

KIET School of Pharmacy (KIET Group of Institutions)

CO- statements B. Pharm Even semester 2020-21

Semester	Course Name (As per University Syllabus)	Course Code	Course Nature	CO- Statement 1	CO- Statement 2	CO- Statement 3	CO- Statement 4	CO- Statement 5
2	HUMAN ANATOMY & PHYSIOLOGY-II THEORY	BP201T	Theory	To understand the concepts of anatomy and physiology of Nervous system	To apply the concepts of various organs of Digestive system and understanding energetics	To analyze the various aspects of Respiratory system and Urinary system	To illustrate the various glands of Endocrine system and understand their roles in the body	To describe the various aspects of male and female Reproductive systems and analyze genetics
2	PATHOPHYSIOLOGY	BP204T	Theory	To understand the basic mechanisms involved in the process of cell injury and inflammation	To apply the knowledge about pathological mechanisms involved in the development of cardiovascular, renal and respiratory system	To analyze the development of diseases associated with blood, endocrine, nervous and gastrointestinal system	To illustrate the progression of inflammatory diseases along with cancer	To describe the various etiology and pathogenesis of infectious and sexually transmitted diseases
2	BIOCHEMISTRY	BP203T	Theory	To understand and identify the concept of Biomolecules and Bioenergetics.	The students shall learn carbohydrate metabolism and biological oxidation and apply the learned knowledge in understanding diseases.	To understand and analyze the concepts lipid and amino acids metabolism and their role in various diseases.	To illustrate the concept of nucleic acid metabolism and transfer of genetic information.	To describe the classification and types of enzymes and their role as diagnostic and therapeutic applications.
2	ENVIRONMENTAL SCIENCES – THEORY	BP206T	Theory	Remember and understand the concept of the multidisciplinary nature of environmental studies and natural resources with its conservation.	To remember and understand the concept of an ecosystem, structural and functional components of ecosystem and its various types.	To remember the concept of environmental pollution and understand the various types of environmental pollution with its types, sources, impact on man and its environment and control of environmental pollution.		
2	PHARMACEUTICAL ORGANIC CHEMISTRY- I THEORY	BP202T	Theory	Understand about Classification, nomenclature and isomerism of Organic Compounds.	Understand about definition, types, classification, principles/mechanisms, applications, General methods of preparation and reactions of Alkanes*, Alkenes* and Conjugated dienes.	Illustrate the definition, types, classification, principles/mechanisms, applications, General methods of preparation and reactions of Alkyl halides and Alcohols.	Illustrate the definition, types, classification, principles/mechanisms, applications, General methods of preparation and reactions of carbonyl Compounds.	Describe the definition, types, classification, principles/mechanisms, applications, General methods of preparation and reactions of Carboxylic acids and Amines.
2	COMPUTER APPLICATIONS IN PHARMACY-THEORY	BP205T	Theory	To understand the concept of number system and information systems.	To summarize the about various web technologies and databases.	To classify and apply the concepts of the various types of application of computers in pharmacy.	To assess the objective, concept and impact of Bioinformatics.	To understand and formulate application of computers in data analysis in Preclinical development .

