1	To understand the mechanism of drug action and its relevance in the treatment of different infectious diseases
		2	To comprehend the principles of toxicology of pharmacology with related medical sciences.
		3	To comprehend the treatment of pharmacology with related medical sciences.
		4	To appreciate correlation of pharmacology with related medical sciences.
		5	The appropriate drug therapy and management of patients with specific disorders.
Pharmacology- III ( P)	CO BP 608 P	1	Explain the principle, construction and working of various instruments and perform their operations
		2	Explain mechanisms of actions involved in pharmacological important drugs
		3	Experiments described in this involve the action of agonist and antagonist on different types of tissue preparations of animals.

		4	Performance of isolated experiments using various isolated preparations and the effect of different drugs on the CRCs. To find out a therapeutic agent suitable for human use.
		5	To study the toxicity of a drug
Herbal Drug Technology (T)	CO BP 603 T	1	Understand the fundamental concepts of herbal raw materials and biodynamic agriculture techniques.
		2	Assess the knowledge for Indian Systems of Medicine and preparation and evaluation of herbal formulations with WHO and ICH guidelines
		3	Comprehend the concept of Nutraceutical and herbal food interactions.
		4	Articulate the regulatory guidelines for the assessment of herbal drugs and patenting.
		5	Illustrate the scope and future prospects of the herbal drug industry.
Herbal Drug Technology (P)	CO BP 609 P	1	Assess different preliminary phytochemical screening of crude drugs.
		2	Evaluate the various herbal formulations.
		3	Apply monographic analysis of herbal drugs as per pharmacopoeias.
		4	Evaluate parameters such as aldehyde and phenol contents.
		5	Assess the total alkaloid content.
Bio pharmaceuticals and Pharmacokinetics (T)	CO BP 604 T	1	Understand the basic concepts in biopharmaceutics and pharmacokinetics and their significance
		2	Use plasma drug concentration-time data to calculate the pharmacokinetic parameters to describe the kinetics of drug absorption, distribution, metabolism, excretion, elimination.
		3	Understand the concepts of bioavailability and bioequivalence of drug products and their significance.
		4	Learning various compartment models and non compartmental analysis methods
		5	Understand the concept and mechanism of dissolution and application of in vitro in vivo correlation in drug product development.
Pharmaceutical Biotechnology (T)	CO BP 605 T	1	Know the basics of biotechnology techniques and the various systems used
		2	Know the method of genetic transfer, genetic engineering for production of rDNA products including monoclonal antibodies, transgenic organisms and their importance in industry
		3	understand about immunity and related factors and also production of vaccines and sera and its storage
		4	Illustrate use of Fermenter for production of fermentation products and information about their purification by downstream process.
		5	Understand collection, processing and storage of various blood products and its applications
Quality Assurance (T)	CO BP 606 T	1	manufacturing and role of regulatory, explain the concept of QbD.
		2	Describe quality standards of different agencies, Significance of validation in quality assurance.



		3	Apply cGMP, GLP and GDP while working in pharmaceutical industry.
--	--	---	---





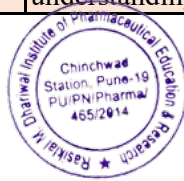


**Course Outcomes - A. Y. 2022-23 (TERM II)**  
**Final Y. (SEM-VIII) - Pattern-2019**

Course/Subject (T/P)	Course Code/ Subject Code	Course Number	Course Outcomes
			Students will be able to
Biostatistics and research methodology (T)	CO BP801T	1	To understand the applications of Biostatistics in Pharmacy.
		2	To deal with descriptive statistics, Graphics, Correlation, Regression, logistic regression Probability theory.
		3	To perceive Sampling technique, Parametric tests, Non Parametric tests, ANOVA.
Social and preventive pharmacy (P)	CO BP802T	1	issues related to health and pharmaceutical problems within the country and worldwide.
		2	Have a critical way of thinking based on current healthcare development.
		3	Evaluate alternative ways of solving problems related to health and pharmaceutical issues.
Pharmaceutical marketing (T)	CO BP803ET	1	Describe, classify, structure and combine concepts, theories, methods and models taught
		2	Identify and develop relevant issues within pharmaceutical marketing
		3	Analyze and synthesize specific issues within pharmaceutical marketing by using the concepts, theories, methods and models taught
		4	Assess and communicate problem-solving on a reflective, scientific basis
Pharmaceutical regulatory science (T)	CO BP804ET	1	Explain the process of drug discovery, development and generic product development.
		2	Learn the basic understanding of regulations of India with other global regulated markets.
		3	Understand the regulatory authorities and agencies governing the manufacture and sale of pharmaceuticals.
		4	Understand the concept of pharmacovigilance and its significance
		5	Learn the basic understanding the importance of Orange book, Federal Register, Code of Federal Regulatory, and Purple book
		6	Explain the Registration of Indian drug product in overseas market



