



SANTHIRAM COLLEGE OF PHARMACY

Approved by AICTE & PCI, New Delhi - Affiliated to JNTUA, Anantapur
NH - 18, Nandyal, Kurnool District, Andhra Pradesh - 518501.

Course Outcomes (CO's)

I PHARM. D (PCI Regulation)			
Course Title	Course Code	Cos Number	Course Outcomes
Human Anatomy & Physiology (Theory)	17T00101		Upon completion of the course student will be able to:
		1	Describe the structure (gross and histology) and functions of various organs of the human body.
		2	Describe the various homeostatic mechanisms and their imbalances of various systems.
		3	Identify the various tissues and organs of the different systems of the human body.
		4	Perform the hematological tests and also record blood pressure, heart rate, pulse and Respiratory volumes.
		5	Coordinated working pattern of different organs of each system and appreciate the interlinked mechanisms in the maintenance of normal functioning (homeostasis) of human body.
Pharmaceutics	17T00102	1	Know the formulation aspects of different dosage forms.
		2	Different pharmaceutical calculation involved in formulation.
		3	Formulate different types of dosage forms.
		4	Appreciate the importance of good formulation for effectiveness.
Medicinal Biochemistry (Theory)	17T00103	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	Understand the genetic organization of mammalian genome; protein synthesis, replication; mutation and repair mechanism.
		4	Know the biochemical principles of organ function tests of kidney, liver and endocrine gland.
		5	Qualitative analysis and determination of biomolecules in the body fluids.



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Pharmaceutical Organic Chemistry	17T00104	1	Learn basic information about organic chemistry & study of Aliphatic/Alicyclic Hydrocarbons.
		2	Acquire knowledge on nomenclature, classification & reactions of Hydrocarbons, Halogen Compounds-Aromatic, Polynuclear aromatic hydrocarbons.
		3	Acquire knowledge Alcohols, Ethers, Phenols, Nitro compounds.
		4	Acquire knowledge on Amines, Nitriles, is nitriles, Carbonyl Compounds, Carboxylic acids and their derivatives.
Pharmaceutical Inorganic Chemistry	17T00105	1	Understand the principles and procedures of analysis of drugs and regarding the application of inorganic pharmaceuticals.
		2	Know the analysis of the inorganic pharmaceuticals their applications.
		3	Appreciate the importance of inorganic pharmaceuticals in preventing and curing the disease.
Remedial Mathematics/Biology	17T00106	1	Know Trigonometry, Analytical geometry, Matrices, Determinant, Integration, Differential equation, Laplace transform and their applications.
		2	Solve the problems of different types by applying theory.
		3	Appreciate the important applications of mathematics in pharmacy.
		4	Aware of various naturally occurring drugs and its history, sources, classification, distribution and the characters of the plants and animals.
II PHARM. D (PCI Regulation)			
Pathophysiology	17T00201	1	Describe the etiology and pathogenesis of the selected disease states.
		2	Learn the signs, symptoms & complications of the diseases.
Pharmaceutical Microbiology	17T00202	1	Know the anatomy, identification, growth factors and sterilization of microorganisms.
		2	Know the mode of transmission of disease causing microorganism, symptoms of disease, and treatment aspect.



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		3	Get knowledge on cultivation and identification of the microorganisms in the laboratory;
		4	Acquire knowledge on identification of diseases by performing the diagnostic tests.
		5	Appreciate the behavior of motility and behavioral characteristics of microorganisms
Pharmacognosy & Phytopharmaceuticals	17T00203	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.
Pharmacognosy & Phytopharmaceuticals	17T00208	1	Learn about Macro, powder and microscopic study of various crude drugs.
		2	Identification of various carbohydrates by chemical test.
		3	Chemical evaluation of crude drugs.
Pharmacology – I	17T00204	1	Understand the pharmacological aspects of drugs falling under the above mentioned chapters.
		2	Handle and carry out the animal experiments.
Community Pharmacy	17T00205	1	Know pharmaceutical care services.
		2	Know the business and professional practice management skills in community pharmacies.
		3	Patient counseling & provide health screening services to public in community pharmacy;
		4	Respond to minor ailments and provide appropriate medication;
		5	Show empathy and sympathy to patients.
		6	Appreciate the concept of Rational drug therapy.
Pharmacotherapeutics - I	17T00206	1	Gain knowledge on pathophysiology of selected disease states and the rationale for drug therapy & therapeutic approach to management of these diseases.
		2	Understand importance of preparation of individualized therapeutic plans based on diagnosis.



