Course Outcomes: M.Pharm.

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M.Pharm. Q.A. Course Outcomes Semester I

MQA 101T	After completion of this course students should be able to:	
MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	MQA 101T.1	Know the analysis of various drugs in single & combination dosage forms
	MQA 101T.2	Learn Theoretical & Practical skills of instruments
	MQA 101T.3	UV-Visible Spectroscopy,IR Spectroscopy, Spectrofluorometric, AAS
	MQA 101T.4	NMR Spectroscopy : Quantam number, Principle ,Theory, Instrumentation
	MQA 101T.5	Mass Spectroscopy : Principle ,Theory, Instrumentation
	MQA 101T.6	Chromatography : Principle, Apparatus, Instrumentation, Types
	MQA 101T.7	Electrophorosis : Principle ,Theory, Factors affecting separation
	MQA 101T.8	Regulatory Compliance through Quality Management &4Hrs development of Quality
MQA 102T	After completion of this course students should be able to understand:	
QUALITY MANAGEMENT SYSTEMS	MQA.102T.1	Importance of Quality
	MQA 102T.2	Pharmaceutical Quality Management : ISO management systems
	MQA 102T.3	Six System Inspection Model- Tools for quality improvement
	MQA 102T.4	Analysis of issues in quality and stability testing
	MQA 102T.5	Statistical approaches for quality
MQA 103T	After completion of this course students should be able to:	
QUALITY CONTROL AND QUALITY ASSURANCE	MQA 103T.1	Understand the cGMP aspects in a Pharmaceutical industry
	MQA 103T.2	appreciate the importance of documentation
	MQA 103T.3	Analysis of raw materials, finished products, packaging materials
	MQA 103T.4	understand the scope of quality certifications applicable to Pharmaceutical industries
	MQA 103T.5	Understand the responsibilities of QA&QC departments.

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M.Pharm. Q.A. Course Outcomes Semester I

MQA 104T	After completion of this course students should be able to:	
PRODUCT DEVELOPMENT AND TECHNOLOGY TRANSFER	MQA 104T.1	Understand new product development process
	MQA 104T.2	Understand necessary information to transfer technology from R&D to Manufacturing
	MQA 104T.3	Understand Principles of drug discovery and Development
	MQA 104T.4	Understand Pre-formulation studies
	MQA 104T.5	Know Pilot plant scale up
	MQA 104T.6	Know Pharmaceutical Packaging
	MQA 104T.7	Technology Transfer : Development of Technology by R&D, Documentation
MQA 105P	MQA 105P.1	Analyse Pharmacopoeial compounds in bulk and in their formulations
QUALITY ASSURANCE PRACTICAL - I	MQA 105P.2	Perform experiments based on HPLC GC, UV, AAS
	MQA 105P.3	Develop stability study protocols
	MQA 105P.4	Carry out preformulation studies, accelerated studies and QC tests

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M.Pharm. Q.A. Course Outcomes Semester II

MQA 201T	After completion of this course students should be able to understand:	
Hazard and safety Management	MQA 201T.1	environmental problems among learners
	MQA 201T.2	Multidisciplinary nature of environmental studies
	MQA 201T.3	Air based hazards
	MQA 201T.4	Chemical based hazards
	MQA 201T.5	Fire and Explosion
	MQA 201T.6	Hazard and Risk Management
MQA 202T	After completion of this course students should be able to understand :	
Pharmaceutical Validation	MQA 202T.1	concept of calibration and validation
	MQA 202T.2	Validation of instruments
	MQA 202T.3	Qualification of Manufacturing Instruments like LC-MS,HPLC,HPTLC etc
	MQA 202T.4	Qualification of Laboratory Equipment: Disintegration Test
	MQA 202T.5	Process Validation
	MQA 202T.6	Cleaning Validation
	MQA 202T.7	General Principle of Intellectual Property
MQA 203T	After completion of this course students should be able to:	
Audits and regulatory compliance	MQA 203T.1	Understand the importance of auditing and their methods
	MQA 203T.2	Know Objective Planning Process and prepare audit report
	MQA 203T.3	Understand Role of quality systems and audits in pharmaceutical manufacturing environment
	MQA 203T.4	Know Auditing of vendors and production department
	MQA 203T.5	Know Auditing of Microbiological Laboratory
	MQA 203T.6	Know Auditing of Quality Assurance Department

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M.Pharm. Q.A. Course Outcomes Semester II