2	PHARMACEUTICAL ORGANIC CHEMISTRY -I (PRACTICAL)	BP208P	Practical	1. Student should be able to understand about identification of aliphatic, aromatic, saturated and unsaturated compounds and elements.	2. Student should be able to analyse about solubility and functional group tests of organic compounds.	3. Student should be able to evaluate about melting and boiling points of organic compounds.	4. Student should be able to design some organic molecule by synthesis and identify melting and boiling points.	5. Student should be able to understand about identification of known organic compound.
2	HUMAN ANATOMY & PHYSIOLOGY-II - PRACTICAL	BP207P	Practical	To understand and remember anatomy and physiology of CNS, Digestive system, Respiratory system, urinary system, endocrine system and reproductive system using models and Charts	To apply and analyze the practical aspects of related to reflex activity, body temperature recording, lung capacities, BMI etc and their importance	To examine and evaluate different mechanisms of responses related to sense organs and nervous system		
2	BIOCHEMISTRY	BP209P	Practical	To understand qualitative and quantitative analysis of biomolecules like carbohydrates.	To understand qualitative and quantitative analysis of biomolecules like amino acids.	To understand qualitative and quantitative analysis of biomolecules like proteins and lipids.		
4	PHYSICAL PHARMACEUTICS - II	BP403T	Theory	To classify, compare and evaluate colloidal dispersions	To understand basic concepts of Rheology and identification, comparison and evaluation of various Rheological systems	To identify the characteristics of coarse dispersions and to evaluate the designing of these systems	To understand various methods for particle sizing and application of these methods in formulation development	To understand the factors responsible for drug degradation and application of rate kinetics to evaluate the stability profile of drugs
4	MEDICINAL CHEMISTRY-I THEORY	BP402T	Theory	To understand basics of medicinal chemistry, physicochemical and stereochemical properties in relation to drug design and drug metabolism.	To understand chemistry of drugs acting on ANS such as sympathomimetics and adrenergic drugs.	To understand chemistry of parasympathomimetics, cholinesterase inhibitors and cholinergic blocking agents.	To understand chemistry of drugs acting on CNS such as sedative, hypnotics, antipsychotics and anticonvulsants.	To understand chemistry of drugs acting on CNS such as General anesthetics, narcotic & non-narcotic analgesics and anti-inflammatory agents.
4	PHARMACOGNOSY-I	BP405T	Theory	To understand the sources of drugs, classification of crude drugs and justify the quality control of herbal drugs.	To describe the techniques used for cultivation and production of crude drugs and outline conservation of medicinal plants.	To understand the concepts of Plant Tissue Culture and to describe properties of edible vaccines.	To understand working of various systems of medicine and to summarize properties of various secondary metabolites.	To understand the properties and applications of plant fibers, hallucinogens, carbohydrates, lipids, proteins, enzymes and marine products.
4	PHARMACEUTICAL ORGANIC CHEMISTRY	BP401T	Theory	Illustrate about Stereo isomerism and Optical isomerism.	Describe about Geometrical isomerism.	Outline the nomenclature, classification, synthesis and reaction of some heterocyclic compounds.	Summarize the Synthesis, reactions and medicinal uses of some heterocyclic compounds.	Discuss about some reactions of synthetic importance.

4	PHARMACOLOGY-I	BP404T	Theory	Understand the basic concepts of pharmacology along with pharmacokinetics mechanism	Describe the basic concepts of pharmacodynamics and various receptors theories and drug discovery process.	Analyze and apply the pharmacological concepts and modulators related to the autonomic nervous system.	Illustrate the concept of Neurohumoral transmission in the C.N.S. along with mechanism related to muscle relaxants.	Understand and analyze the CNS-related disorders and the mechanism of action of drugs used for CNS disorders.
4	MEDICINAL CHEMISTRY – I (PRACTICAL)	BP406P	Practical	Student should be able to design some drugs molecule by synthesis.	Student should be able to design some drug intermediates by synthesis.	Student should be able to analyse chlorpromazine, phenobarbitone and atropine through assay.	Student should be able to analyse ibuprofen, aspirin and furosemide through assay.	Student should be able to determine partition coefficient of some drug molecule.
4	PHYSICAL PHARMACEUTICS - II PRACTICAL	BP407P	Practical	Students will be able to understand colloidal dispersion's, its properties, method of preparation and application in field of pharmacy	Students will be able to apply the concept of rheology characteristics of pharmaceutical ingredients in the preparation of pharmaceuticals	Students will be able to analyze the role of coarse dispersion such as suspension and emulsions in pharmaceutical dosage form preparation	Students will be able to illustrate the effect of different fundamental and derived properties of particles in dosage form preparation and stability	Students will be able to determine the effect of reaction parameters such as temperature, order, molecularity etc on drug stability
4	PHARMACOLOGY - I (PRACTICAL)	BP408P	Practical	Understand the various instruments used in experimental lab	Knowledge about the commonly used animals in experimental lab & its maintenance as per CPCSEA guideline	Understand the pharmacological actions of different categories of drugs	Observe the effect of drugs on animals by simulated experiments	
4	PHARMACOGNOSY AND PHYTOCHEMISTRY-I PRACTICAL	BP409P	Practical	To Analyze and evaluate the various crude drugs	To Understand, analyze and evaluate various microscopical standards.	To Apply, analyze and evaluate various parameters of standardization of herbal drugs.		
6	PHARMACEUTICAL BIOTECHNOLOGY	BP605T	Theory	Student shall be able to understand the biotechnology and its importance in pharmaceuticals with applicable methodologies	student will be able to memorize the recombinant DNA technology and its application in pharmaceuticals production	student will be able to demonstrate immunity and various immunological products and their production methods	student shall be able to analyze various immune assay techniques for determination of immunological products	student will be able to apply different fermentation techniques in production of various fermentation products
6	PHARMACEUTICAL QUALITY ASSURANCE	BP606T	Theory	List and outline of various important basic concepts of Quality Assurance, Quality Control, GMP, TQM, ICH guidelines, QbD, ISO and NABL accreditation process	Description and application of guidelines related to organization, personnel, premises, equipment and raw materials in pharmaceutical industry	Description, recommendation and listing and application of various quality control test of packaging material and concepts related to GLP	Description, recommendation, designing and listing of complaints and maintenance of documents in pharmaceutical industry	Discussion and various measures for calibration and validation of different important equipments and concepts of Good Warehousing Practices
6	PHARMACEUTICAL MEDICINAL CHEMISTRY	BP 601 T	Theory	Understand the approach of classification,	Apply the concept of nomenclature, stereochemistry,	Analyse the various aspects of Chemotherapy of Anti -	Illustrate the core principles of Chemotherapy of Anti-	Describe thoroughly the idea of Drug Design,

