

Course Outcomes of M. Pharmacy (Pharmaceutics)

First Year M. Pharmacy (SEM-I)

Course Name	MPH101T (Modern Pharmaceutical Analytical Techniques- Theory)	Year of Study	2022-23
	Students will be able to:		
MPH101T.1	Apply the basic theoretical principles of spectroscopic and hyphenated techniques in relation to drug analysis.		
MPH101T.2	Understand the principle of chromatographic instruments for separation, identification, and characterization of compounds and drugs.		
MPH101T.3	Explain Instrumentation and relate identification of compounds by electrophoresis technique and X-ray crystallography		
MPH101T.4	Summarize the various types of Thermal techniques like DSC, TGA, DTA and their applications.		
MPH101T.5	Execute the theoretical knowledge for analysis of various compounds and drugs in single and combination dosage forms		

Course Name	MPH102T (Drug Delivery System)	Year of Study	2022-23
MPH102T.1	Understand principles and mechanisms of SR, CR, and Rate-Controlled Drug Systems and criteria for selection of drugs and polymers.		
MPH102T.2	Design tailored drug delivery approaches suitable for specific patient categories and apply personalized medicine concepts.		
MPH102T.3	Design, formulate, and evaluate muco-adhesive Buccal, Ocular, and Transdermal Drug Delivery Systems.		
MPH102T.4	Recognize and address the unique challenges in Protein, Peptide, and Vaccine delivery systems emphasizing their formulations and evaluations		
MPH102T.5	Analyze the cost-effectiveness, therapeutic efficacy, and patient-centric benefits of various novel drug delivery systems		

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Course Name	MPH103T (Modern Pharmaceutics)	Year of Study	2022-23
MPH103T.1	Understand the concept of preformulation and optimization studies and its role in formulation development.		
MPH103T.2	Know the ICH and WHO guidelines for calibration and validation of equipments		
MPH103T.3	Know the concept of Total Quality Management and GMP Considerations in order to obtain a quality product		
MPH103T.4	Understand the importance of materials management and production management in pharmaceutical industries.		
MPH103T.5	Understand the fundamental physical concepts and processes involved in tableting and to comprehend the role of dissolution studies and its interpretation for understanding drug release kinetics.		

Course Name	MPH104T (Regulatory Affairs)	Year of Study	2022-23
MPH104T.1	Understand and explain pharmaceutical documentation, including DMF, MFR, and records. Grasp generic drug development, ANDA, NDA processes, and regulations like the Hatch-Waxman act.		
MPH104T.2	Evaluate the regulatory requirements for various product approvals and proficiently prepare submissions in CTD and eCTD formats, aligning with regulatory guidelines.		
MPH104T.3	Interpret and apply the regulatory landscapes of various global regions including EU, MHRA, TGA, etc., emphasizing the pharmacist's role in ensuring international compliance and societal health benefits.		
MPH104T.4	Analyse the processes and requirements of non-clinical drug development, including the global submission protocols for IND, NDA, ANDA, and the ethical considerations of IMPD and investigator brochure		
MPH104T.5	Design and assess clinical trial protocols, ensuring patient safety, ethical consent processes, and effective pharmacovigilance, while continuously updating knowledge on evolving global standards and regulations.		

Course Name	MPH105P (Pharmaceutics Practical I)	Year of Study	2022-23
MPH105P.1	Understand analysis of compounds and their formulations by UV-Vis spectrophotometer, Column chromatography, HPLC, Gas chromatography.		
MPH105P.2	Gain knowledge of preparation and evaluation of floating, hydro dynamically balanced drug delivery system, sustained release matrix tablet, mucoadhesive tablets, transdermal patch, etc.		
MPH105P.3	Understand importance of preformulation studies, micromeritic properties of powders and granules, effect of various parameters on disintegration and dissolution of tablet.		

Course Name	Seminar/ Assignment (MPH106S)	Year of Study	2022-23
	Student will be able to....		
MPH106S	Learn effective oral and written presentation, listening and discussion skills through the presentation aids as well as nonverbal communication		
MPH106S	Prepare a well-organized report employing elements of technical writing and critical thinking.		
MPH106S	Demonstrate the capability to explain, interpret and analyze technical issues and develop competence in presentation.		

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First Year M. Pharmacy (SEM-II)

Course Name	MPH201T (Molecular Pharmaceutics (Nano Tech and Targeted DDS))	Year of Study	2022-23
MPH201T.1	Gain a foundational knowledge of targeted drug delivery mechanisms, focusing on the biological processes and criteria essential for drug and polymer selection in nano technology & targeted DDS.		
MPH201T.2	Acquire skills in formulating, preparing, and evaluating diverse nanoparticle-based systems, including liposomes, micro-capsules, and advanced delivery systems		
MPH201T.3	Apply principles of molecular pharmaceutics to design respiratory and intra-nasal drug delivery systems, ensuring effective drug targeting		
MPH201T.4	Understanding and application of nucleic acid-based therapeutic delivery, emphasizing gene therapy approaches, expression systems, and the future potential of antisense molecules and aptamers.		
MPH201T.5	Evaluate the societal and clinical implications of novel drug delivery systems, recognizing their potential in improving therapeutic outcomes and patient care.		

Course Name	MPH202T (Advanced Biopharmaceutics & Pharmacokinetics)	Year of Study	2022-23
MPH202T.1	Understand the foundational principles of biopharmaceutics and pharmacokinetics, encompassing drug absorption mechanisms, gastrointestinal tract factors, and the role of dosage forms in drug absorption.		
MPH202T.2	Analyze and interpret raw data to derive pharmacokinetic models and parameters that describe drug absorption, distribution, metabolism, and elimination, focusing on non-linear pharmacokinetics and potential drug interactions.		
MPH202T.3	Critically evaluate biopharmaceutic studies with an emphasis on drug product equivalency, in vitro drug product performance, and the design implications for bioavailability and bioequivalence, including in vivo and in vitro correlations		
MPH202T.4	Design and assess effective dosage regimens based on pharmacokinetic and biopharmaceutic parameters, understanding their significance in design of modified-release drug products and targeted drug delivery systems		
MPH202T.5	Recognize and address potential clinical pharmacokinetic challenges, applying foundational principles to biotechnological products, including proteins, peptides, monoclonal antibodies, and gene therapies.		

