



# P. RAMI REDDY MEMORIAL COLLEGE OF PHARMACY

44/35-1, Prakruthi Nagar, Utukur, Kadapa – 516 003 A.P.

Approved by AICTE & PCI, New Delhi, Recognised by Govt. of A.P.

Affiliated to JNTUA, Ananthapuramu. Recognised U/S 2(f) & 12(B) of UGC Act, 1956.

## COURSE OUTCOMES – M.PHARMACY (PHARMACOLOGY)

M.Pharmacy (Pharmacology) I Year I Semester (R21) (I Semester)		
Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Modern Pharmaceutical Analytical Techniques 21S01101	C01111.1	Understand the principle and instrumentation, Applications of various spectroscopic techniques like UV-Visible, IR and spectrofluorimetry and flame emission and atomic absorption spectroscopy
	C01111.2	Learn and Apply the knowledge of NMR-Spectroscopy instruments for effective practical handling and use
	C01111.3	Gain knowledge on mass spectroscopic technique for the qualitative and quantitative evaluation of drug
	C01111.4	Develop the Chromatographic techniques for identification, characterization and quantification of drugs
	C01111.5	Explain Instrumentation and relate identification of compounds by electrophoresis technique and X-ray crystallography and Immunological assays
Advanced Pharmacology - I 21S01102	C01112.1	Understand and explain the Pharmacodynamics & Pharmacokinetics and drug receptors.
	C01112.2	Explain about Neurohumoral transmission in autonomic nervous system & Pharmacology of drugs acting on autonomic nervous system
	C01112.3	Acknowledge and explain the pharmacology drugs acting on Central nervous system
	C01112.4	Classify, and explain the pharmacology drugs acting on Cardiovascular system
	C01112.5	Understand and explain the Autocoid Pharmacology
Clinical Pharmacology and Pharmacotherapeutics 21S01103	C01113.1	Understand the Pharmacokinetic parameters with respect to drug therapy.
	C01113.2	Study in detail about the Adverse Drug Reactions and Drug interactions during the drug treatment.
	C01113.3	Explain the pathophysiology of various diseases with systems and summarize the therapeutic approach in the management of them.
	C01113.4	Explain the pathophysiology of various diseases with systems and infectious organisms and summarize the therapeutic approach in the management of them.
	C01113.5	Study the drug therapy in Geriatrics, Paediatrics, before and after Pregnancy, renal and hepatic insufficiency.



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### M.Pharmacy (Pharmacology) I Year I Semester (R21) (I Semester)

Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Cellular and Molecular Pharmacology 21S01104	C01114.1	Explain the structure and functions of cell and its organelles genome organizations.
	C01114.2	Understand the intercellular and intracellular signaling pathways and receptor signal transduction process.
	C01114.3	To study the principles and applications of genomic and proteomic tools, rDNA technology and Gene therapy.
	C01114.4	Understand the applicability of molecular pharmacology and biomarkers in drug discovery process.
	C01114.5	Demonstrate molecular biology techniques as applicable for pharmacology.
Modern Pharmaceutical Analytical Techniques Lab 21S01105	C01115.1	Analysis of pharmacopoeial compounds by spectroscopic technique.
	C01115.2	Perform to select suitable analytical techniques for the qualitative and quantitative evaluation of drugs.
	C01115.3	Apply the theoretical knowledge of instruments for effective practical handling and use.
	C01115.4	Estimate the compounds by various chromatographic compounds.
	C01115.5	Evaluate structure of organic compounds using suitable spectroscopic tools.
Advanced Pharmacology-I Lab 21S01106	C01116.1	Perform Various routes of drug administration.
	C01116.2	Perform blood sampling, anesthesia and euthanasia of experimental animals.
	C01116.3	Estimate the dose response curve of drugs on isolated tissue preparation.
	C01116.4	Determination the of pA2 value on isolated tissues.
	C01116.5	Estimate the Bioassay of drugs on isolated tissue preparation.