MQA 204T	After completion of this course students should be able to understand:	
Pharmaceutical Manufacturing Technology	MQA 204T.1	Pharmaceutical Industry Developments
	MQA 204T.2	Aseptic process technology
	MQA 204T.3	Non Sterile manufacturing process technology
	MQA 204T.4	Containers and closures for pharmaceuticals, packaging technology
	MQA 204T.5	Quality by design (QbD)and process analytical technology

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M.Pharm. Pharmacology Course Outcomes Semester I

MPL 101T	After completion of this course students should be able to learn:	
MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES	MPL 101T.1	Theoretical & Practical skills of instruments
	MPL 101T.2	UV-Visible Spectroscopy,IR Spectroscopy, Spectrofluorimetry, AAS
	MPL 101T.3	NMR Spectroscopy : Quantum number,Principle,Theory, Instrumentation
	MPL 101T.4	Mass Spectroscopy : Principle ,Theory, Instrumentation
	MPL 101T.5	Chromatography : Principle, Apparatus, Instrumentation,Types
	MPL 101T.6	Electrophorosis : Principle ,Theory, Factors affecting separation
	MPL 101T.7	Potentiometry
MPL 102T	After completion of this course students should be able to underestand:	
ADVANCED PHARMACOLOGY	MPL 102T.1	General Pharmacology, Pharmacokinetics, Pharmacodynamics
	MPL 102T.2	Neurotransmission, Systematic Pharmacology, Autonomic Pharmacology
	MPL 102T.3	Central Nervous System Pharmacology
	MPL 102T.4	Cardiovascular Pharmacology
	MPL 102T.5	Autocoid Pharmacology
MPL 103T	After completion of this course students should be able to:	
PHARMACOLOGICAL AND TOXOLOGICAL SCREENING	MPL 103T.1	Appraise the regulations and ethical requirement for the usage of experimental animals.
	MPL 103T.2	Describe the various animals used in the drug discovery process and good laboratory practices in maintenance and handling of experimental animals
	MPL 103T.3	Describe the various newer screening methods involved in the drug discovery process
	MPL 103T.4	Appreciate and correlate the preclinical data to humans
	MPL 103T.5	Understand Preclinical Screening of new substances for the pharmacological activity

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M.Pharm. Pharmacology Course Outcomes Semester I

MPL 104T	After completion of this course students should be able to:	
CELLULAR AND MOLECULAR PHARMACOLOGY	MPL 104T.1	Explain the receptor signal transduction processes
	MPL 104T.2	Explain the molecular pathways affected by drugs.
	MPL 104T.3	Appreciate the applicability of molecular pharmacology and biomarkers in drug discovery process
	MPL 104T.4	Demonstrate molecular biology techniques as applicable for pharmacology

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M.Pharm. Pharmacology Course Outcomes Semester II

MPL 201T	After completion of this course students should be able to:	
ADVANCED PHARMACOLOGY II	MPL201T.1	Explain the mechanism of drug actions at cellular and molecular level
	MPL201T.2	Understand Endocrine Pharmacology : Molecular and cellular mechanism of actions of hormones Chemotherapy :
	MPL201T.3	Understand Chemotherapy : Drugs used in protozoal Infections
	MPL201T.4	Understand GIT Pharmacology : Chemo pharmacology, Cardiovascular disease
	MPL201T.5	Understand Free Radical Pharmacology: Generation of free radicals, recent advances in treatment
MPL 202T	After completion of this course students should be able to:	
PHARMACOLOGICAL AND TOXOLOGICAL SCREENING II	MPL 202T.1	Explain the various types of toxicity studies
	MPL 202T.2	Understand Acute, Subacute and chronic oral ,Acute eye irritation
	MPL 202T.3	Understand Reproductive toxiciology studies
	MPL 202T.4	Understand IND enabling studies : Defination if IND Industry Perspective
	MPL 202T.5	Understand Toxicokinetics : Evalution in Preclinical Studies, Alternative method of Animal toxicity testing
MPL 203T	After completion of this course students should be able to Explain:	
PRINCIPLES OF DRUG DISCOVERY	MPL 203T.1	various stages of drug discovery
	MPL 203T.2	Lead Identification, Protein Structure
	MPL 203T.3	Rational drug Design : Traditional Vs rational drug design
	MPL 203T.4	Molecular docking : rigid docking, flexible docking
	MPL 203T.5	QSAR Stastical Method : regression analysis, Prodrug design basic concept

