ARYA College of Pharmacy
(Affiliated to RUHS, Jaipur • Approved by PCI, AICTE, New Delhi)
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| M.PHARMA I Semester (PHARMACEUTICS)		
COURSE CODE/COURSE TITLE	**COs**	**COURSE OUTCOME**
(MPH 101T) MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	CO1	Know advanced analytical instrumental techniques for identification, characterization and quantification of drugs.
	CO2	know Chemicals and Excipients for various analytical techniques
	CO3	know the analysis of various drugs in single and combination dosage forms
	CO4	Theoretical and practical skills of the instruments dealt are NMR, Mass spectrometer, IR, HPLC, GC etc.
	CO5	theoritical and practical aspects of Immunological assays
(MPH 102T) DRUG DELIVERY SYSTEMS	CO1	understand advances in novel drug delivery systems.
	CO2	know various approaches for development of novel drug delivery systems.
	CO3	The criteria for selection of drugs and polymers for the development of delivering system
	CO4	The formulation and evaluation of Novel drug delivery systems.
(MPH 103T) MODERN PHARMACEUTICS	CO1	know the elements of preformulation studies
	CO2	understand the Active Pharmaceutical Ingredients and Generic drug Product development
	CO3	appreciate Industrial Management and GMP Considerations
	CO4	know Optimization Techniques & Pilot Plant Scale Up Techniques
	CO5	perform Stability Testing, sterilization process & packaging of dosage forms.
(MPH 104T) REGULATORY AFFAIRS	CO1	The Concepts of innovator and generic drugs, drug development process
	CO2	The Regulatory guidance's and guidelines for filing and approval process
	CO3	Preparation of Dossiers and their submission to regulatory agencies in different countries
	CO4	Post approval regulatory requirements for actives and drug products
	CO5	requirements for approvals for conducting and monitoring of clinical trials, Pharmacovigilence Program
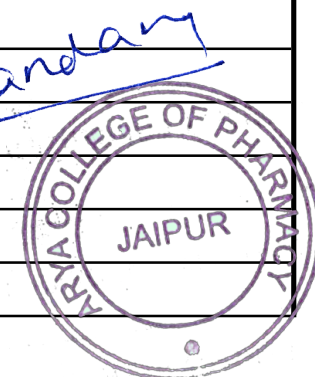
M.PHARMA II Semester (PHARMACEUTICS)		
COURSE CODE/COURSE TITLE		**COURSE OUTCOME**
(MPH 201T) MOLECULAR PHARMACEUTICS (NANO TECHNOLOGY & TARGETED DDS) (NTDS)	CO1	impart knowledge on the area of advances in novel drug delivery systems.
	CO2	know various approaches for development of novel drug delivery systems.
	CO3	design criteria for selection of drugs and polymers for the development of NTDS
	CO4	know mulation and evaluation of novel drug delivery systems
	CO5	design Nucleic acid based therapeutic delivery system, antisense molecules and aptamers as drugs of future
(MPH 202T) ADVANCED BIOPHARMACEUTICS & PHARMACOKINETICS	CO1	know the basic concepts in biopharmaceutics and pharmacokinetics
	CO2	know use of raw data and derive the pharmacokinetic models and parameters to describe the process of drug ADME
	CO3	understand critical evaluation of biopharmaceutic studies involving drug product equivalency.
	CO4	design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters.
	CO5	know potentialof clinical pharmacokinetic problems and application of basics of pharmacokinetic
(MPH 203T) COMPUTER AIDED DRUG DEVELOPMENT	CO1	know History of Computers in Pharmaceutical Research and Development
	CO2	understand Computational Modeling of Drug Disposition and application of Computers in Preclinical Development
	CO3	describe Optimization Techniques in Pharmaceutical Formulation
	CO4	explain Computers in Market Analysis and Clinical Development
	CO5	explain Computers in Artificial Intelligence (AI) and Robotics, Computational fluid dynamics(CFD)
(MPH 204T) COSMETICS AND COSMECEUTICALS	CO1	Key ingredients used in cosmetics and cosmeceuticals.
	CO2	Key building blocks for various formulations.
	CO3	Current technologies in the cosmetics and cosmeceuticals market
	CO4	Scientific knowledge to develop cosmetics and cosmeceuticals with desired Safety, stability, and efficacy.
	CO5	Regulatory provisions relating to manufacture of cosmetics
M.PHARMA I Semester (PHARMACOLOGY)		
COURSE CODE/COURSE TITLE		**COURSE OUTCOME**
	CO1	Know advanced analytical instrumental techniques for identification, characterization and quantification of drugs.