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## M.Pharmacy (Pharmacology) I Year II Semester (R21) (II Semester)

Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Advanced Pharmacology - II 21S01201	C01121.1	Understand and explain Molecular and cellular mechanism of action of hormones and drugs used to regulate the hormonal imbalance.
	C01121.2	Aknowledge and explain the Cellular and molecular mechanism of actions and resistance of antimicrobial agents.
	C01121.3	Understand and explain the Immunopharmacology Cellular and biochemical mediators of inflammation and immune response.
	C01121.4	Know and explain the Chronopharmacology Biological and circadian rhythms, applications of chronotherapy in various diseases.
	C01121.5	Understand and explain Generation of free radicals, role of free radicals in etiopathology of various diseases & Protective activity of certain important antioxidant Recent Advances in Treatment.
Pharmacological Screening Methods & Toxicology 21S01202	C01122.1	Appraise the regulations and ethical requirement for the usage of experimental animals and study its usage in drug discovery process and good laboratory.
	C01122.2	Describe the various newer screening methods involved in the drug discovery process for drugs used in Nervous system.
	C01122.3	Describe the various newer screening methods involved in the drug discovery process for drugs used in Respiratory, Reproductive and Digestive system.
	C01122.4	Describe the various newer screening methods involved in the drug discovery process for drugs used in Cardiovascular system and metabolic disorders.
	C01122.5	Describe the various newer screening methods involved in the drug discovery process for drugs used in Immune system.
Principles of Drug Discovery 21S01203	C01123.1	Outline the overview of modern drug discovery process.
	C01123.2	Explain various lead seeking and lead optimization.
	C01123.3	Understand the methods the followed in various Rational Drug Design techniques in screening.
	C01123.4	Study the importance of the role of genomics, proteomics and bioinformatics in drug discovery.
	C01123.5	Appreciate the importance of the role of computer aided drug design in drug discovery.



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### M.Pharmacy (Pharmacology) I Year II Semester (R21) (II Semester)

Subject Name & Code	CO's Number	Course Outcomes (CO'S) Upon completion of the course student will be able to
Clinical Research and Pharmacovigilance 21S01204	C01124.1	Explain the regulatory requirements for conducting clinical trail.
	C01124.2	Demonstrate the types of clinical trail design and explain the responsibilities of key players involved in clinical trails.
	C01124.3	Understand the various techniques and guidelines to the preparation of documents in clinical trail.
	C01124.4	Explain the principles of Pharmacovigilance and know the new adverse drug reactions and their assessment.
	C01124.5	Perform the adverse drug reaction reporting systems and communication in pharmacovigilance.
Advanced Pharmacology – II Lab 21S01205	C01125.1	Perform the effect of drugs on chick & rat mean arterial blood pressure
	C01125.2	Perform Identify & isolate DNA& RNA from various sources
	C01125.3	Determination of Gene amplification by PCR.
	C01125.4	Analyze Enzyme based in-vitro assay
	C01125.5	Determination of Apoptosis by fluorescent imaging studies
Pharmacological Screening Methods & Toxicology Lab 21S01206	C01126.1	Recall the various newer screening methods involved in the drug discovery process.
	C01126.2	Understand and analyze the pharmacological and toxicological screening method for drug in drug discovery process.
	C01126.3	Demonstrate the toxicity studies as per OECD guidelines.
	C01126.4	Explain the functional observation battery tests.



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<b>M.Pharmacy (Pharmacology) II Year I Semester (R21) (III Semester)</b>		
<b>Subject Name &amp; Code</b>	<b>CO's Number</b>	<b>Course Outcomes (CO'S) Upon completion of the course student will be able to</b>
Research Methodology and Intellectual Property Rights 21DRM101	C01211.1	Illustrate research problem formulation.
	C01211.2	Analyze research related information and research ethics.
	C01211.3	Learn how to write research proposal and the effective technical writing
	C01211.4	Explain how IPR would take such important place in growth of individuals & nation, to summarize the need of information about Intellectual Property Right to be promoted among student community.
	C01211.5	Relate that IPR protection provides an incentive to inventors for further research work and investment in R & D, which leads to creation of new and better products, and in turn brings about economic growth and social benefits.
Pharmaceutical Validation 21SOE301a	C01212.1	Student shall be able to explain the aspects of validation and qualification of equipment.
	C01212.2	Able to perform qualification of analytical instruments and glass wares.
	C01212.3	Learn about validation of utility systems and qualification of laboratory equipment understand the importance of cleaning validation.
	C01212.4	Understand the importance of cleaning validation.
	C01212.5	It develops proper understanding of analytical method validation ICH guidelines and USP.