				nomenclature, synthesis, stereochemistry, structure activity relationship and uses of antibiotics	structure activity relationship, chemical degradation, Classification of important product of macrolide, Antimalarials and apply basic approach of Prodrugs	tubercular agents, Urinary tract anti infective agents and antiviral agents	fungal agents, Anti - Protozoal agents, Sulphonamides and Sulfones, Folate reductase inhibitors and Anthelmintics	and Combinatorial Chemistry
6	BIOPHARMACEUTICS AND PHARMACOKINETICS	BP604T	Theory	Understand biopharmaceutics and pharmacokinetics principles of drug absorption and distribution.	Apply the concept of drug elimination, in-vitro in vivo correlation and to measure, evaluate, apply, enhance bioavailability and bioequivalence of drugs.	Analyse compartment, noncompartment, and kinetics of one compartmental pharmacokinetic models and related pharmacokinetic parameters.	Illustrate concepts and kinetics of multicompartmental pharmacokinetic models.	Describe the basic concepts and kinetics of non-linear pharmacokinetic models.
6	PHARMACOLOGY-III THEORY	BP602T	Theory	Understand the pharmacology of the drugs used in respiratory and GIT disorders,	Describe and understand about pathological mechanisms involved in microbial infections and the pharmacology of the agents used for their management.	Analyze the various mechanisms by which anti-microbial agents act and their applications in infection management.	Illustrate the development and progression of cancer and its management by chemotherapeutic agents. Also understand the pharmacology of immunomodulators.	Understand and principles of toxicology and chronopharmacology.
6	PHARMACOLOGY III PRACTICAL	BP608P	Practical	Understand and perform dose calculations for pharmacological experiments	To understand the effect of drugs on various organ systems via simulation experiments	To understand and perform the significance of biochemical parameters	To learn about the calculations for dose related toxicities (OECD guidelines)	To learn and perform the various statistical methods for analysis of scientific data
6	MEDICINAL CHEMISTRY III- PRACTICAL	BP 607 P	Practical	Students are able to synthesise different molecule	Students are able to perform assay of different drugs	Students are able to perform Chemdraw and use different online software to study ADME activity		
8	PHARMACEUTICAL MARKETING MANAGEMENT	BP803ET	Theory	To know the basic concepts of marketing and their application in pharmaceutical marketing.	To illustrate product management in pharmaceutical industry.	To analyse various promotional techniques for pharmaceutical products.	To acquire knowledge about various pharmaceutical marketing channels.	To demonstrate the objectives and importance of price management in Pharmaceutical Industry.
8	COSMETIC SCIENCE	BP809ET	Theory	Students will understand Classification and applications of cosmetic product; different excipients used to	Students will understand skin care products, antiperspirants and deodorants and hair care products.	Students will understand role of herbs in cosmetics, analytical cosmetics.	Students will understand the principles of cosmetic evaluation.	Students will understand the cosmetic problems associated with Hair and scalp and skin.

