



AVANTHI INSTITUTE OF PHARMACEUTICAL SCIENCES

(Approved by A.I.C.T.E, P.C.I, New Delhi, Recognized by the Govt. of A.P. & Affiliated to JNTUGV, Vizianagaram)

Cherukupally (Village), Chittivalasa (SO), Bhogapuram (Mandal), Vizianagaram (Dist) -531162.

www.avanthipharma.ac.in, principal@avanthipharma.ac.in

DEPARTMENT OF PHARMACY

Program : M Pharmacy (Pharmacology)

Regulation : PCI (R16)

No. of Courses : 14

COURSE OUTCOMES

I – I Sem	Course: Modern Pharmaceutical Analytical Techniques (MPL101T)
CO101.1	Recall principle, operation and applications of selected instrumental spectroscopic, chromatographic analysis.
CO101.2	Gain knowledge on interpretation of NMR spectra for determination of molecular structure of compounds.
CO101.3	Build the analytical understanding in the level of ion, atom, group and molecular structure of organic and inorganic compounds with different functional groups by Mass spectroscopy and their applications in pharmacy.
CO101.4	Understand the concept of separation and identification of compounds by chromatographic techniques.
CO101.5	Categorize different anions and cations by using suitable electrophoresis techniques.
CO101.6	Elaborate principle, theory and instruments employed for the analysis of drugs by thermal techniques.
I – I Sem	Course: Advanced Pharmacology - I (MPL102T)
CO102.1	Gain basic knowledge on pharmacokinetics and Pharmacodynamics modeling, parameters and its determination.
CO102.2	Summarize the mechanism and effects of neurotransmission and understand the pharmacology of Systemic and Autonomic Pharmacology.
CO102.3	Remember the pharmacology of drugs acting on Central nervous system.
CO102.4	Understand the pharmacology of neurodegenerative diseases.
CO102.5	Categorize the drugs acting on Cardiovascular system and understand its pharmacology.
CO102.6	Elaborate pharmacology of drugs used to treat allergic reactions.
I – I Sem	Course: Pharmacological and Toxicological Screening Methods – I (MPL103T)
CO103.1	Gain basic knowledge on rules and CPSCEA guidelines of handling laboratory animals. Understand the production of transgenic animals and GLP.
CO103.2	Outline General principles of <i>in-vivo</i> , <i>in-vitro</i> preclinical screening techniques for drugs acting on CNS and ANS.
CO103.3	Identify the newer screening methods for drug acting on respiratory, reproductive systems.
CO103.4	Investigate new screening methods for drugs acting on Gastro-intestinal system.
CO103.5	Understand the principles of <i>in-vivo</i> , <i>in-vitro</i> preclinical screening techniques for drugs acting on Cardiovascular system.
CO103.6	Understand General principles of preclinical screening techniques for Immunomodulators, Immunosuppressants. Outline general principles of immunoassay and extrapolation of <i>in vitro</i> /preclinical data to human.



ESTD : 2005

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I – I Sem	Course: Cellular and Molecular Pharmacology (MPL104T)
CO104.1	Understand the basic structure and functions of cell and genome in the living organisms. Summarize various phases of cell cycle, apoptosis, necrosis and autophagy.
CO104.2	Remember the pathways of cell signaling and know the importance of primary and secondary messengers.
CO104.3	Understand the principles and applications of genomic and proteomic tools.
CO104.4	Know the principles of rDNA technology and gene therapy.
CO104.5	Elaborate the significance of Pharmacogenomics and immunotherapeutics.
CO104.6	Design various cell culture techniques. Understand the applications of biosimilars.
I – I Sem	Course: Pharmacology Practical - I (MPL105PA)
CO105.1	Identify the concentration of test compounds using HPLC, UV, GC, fluorimetry and flame photometry.
CO105.2	Estimate the amount of drug by different analytical techniques.
CO105.3	Examine diuretic, antiulcer activities and to analyse Oral glucose tolerance test.
CO105.4	Evaluate various pharmacological activities by <i>in-vitro</i> or <i>in-vivo</i> methods.
I – I Sem	Course: Pharmacology Practical – II (MPL105PB)
CO106.1	Isolate and identify DNA, RNA from various tissues and estimate by using UV spectroscopy.
CO106.2	Estimate the amount of protein, cell damage process by different analytical techniques.
CO106.3	Examine pharmacokinetic studies of drugs by using softwares.
CO106.4	Extract drug from biological samples by using UV and HPLC.
I – II Sem	Course: Advanced Pharmacology - II (MPL201T)
CO201.1	Relate functions of hormones and to list out drugs acting on endocrine system.
CO201.2	Outline the principles of chemotherapy and illustrate the mechanism of action of antibiotics, Antifungal, antiviral, and anti-TB drugs .
CO201.3	Identify the chemotherapeutic agents for Protozoal and Helminthetic infections.
CO201.4	Understand the chemotherapy of cancer, Immunosuppressants, Immunostimulants and pharmacotherapy of Asthma and COPD.
CO201.5	Assess the mechanism of drugs acting on GIT and applications of chronopharmacology to treat disorders.
CO201.6	Elaborate the role of free radicals in etiopathology of various diseases and adapt the recent advances in treatment of various diseases.
I – II Sem	Course: Pharmacological and Toxicological Screening Methods – II