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MPL 204T	After completion of this course students should be able to understand:	
CLINICAL RESEARCH AND PHARMACOVIGILANCE	MPL 204T.1	Regulatory perspective of clinical trial
	MPL 204T.2	Clinical trials
	MPL 204T.3	Clinical trials documentation
	MPL 204T.4	Basic aspects and terminologies and establishment of pharmacovigilance
	MPL 204T.5	Methods,ADRreporting and tools used in pharmacovigilance
	MPL 204T.6	Pharmacoeconomics, safety pharmacology

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M. Pharm Pharmaceutics Course Outcomes Semester I

MPH 101T	After completion of this course students should be able to :	
MPAT	MPH 101T.1	Have knowledge of Chemicals and Excipients
	MPH 101T.2	The analysis of various drugs in single and combination dosage forms
	MPH 101T.3	Theoretical and practical skills of the instruments
MPH 102T	After completion of this course students should be able to understand	
DRUG DELIVERY SYSTEMS	MPH 102T.1	The various approaches for development of novel drug delivery systems.
	MPH 102T.2	The criteria for selection of drugs and polymers for the development of delivering system
	MPH 102T.3	The formulation and evaluation of Novel drug delivery systems
MPH 103T	After completion of this course students should be able to understand:	
MODERN PHARMACEUTICS	MPH 103T.1	The elements of pre formulation studies.
	MPH 103T.2	The Active Pharmaceutical Ingredients and Generic drug Product development
	MPH 103T.3	Industrial Management and GMP Considerations.
	MPH 103T.4	Optimization Techniques & Pilot Plant Scale Up Technique
	MPH 103T.5	Stability Testing, sterilization process &packaging of dosage forms.
MPH 104T	After completion of this course students should be able to understand:	
REGULATORY AFFAIRS	MPH 104T.1	The Concepts of innovator and generic drugs, drug development process
	MPH 104T.2	The Regulatory guidance's and guidelines for filing and approval process
	MPH 104T.3	Preparation of Dossiers and their submission to regulatory agencies in different countries
	MPH 104T.4	Post approval regulatory requirements for actives and drug products Submission of global documents in CTD/ eCTD formats
	MPH 104T.5	Clinical trials requirements for approvals for conducting clinical trials
	MPH 104T.6	Pharmacovigilence and process of monitoring in clinical trials.

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M.Pharm. Pharmaceutics Course Outcomes Semester II

MPH 201T	After completion of this course students should be able to understand	
MOLECULAR PHARMACEUTICS	MPH 201T.1	The various approaches for development of novel drug delivery systems.
	MPH 201T.2	The criteria for selection of drugs and polymers for the development of NTDS
	MPH 201T.3	The formulation and evaluation of novel drug delivery systems
MPH 202T	After completion of this course students should be able to understand	
ADV. BPPK	MPH 202T.1	The basic concepts in biopharmaceutics and pharmacokinetics
	MPH 202T.2	The use raw data and derive the pharmacokinetic models and parameters the best describe the process of drug absorption, distribution, metabolism and elimination.
	MPH 202T.3	The critical evaluation of biopharmaceutic studies involving drug product equivalency
	MPH 202T.4	The design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutic parameters
	MPH 202T.5	The potential clinical pharmacokinetic problems and application of basics of pharmacokinetic
MPH 203T	After completion of this course students should be able to understand	
CADD	MPH 203T.1	Use of Computers in Pharmaceutical Research and Development
	MPH 203T.2	Computational Modeling of Drug Disposition
	MPH 203T.3	Computers in Preclinical Development
	MPH 203T.4	Optimization Techniques in Pharmaceutical Formulation
	MPH 203T.5	Computers in Market Analysis
	MPH 203T.6	Computers in Clinical Development
	MPH 203T.7	Artificial Intelligence (AI) and Robotics
	MPH 203T.8	Computational fluid dynamics(CFD)

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M.Pharm. Pharmaceutics Course Outcomes Semester II

MPH 204T	After completion of this course students should be able to know:	
COSMETICS AND COSMECEUTICALS	MPH 204T.1	Key ingredients used in cosmetics and cosmeceuticals
	MPH 204T.2	Key building blocks for various formulations
	MPH 204T.3	Current technologies in the market
	MPH 204T.4	Various key ingredients and basic science to develop cosmetics and cosmeceuticals
	MPH 204T.5	Scientific knowledge to develop cosmetics and cosmeceuticals with desired Safety, stability, and efficacy

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