				manufacture cosmetic products; basic structures of skin, hair and problems associated with oral cavity.				
8	PHARMACOVIGILANCE	BP805ET	Theory	To understand the working of Pharmacovigilance Programme of India in drug safety monitoring with emphasis on methods of detection, reporting and causality assessment of different classes of adverse drug reactions.	To understand and remember various drug dictionaries and coding in pharmacovigilance with examples	To apply the methods and communicate information in pharmacovigilance.	To illustrate the generation of safety data in preclinical, clinical and post approval phases and also to study ICH	To associate genetics related adverse drug reactions and analyze drug safety evaluation in pediatrics, geriatrics and pregnancy.
8	COMPUTER AIDED DRUG DESIGN	BP807ET	Theory	Students are able to Design and discovery of lead molecules.	Students are able to understand the role of drug design in drug discovery process.	Students are able to understand the concept of QSAR and docking.	Students are able to understand the various strategies to develop new drug like molecules.	Students are able to understand the design of new drug molecules using molecular modeling software.
8	QUALITY CONTROL AND STANDARDIZATION OF HERBAL DRUGS	BP806ET	Theory	To understand WHO guidelines for quality control of herbal drugs.	To understand the application and significance of Quality assurance in herbal drug industry.	To determine the regulatory approval process and their registration in Indian and international markets.	To analyze EU and ICH guidelines for quality control of herbal drugs.	To apply the guidelines on safety monitoring of herbal medicines

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CO- PO Mapping B. Pharm Even semester 2020-21

Semester	Course Name (As per University Syllabus)	Course Code (As per University Syllabus)	Course Nature	Mapping of CO to PO
2	HUMAN ANATOMY & PHYSIOLOGY-II THEORY	BP201T	THEORY	https://drive.google.com/open?id=1YNAa6SmJCKPzi0foFV8B9bLD5e18ZdG5
2	PATHOPHYSIOLOGY	BP204T	THEORY	https://drive.google.com/open?id=1LQ6DiRAoF9-aEBbYRjTmF8RtTX4Zn_0W
2	BIOCHEMISTRY	BP203T	THEORY	https://drive.google.com/open?id=1qBiaXOL2dON2M9xn91yZWfn6wVVC-s4N
2	ENVIRONMENTAL SCIENCES – THEORY	BP206T	THEORY	https://drive.google.com/open?id=1P-YECuG9owX61xs-q8WVPOGzS6Z1iQk
2	PHARMACEUTICAL ORGANIC CHEMISTRY-I THEORY	BP202T	THEORY	https://drive.google.com/open?id=1otE9jhCWOKaZgiZLN4e_OLFK3hUu02Qb
2	COMPUTER APPLICATIONS IN PHARMACY-THEORY	BP205T	THEORY	https://drive.google.com/open?id=1c-GK6JONnq5O8BUBGDZtuR9hSr-DSvGN
2	PHARMACEUTICAL ORGANIC CHEMISTRY -I (PRACTICAL)	BP208P	PRACTICAL	https://drive.google.com/open?id=1BIQQjf5qlAjxr2G3R4jzB7ZiuBAySu6h
2	HUMAN ANATOMY & PHYSIOLOGY-II - PRACTICAL	BP207P	PRACTICAL	https://drive.google.com/open?id=1Pwze6vpT1ujXXgDdfSfHcZ9Oe744kzje
2	BIOCHEMISTRY	BP209P	PRACTICAL	https://drive.google.com/open?id=1O2sWoEvPIF29ilcgHxmWhoEBu4WXao2J
4	PHYSICAL PHARMACEUTICS - II	BP403T	THEORY	https://drive.google.com/open?id=1UkZAGqhOSsbF7dyGNayNE8bfY5LvcwDG
4	MEDICINAL CHEMISTRY-I THEORY	BP402T	THEORY	https://drive.google.com/open?id=1SOefFdP-a0m825vwZp7EurVpxP4M4rjH
4	PHARMACOGNOSY-I	BP405T	THEORY	https://drive.google.com/open?id=1IdBbRv1E3pdI854k3X_yh3rCkVsq9cu
4	PHARMACEUTICAL ORGANIC CHEMISTRY	BP401T	THEORY	https://drive.google.com/open?id=1UY0sHCUOHYDvdZfu6qh0Iugs-siRqSYv
4	PHARMACOLOGY-I	BP404T	THEORY	https://drive.google.com/open?id=1mB5rlQR57n6i3yKWvX0rUyKzovVgEgry
4	MEDICINAL CHEMISTRY – I (PRACTICAL)	BP406P	PRACTICAL	https://drive.google.com/open?id=1vQOhVcxOM_aPUeTADfT-WINdoH2MZ0WS
4	PHYSICAL PHARMACEUTICS - II PRACTICAL	BP407P	PRACTICAL	https://drive.google.com/open?id=1HpvttnnykGc1dB_KSC_HbZ3R94-RIDfB9
4	PHARMACOLOGY - I (PRACTICAL)	BP408P	PRACTICAL	https://drive.google.com/open?id=1smAJjNlqSfiUydzGCxcJWXQVlgvVWSE1
4	PHARMACOGNOSY AND PHYTOCHEMISTRY-I PRACTICAL	BP409P	PRACTICAL	https://drive.google.com/open?id=1EgXX9nL6teAEMCtvsNAwSOSu5UY9pNHs
6	PHARMACEUTICAL BIOTECHNOLOGY	BP605T	THEORY	https://drive.google.com/open?id=13fR9aPXdkJw3MwXeGT5eOrzg0l32K07a
6	PHARMACEUTICAL QUALITY ASSURANCE	BP606T	THEORY	https://drive.google.com/open?id=1O2VG2BF2aeOuf7VCHbrT_MxxP5AiR-dl