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		3	Identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
		4	Describe the pathophysiology of selected disease states and explain the rationale for drug therapy.
		5	Understand of the health and economic implications of toxic exposures.
		6	Identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
III PHARMA D (PCI Regulations)			
Pharmacology – II	17T00301	1	Understand the pharmacological aspects of drugs falling under Blood, blood forming agents, Renal System, Immunopharmacology & chemotherapeutic agents.
		2	Appreciate the importance of pharmacology subject as a basis of therapeutics.
		3	Understand the Principles of Animal toxicology.
Pharmaceutical Analysis	17T00302	1	Gain knowledge on various quality assurance aspects reference to pharmaceutical industry.
		2	Learn various electrochemical techniques, modern analytical instrumental.
		3	Techniques viz spectroscopy and chromatography.
Pharmacotherapeutics – II	17T00303	1	Know the pathophysiology of selected disease states and the rationale for drug therapy.
		2	Know the therapeutic approach to management of these diseases.
		3	Know the controversies in drug therapy.
		4	Know the importance of preparation of individualized therapeutic plans based on diagnosis.
		5	Appreciate the needs to identify the patient-specific parameters relevant in initiating drug therapy, and monitoring



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			therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
Pharmaceutical Jurisprudence	17T00304	1	Practice the Professional ethics.
		2	Understand the various concepts of the pharmaceutical legislation in India.
		3	Know the various parameters in the Drug and Cosmetic 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	Understand the concepts of Dangerous Drugs Act, Pharmacy Act and Excise duties Act.
		7	Other laws as prescribed by the Pharmacy Council of India from time to time including International Laws.
Medicinal Chemistry	17T00305	1	Acquire skill in the structure of drugs and their biological activities.
		2	Gain knowledge on chemical nomenclature, SAR, mechanism of action, synthesis of important compounds, side effects.
		3	Brand names of important marketed products of drug class like Anti-infective agents, Antimalarials, Antibiotics, Antineoplastic agents, Cardiovascular agents, Hypoglycemic agents, Thyroid, Antithyroid agents, Diuretics, Diagnostic agents, Steroidal Hormones and Adrenocorticoids.
Pharmaceutical Formulations	17T00306	1	Understand the principle, preparation & evaluation involved in formulation of various pharmaceutical dosage forms.
		2	Understand and appreciate the concept of bioavailability and bioequivalence, their role in clinical situations.
IV PHARM. D (PCI Regulation)			
Pharmacotherapeutics –III	17T00401	1	Understand the pathophysiology of selected disease states, rationale for drug therapy, management, controversies in drug therapy
		2	Gain knowledge on importance of preparation of individualized therapeutic plans based on diagnosis.



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		3	Identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
		4	Describe the pathophysiology of selected disease states and explain the rationale for drug therapy.
		5	Identify the patient-specific parameters relevant in initiating drug therapy, and monitoring therapy (including alternatives, time-course of clinical and laboratory indices of therapeutic response and adverse effects).
Hospital Pharmacy	17T00402	1	Know various drug distribution methods.
		2	Know the professional practice management skills in hospital pharmacies.
		3	Provide unbiased drug information to the doctors.
		4	Know the manufacturing practices of various formulations in hospital set up.
		5	Appreciate the practice based research methods.
		6	Appreciate the stores management and inventory control.
Clinical Pharmacy	17T00403	1	Monitor drug therapy of patient through medication chart review and clinical review.
		2	Obtain medication history interview and counsel the patients.
		3	Identify and resolve drug related problems.
		4	Detect, assess and monitor adverse drug reaction.
		5	Interpret selected laboratory results (as monitoring parameters in therapeutics) of specific disease states.
		6	Retrieve, analyses, interpret and formulate drug or medicine information.
Biostatistics And Research Methodology	17T00404	1	Develop the ability to apply the methods while working on a research project work.
		2	Describe the appropriate statistical methods required for a particular research design.



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		3	Choose the appropriate research design and develop appropriate research hypothesis for a research project.
		4	Develop a appropriate framework for research studies
Biopharmaceutics And Pharmacokinetics	17T00405	1	Acquire knowledge on the factors influencing absorption,
		2	Calculate the pharmacokinetic parameters based on plasma level-time data & urine data.
		3	Understand the importance of clinical pharmacokinetics and the bioavailability.
Clinical Toxicology	17T00406	1	Understand of the health and economic implications of toxic exposures.
		2	Understand of general toxicology principles and clinical management practice.
		3	Understand the roles of various health care personnel in the prevention and management of poisonings.
Clinical Research	17T00501	1	Various Approaches to drug discovery
		2	Various steps in Clinical development of drug
		3	Learn about Good Clinical Practice, regulatory environment in USA, Europe and India
		4	Knowledge on clinical study documents (protocol, CRF, ICF, PIC with assignment)
V PHARM. D (PCI Regulation)			
Clinical Pharmacokinetics and Therapeutic Drug Monitoring	17T00503	1	Understand the basics principles and applications of pharmacokinetics in designing the individualized dosage regimen, to interpret the plasma drug concentration profile in altered pharmacokinetics, drug interactions and in therapeutic drug monitoring processes to optimize the drug dosage regimen.
		2	Enables students to understand the basic concepts of pharmacogenetics, pharmacometrics for modeling and simulation of pharmacokinetic data.
Clerkship		1	Impart the use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and



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			supportive personnel, to promote health.
		2	To provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use.
Project		1	Develop data collection and reporting skills in the area of community, hospital and clinical pharmacy.
		2	Get data working on specific area/specialization hospital and clinical pharmacy
		3	Prepare written document comprising of objectives of the work, methodology, results, discussions and conclusions.
VI PHARM. D (PCI Regulation)			
Internship		1	Learn about various diseases & treatment regimen by working in different departments in hospital areas.
		2	Gain knowledge on finding of ADRs in prescription
		3	Gain knowledge on finding of correction of ADRs.