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	(MPL202T)
CO202.1	Appreciate the importance of ethical and regulatory guide lines for conducting toxicity studies.
CO202.2	Illustrate Acute, sub-acute and chronic- oral, dermal and inhalational toxicity studies as per OECD guidelines.
CO202.3	Construct reproductive toxicology, teratogenicity studies.
CO202.4	Demonstrate the practical skills to conduct Genotoxicity studies and Carcinogenicity studies.
CO202.5	Categorize IND enabling studies. Appraise the importance of Safety pharmacology.
CO202.6	Compile the importance and applications of Toxicokinetic studies and alternative methods to animal toxicity testing.
I – II Sem	Course: Principles of Drug Discovery (MPL203T)
CO203.1	Understand the various stages of drug discovery. Appreciate the importance of the role of genomics, proteomics and bioinformatics in drug discovery.
CO203.2	Illustrate various targets for drug discovery. Explain various lead seeking method and lead optimization.
CO203.3	Know the various approaches for rational drug design.
CO203.4	Summarize various virtual screening techniques for lead discovery.
CO203.5	Assess the molecular docking studies for drug discovery.
CO203.6	Appreciate the importance of the role of computer aided drug design in drug discovery.
I – II Sem	Course: Clinical Research and Pharmacovigilance (MPL204T)
CO204.1	Understand various regulatory requirements for conducting clinical trials.
CO204.2	Demonstrate the types of clinical trial designs and Explain the responsibilities of key players involved in clinical trials.
CO204.3	Construct the documentation process of clinical trials. Detect new adverse drug reactions and their assessment.
CO204.4	Contrast the roles and responsibilities of Pharmacovigilance.
CO204.5	Appraise various methods of ADR reporting and tools used in Pharmacovigilance.
CO204.6	Predict principles and concepts of Pharmacoepidemiology, Pharmacoeconomics and Safety pharmacology.
I – II Sem	Course: Pharmacology Practical – III (MPL205PA)
CO205.1	Record the DRC of agonist using suitable isolated tissues preparation.
CO205.2	Evaluate the drug concentrations by various bioassay methods using isolated tissue preparations.
CO205.3	Study the effects of various drugs on isolated heart preparations.
CO205.4	Recording of rat BP, heart rate and ECG.



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I – II Sem	Course: Pharmacology Practical - IV (MPL205PB)
CO206.1	Study the drug absorption studies by averted rat ileum preparation.
CO206.2	Study the acute oral and dermal toxicity studies as per OECD guidelines.
CO206.3	Design the clinical trail and ADR monitoring protocols.
CO206.4	Interpret <i>in-silico</i> pharmacophore based screening and QSAR studies by using software.
II – I Sem	Course: Research Methodology & Biostatistics (MRM301T)
CO301.1	Recall the concepts of research methodology which includes study design, type of studies, stratifies and different design techniques.
CO301.2	Infer the data using biostatistics technique like “t” test, ANOVA and chi square tests as well as recognize the importance of samples size and its significances.
CO301.3	Learn the history of medical research for understanding the values of clinical ethics.
CO301.4	Appraise the importance of communication and sociological relationships in medical research.
CO301.5	Understand CPCSEA guidelines for laboratory animal facilities which include handling, maintenance, record keeping and transportation of lab animals.
CO301.6	Discuss the history and basic principles of Declaration of Helsinki for medical research.
II-II Sem	Research Work
CO401.1	Define the fundamentals, carry out the literature review on the proposed research work and identify the problem.
CO401.2	Develop the research hypothesis.
CO401.3	Summarise the requirements in the proposed research.
CO401.4	Take part in research experiments and documented.
CO401.5	Evaluate the work done by applying statistic tools.
CO401.6	Appraise societal application and appreciation.