6	PHARMACEUTICAL MEDICINAL CHEMISTRY	BP 601 T	THEORY	https://drive.google.com/open?id=1QZ8Y0KIVhmz3-CWYup9t-jGHk0fOmfOv
6	BIOPHARMACEUTICS AND PHARMACOKINETICS	BP604T	THEORY	https://drive.google.com/open?id=12YZEgESb1wYzAL6rQlpgC74IVBWwbWjT
6	PHARMACOLOGY-III THEORY	BP602T	THEORY	https://drive.google.com/open?id=1pr6H3ke7QeiC8i3NfDMWQxaWR-e_PGla
6	PHARMACOLOGY III PRACTICAL	BP608P	PRACTICAL	https://drive.google.com/open?id=1I229hg_-gC_yfSKW_VfWAP_ul225oZ0S
6	MEDICINAL CHEMISTRY III- PRACTICAL	BP 607 P	PRACTICAL	https://drive.google.com/open?id=1f84Ad2jbHY2bUHnxdkelVmV29EVy6r6j
8	PHARMACEUTICAL MARKETING MANAGEMENT	BP803ET	THEORY	https://drive.google.com/open?id=1aKavaxliGPBtXY1_Mlr0xdyOXV1xY98j
8	COSMETIC SCIENCE	BP809ET	THEORY	https://drive.google.com/open?id=1yHhBfjyP817Niqw6rk1XqheWmb74sW7k
8	PHARMACOVIGILANCE	BP805ET	THEORY	https://drive.google.com/open?id=1si_Nc2XpVweAGrdsK_GkoTfo4FFIyYg4
8	COMPUTER AIDED DRUG DESIGN	BP807ET	THEORY	https://drive.google.com/open?id=1RzP1gddRvfOUSX4eA3-00gBz3D19Osyp
8	QUALITY CONTROL AND STANDARDIZATION OF HERBAL DRUGS	BP806ET	THEORY	https://drive.google.com/open?id=1BHRcwg2tmyq1NaDgNJ5q0s9ZjyZHVYJi