Pharmacovigilance (T)	CO BP805ET	1	Discuss the importance of drug safety monitoring and the development of pharmacovigilance program and Identify adverse drug reactions and manage it.
		2	Explain international standards for classification of diseases and drugs.
		3	Describe about national and international pharmacovigilance program and the terminologies used.
		4	Develop and establish pharmacovigilance program in an organization and Recognize various methods of drug safety surveillance and communication in pharmacovigilance.
		5	Explain the methods to generate safety data during the phases of clinical trial and recognize the role of ICH and GCP guidelines
		6	Explain pharmacogenomics of adverse drug reactions and evaluate drug safety in special population
Quality control and standardization of Herbals (T)	CO BP806ET	1	Explain basic tests for drugs to obtain dosage form for pharmaceutical substances and medicinal plants
		2	Explain methods for evaluation of pharmaceutical substances, medicinal plants and commercial crude drugs along with WHO guidelines for quality control for herbal drugs
		3	Describe guidelines for cGMP, GAP, GMP and GLP for quality assurance of herbal drugs in industry
		4	Describe guidelines for quality control of herbal drugs and evaluation of safety and efficacy of herbal medicines.
		5	Explain regulatory approval process and their registration in Indian and international markets.
		6	Explain Drugs and Cosmetic Act Provision for herbal drug preparation and marketing
		7	Explain WHO guidelines on safety monitoring of herbal medicines in pharmacovigilance systems.
		8	Explain role of chemical and biological markers in standardization of herbal products
Computer aided and drug design (T)	CO BP807ET	1	will be able to describe and compare computerized methods in pharmaceutical and medicinal chemistry
		2	Evaluates the place and importance of Computer Methods in Pharmaceutical and Medicinal Chemistry in drug design
		3	will be able to interpret the structure of the receptor by acting on the structure of the affecting molecules.
		4	comments target-based (Ligand-based) design
Cell and Molecular Biology (T)	CO BP801ET	1	Describe basic biological concepts and principles.
		2	Appreciate the different levels of biological organization, from molecules to ecosystems.
		3	Understand that biology has a chemical, physical, and mathematical basis.
		4	Explain the importance of the scientific method to understanding natural phenomena.



Cosmetics Science (T)	CO BP801ET	1	State the correct use of various equipments in Pharmaceutics laboratory relevant to cosmetics.
		2	Perform formulation, evaluation and labeling of cosmetics like moisturizing cream, vanishing cream etc.
		3	Perform formulation, evaluation of eye cosmetics, hair loquer & shampoos
		4	Perform formulation, evaluation & labeling of shaving cream, after shave & baby products.
		5	Describe use of ingredients in formulation and category of formulation. Prepare labels as per regulatory requirements
Experimental pharmacology (T)	CO BP801ET	1	Appreciate the applications of various commonly used laboratory animals.
		2	Appreciate and demonstrate the various screening methods used in preclinical research
		3	Appreciate and demonstrate the importance of biostatistics and research methodology.
		4	Design and execute a research hypothesis independently.
Advanced Instrumental Techniques (T)	CO BP801ET	1	Understand the advanced instruments used and its applications in drug analysis
		2	Understand the chromatographic separation and analysis of drugs.
		3	Understand the calibration of various analytical instruments
		4	Know analysis of drugs using various analytical instruments.
Project work	CO BP801ET	1	Demonstrate a sound technical knowledge of their selected project topic.
		2	Undertake problem identification, formulation and solution.
		3	Design engineering solutions to complex problems utilising a systems approach.
		4	Communicate with the community at large in written and oral forms.

