



Course Outcomes

PROGRAM: M. Pharm Pharmaceutics

Name of Subject with Code	CO Code	Course Outcomes
M.Pharm -I (Semester-I) in (Pharmaceutics)		
MPH101T Modern Pharmaceutical Analytical Technique	MPH101T_CO1	Demonstrate Assay of single and multiple component pharmaceuticals with the help of different analytical techniques using UV, IR Spectrofluorimetry and Flame Emission Spectroscopy
	MPH101T_CO2	Describe the principles of NMR Spectroscopy and its applications
	MPH101T_CO3	Illustrate the principle, instrumentation and applications of mass spectroscopy and study different types of ionization
	MPH101T_CO4	Explain the various types of chromatographic approaches used in analysis of pharmaceuticals.
	MPH101T_CO5	Explain the principle, instrumentation and applications of electrophoresis and describe fundamentals of X-ray crystallography
	MPH101T_CO6	Illustrate the assay of RIA, ELISA and Bioluminescence
MPH102T Drug Delivery System	MPH102T_CO1	Describe the principle associated with the development and characterization of sustained release formulations
	MPH102T_CO2	Explain principle and the fundamentals in relation to controlled drug delivery system
	MPH102T_CO3	Explain formulation and evaluation aspects regarding Gastro-retentive Drug Delivery System
	MPH102T_CO4	Describe the barriers for drug permeation and methods to overcome barriers for ocular drug delivery
	MPH102T_CO5	Explain formulation and evaluation aspects regarding Transdermal Drug delivery System
	MPH102T_CO6	Explain fundamentals, formulation and evaluation related to proteins, peptide and vaccines
MPH103T Modern Pharmaceutics- Theory	MPH103T_CO1	Describe the concept of preformulation, stability testing and theories of pharmaceutical dispersion.
	MPH103T_CO2	Explain the different optimization techniques in pharmaceutical formulation with applications.
	MPH103T_CO3	Explain validation, ICH and WHO guidelines for calibration and validation of equipment's.
	MPH103T_CO4	Describe the objectives and policies of cGMP and industrial management.
	MPH103T_CO5	Describe the fundamentals of compression and compaction.
	MPH103T_CO6	Explain the principle involved in consolidation parameters in pharmaceutical formulation.

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MPH104T Regulatory Affair	MPH104T_CO1	Describe the role and importance of documentation in pharmaceutical industry
	MPH104T_CO2	Describe the regulatory requirements for the product approval.
	MPH104T_CO3	Explain CMC, Post-approval regulatory and ICH guidelines.
	MPH104T_CO4	Explain the non-clinical drug development process.
	MPH104T_CO5	Acquire the knowledge on clinical trials data for the conduction and approval.
	MPH104T_CO6	Explain the concept of pharmacovigilance and process of monitoring in clinical trials
MPH105P Pharmaceutics Practical -I	MPH105P_CO1	Analysis of pharmacopoeial compounds and their formulations using UV, HPLC, and GC.
	MPH105P_CO2	Estimation of various compounds using fluorimetry and flame photometry.
	MPH105P_CO3	Explain formulation and evaluation techniques for sustained release and controlled release formulations.
	MPH105P_CO4	Explain formulation and evaluation of muco-adhesive and transdermal drug delivery systems
	MPH105P_CO5	Study the various pre-formulation concepts in drug development
	MPH105P_CO6	Explain the applications of pharmacokinetic models for different dosage forms,

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M. Pharm I (Semester-II) in Pharmaceutics

MPH201T Molecular Pharmaceutics (Nano Tech and Targeted DDS)- Theory	MPH201T_CO1	Explain the concept and process in relation to targeted drug delivery
	MPH201T_CO2	Explain preparation and evaluation of Nanoparticles and Liposomes
	MPH201T_CO3	Explain preparation and evaluation of microcapsules, microspheres Niosomes, Aquasomes, phytosomes and electrosomes.
	MPH201T_CO4	Explain preparation and evaluation of pulmonary drug delivery system.
	MPH201T_CO5	Describe the gene delivery, gene therapy and various other gene delivery systems.
	MPH201T_CO6	Describe the knowledge related to pharmacokinetics and bio distribution of therapeutics.
MPH202T Advanced Biopharmaceutics & Pharmacokinetics- Theory	MPH202T_CO1	Explain the concept related to Biopharmaceutics and pharmacokinetics.
	MPH202T_CO2	Describe the various biopharmaceutics consideration in drug product design and in vitro drug product performance.
	MPH202T_CO3	Describe the basic considerations, pharmacokinetic models and application of pharmacokinetic in modified drug delivery systems.
	MPH202T_CO4	Explain the effects of various drug interactions like protein binding, tissue binding, cytochrome p-450 and transporters.
	MPH202T_CO5	Design and Evaluate in vivo performance of a drug substance and bioequivalence studies.
	MPH202T_CO6	Apply the knowledge of pharmacokinetics and pharmacodynamics on targeted drug delivery systems and biotechnological products.
MPH203T Computer Aided Drug Delivery System- Theory	MPH203T_CO1	Describe the history of computer in pharmaceutical research and development.
	MPH203T_CO2	Explain the Quality-by-Design in pharmaceutical development
	MPH203T_CO3	Describe the use of computers in modelling of drug disposition.
	MPH203T_CO4	Explain the concept of optimization and its parameters in pharmaceutical product development.
	MPH203T_CO5	Explain the computer-aided biopharmaceutical characterization, simulation in pharmacokinetics, pharmacodynamics and clinical development.
	MPH203T_CO6	Describe the artificial intelligence, robotics and computational fluid dynamics in pharmaceuticals.

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MPH204T Cosmetic and Cosmeceuticals - Theory	MPH204T_CO1	Describe the concept and regulatory provision for cosmetics and cosmeceuticals.
	MPH204T_CO2	Explain the biological aspects and problems associated with skin, hair and oral cavity.
	MPH204T_CO3	Describe the building blocks for different product formulations of cosmetics and cosmeceuticals.
	MPH204T_CO4	Describe the controversial ingredients like parabens, formaldehyde liberators and dioxone.
	MPH204T_CO5	Explain the formulation development and regulatory aspects of cosmetics and cosmeceuticals.
	MPH204T_CO6	Explain guidelines and challenges for herbal cosmetics related to skin, hair and oral cavity.
MPH205P Pharmaceutics Practical - II	MPH205P_CO1	Describe the effect of temperature change, non-solvent addition, and incompatible polymer addition in microcapsules preparation.
	MPH205P_CO2	Explain preparation and evaluation of different drug deliveries like alginate beads, microspheres, niosomes, liposomes and spherules.
	MPH205P_CO3	Explain solid dispersion study for poorly soluble and protein binding studies.
	MPH205P_CO4	Explain bioavailability studies, pharmacokinetic and IVIVC.
	MPH205P_CO5	Describe Quality-by-Design and Design-of-Experiment in pharmaceutical development.
	MPH205P_CO6	Explain the preparation and evaluation of various cosmetic products like creams, shampoo and tooth paste.
M. Pharm II (Semester-III) in Pharmaceutics		
MRM301T Research Methodology and Biostatistics - Theory	MRM301T_CO1	Describe in general about research methodology.
	MRM301T_CO2	Describe about the bio-statistics used in research.
	MRM301T_CO3	Apply various bio-statistical methods for expected outcome in research
	MRM301T_CO4	Explain the various aspects of medical research.
	MRM301T_CO5	Explain the guidelines related to CPCSEA committee.
	MRM301T_CO6	Describe about the declaration of Helsinki.