Course Name	MPH203T (Computer Aided Drug Delivery System)	Year of Study	2022-23
MPH203T.1	To study the role of computers and quality by design concepts in pharmaceutical research and formulation development.		
MPH203T.2	To learn computational modelling techniques of drug disposition		
MPH203T.3	To inculcate the knowledge of innovative uses of computer in formulation development and market analysis		
MPH203T.4	To interpret computer aided biopharmaceutical characterization using computer simulations during clinical development.		
MPH203T.5	To apprehend the importance of artificial intelligence, robotics and computational fluid dynamics in pharmaceutical automation.		

Course Name	MPH204T (Cosmetic and Cosmeceuticals)	Year of Study	2022-23
MPH204T.1	Understand the regulatory provisions relating to manufacturing, sale and import of cosmetics.		
MPH204T.2	Know the biological aspects and problems associated to skin, hair and oral cavity in relation to cosmetics.		
MPH204T.3	Gain knowledge of key ingredients and building blocks used in formulation of cosmetics and cosmeceuticals.		
MPH204T.4	Acquire scientific knowledge to develop cosmetics and cosmeceuticals with desired safety, efficacy and stability.		
MPH204T.5	Understand herbal ingredients used in hair care, skin care and oral care formulations and challenges in formulating herbal cosmetics.		

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Course Name	MPH205P (Pharmaceutics Practical II)	Year of Study	2022-23
MPH205P.1	Understand protein binding studies of a highly protein bound drug & poorly protein bound drug.		
MPH205P.2	Gain knowledge of preparation and evaluation of microspheres, liposomes, neosomes and various cosmetic formulations etc.		
MPH205P.3	Understand Design of experiments and formulation data analysis using Design Expert [®] Software and Computer Simulations in Pharmacokinetics and Pharmacodynamics.		

Course Name	Seminar/ Assignment (MPH206S)	Year of Study	2022-23
	Student will be able to....		
MPH206S	Learn effective oral and written presentation, listening and discussion skills through the presentation aids as well as nonverbal communication		
MPH206S	Prepare a well-organized report employing elements of technical writing and critical thinking.		
MPH206S	Demonstrate the capability to explain, interpret and analyze technical issues and develop competence in presentation.		

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M. Pharmacy SEM-III

Course Name	Research Methodology and Biostatistics (MRM301T)	Year of Study	2022-23
	Upon completion of course students will be able to...		
MRM301T.1	To understand the various aspects of research methodology and the use of biostatistics in research and development.		
MRM301T.2	To compare the various statistical techniques and their applications during research		
MRM301T.3	To select and perform the appropriate parametric/ nonparametric tests as per the data, manually as well as using statistical software models and tools.		
MRM301T.4	To elaborate with examples the ethics involved in medical and pharmaceutical research		
MRM301T.5	To relate and interpret the guidelines of CPCSEA for laboratory animal facilities and basic principles of medical research.		

Course Name	MJC302 (Journal Club)	Year of Study	2022-23
	Students will be able to.....		
MJC302 .1	Keep themselves abreast of new knowledge and generate awareness of current research findings		
MJC302.2	Develop analytical, interpreting abilities, problem-solving skills and utilize research in evidence-based practice		
MJC302.3	Improve debating skills and demonstrate leadership skills.		

Course Name	RPP303 (Discussion / Presentation (Proposal Presentation))	Year of Study	2022-23
RPP303.1	Support the chosen research area and discuss the acquired skills to prepare alternate protocols/outcomes in unexpected circumstances		
RPP303.2	Discuss novelty, ethical aspects, and environmental concerns as well as the drawbacks of the research project		
RPP303.3	Defend their research project effectively and confidently in front of the experts.		

Course Name	RWP304 (Research Work)	Year of Study	2022-23
RWP304.1	Review scientific literature for the research proposal and record evidence-based published work		
RWP304.2	Perform research independently by improving problem-solving capabilities and by understanding ethics in research.		
RWP304.3	Develop theoretical and practical skills by performing research-based experiments on different instruments and gain knowledge on the assimilation of data and scientific writing		

M. Pharmacy SEM-IV

Course Name	MJC401 (Journal Club)	Year of Study	2022-23
MJC401.1	Keep themselves abreast of new knowledge and generate awareness of current research findings		
MJC401.2	Develop analytical, interpreting abilities, problem-solving skills and utilize research in evidence-based practice		
MJC401.3	Improve debating skills and demonstrate leadership skills.		

Course Name	RWP402 (Research Work)	Year of Study	2022-23
RWP402.1	Review scientific literature for the research proposal and record evidence-based published work		
RWP402.2	Perform research independently by improving problem-solving capabilities and by understanding ethics in research.		
RWP402.3	Develop theoretical and practical skills by performing research-based experiments on different instruments and gain knowledge on the assimilation of data and scientific writing		

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Course Name	RPP403 (Discussion/Final Presentation)	Year of Study	2022-23
RPP403.1	Support the chosen research area and discuss the acquired skills to prepare alternate protocols/outcomes in unexpected circumstances		
RPP403.2	Discuss novelty, ethical aspects, and environmental concerns as well as the drawbacks of the research project		
RPP403.3	Defend their research project effectively and confidently in front of the experts.		