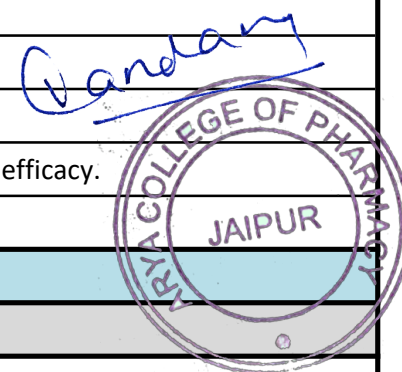
(MPL 101T) **MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES**	CO2	know Chemicals and Excipients for various analytical techniques
	CO3	know the analysis of various drugs in single and combination dosage forms
	CO4	Theoretical and practical skills of the instruments dealt are NMR, Mass spectrometer, IR, HPLC, GC etc.
	CO5	theoritical and practical aspects of Immunological assays
(MPL 102T) **ADVANCED PHARMACOLOGY I**	CO1	General aspects and steps involved in neurotransmission and Neurohumoral transmission
	CO2	Discuss the pathophysiology and pharmacotherapy of certain diseases
	CO3	Explain the mechanism of drug actions at cellular and molecular level
	CO4	Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases
	CO5	know recent advances in the drugs used for the treatment of various diseases
(MPL 103T) **PHARMACOLOGICAL AND TOXICOLOGICAL SCREENING METHODS - I**	CO1	Appraise the regulations and ethical requirement for the usage of experimental animals.
	CO2	Describe the various animals used in the drug discovery process and GLP in maintenance and handling of experimental animals
	CO3	Describe the various newer screening methods involved in the drug discovery process
	CO4	Appreciate and correlate the preclinical data to humans
	CO5	know basic knowledge of various in-vitro and in-vivo preclinical evaluation processes
(MPL 104T) **CELLULAR AND MOLECULAR PHARMACOLOGY**	CO1	the structure and functions of cellular components and help to understand the interaction of these components with drugs.
	CO2	Explain the receptor signal transduction processes
	CO3	Explain the molecular pathways affected by drugs
	CO4	Appreciate the applicability of molecular pharmacology and biomarkers in drug discovery process.
	CO5	Demonstrate molecular biology techniques as applicable for pharmacology
M.PHARMA II Semester (PHARMACOLOGY)		
(MPL 201T) **ADVANCED PHARMACOLOGY II**	CO1	recent advances in the drugs used for the treatment of various diseases.
	CO2	Explain the mechanism of drug actions at cellular and molecular level
	CO3	Discuss the Pathophysiology and pharmacotherapy of certain diseases
	CO4	Understand the adverse effects, contraindications and clinical uses of drugs used in treatment of diseases
	CO5	tell Generation of free radicals, role of free radicals in etiopathology of various diseases
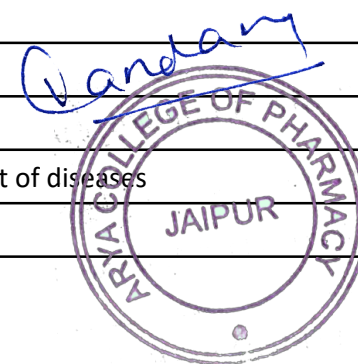
(MPL 202T) **PHARMACOLOGICAL AND** **TOXICOLOGICAL SCREENING** **METHODS-II**	CO1	preclinical safety and toxicological evaluation of drug & new chemical entity
	CO2	Explain the various types of toxicity studies.
	CO3	Appreciate the importance of ethical and regulatory requirements for toxicity studies.
	CO4	Demonstrate the practical skills required to conduct the preclinical toxicity studies.
	CO5	Toxicokinetic evaluation in preclinical studies Importance and applications of toxicokinetic studies.
(MPL 203T) **PRINCIPLES OF DRUG** **DISCOVERY**	CO1	Explain the various stages of drug discovery
	CO2	Appreciate the importance of the role of genomics, proteomics and bioinformatics in drug discovery
	CO3	Explain various targets for drug discovery
	CO4	Explain various lead seeking method and lead optimization
	CO5	Appreciate the importance of the role of computer aided drug design in drug discovery
(MPL 204T) **CLINICAL RESEARCH AND** **PHARMACOVIGILANCE**	CO1	Explain the regulatory requirements for conducting clinical trial
	CO2	Explain the responsibilities of key players involved in clinical trials
	CO3	Execute safety monitoring, reporting and close-out activities
	CO4	Explain the principles of Pharmacovigilance
	CO5	Detect new ADRs and their assessment, adverse drug reaction reporting systems and communication in Pharmacovigilance