Pharmaceutics	
MPAT101T Modern Pharmaceutical Analytical Techniques	CO1: Students will able to describe the instrumentation associated with UV-Visible spectroscopy, IR spectroscopy, spectrofluorimetric, flame emission spectroscopy, and atomic absorption spectroscopy, and choose appropriate solvents and conditions for these techniques and discuss the principles of potentiometry and ion-selective electrodes and their applications in pharmaceutical analysis. CO2: Study of the fundamental principles, laws, and theories underlying UV-Visible spectroscopy, IR spectroscopy, spectrofluorimetry, flame emission spectroscopy, and atomic absorption spectroscopy. CO3: Analyzes and interpretation of UV-Visible, IR, and fluorescence spectra to identify and characterize different compounds and understand the factors affecting their spectral features. CO4: Evaluation of the advantages and disadvantages of various chromatographic techniques, such as thin-layer chromatography (TLC), high-performance liquid chromatography (HPLC), gas chromatography (GC), and electrophoresis, in pharmaceutical analysis. Provide specific examples of situations where one technique might be preferred over the others and justify your choices based on their respective principles and applications. CO5: It provides specific examples of situations where one technique might be preferred over the others and justify your choices based on their respective principles and applications. Create NMR and IR spectrum for various compounds.
MPH102T **Drug Delivery System**	CO1: Understand the fundamental principles of drug delivery systems CO2: Classify different drug delivery systems CO3: Analyze the design and characteristics of membrane reservoir systems. CO4: Gain insights into the pharmacokinetics and pharmacodynamics of drug delivery
MPH103T Modern Pharmaceutics	CO1 Design the elements of preformulation studies and Apply QbD concept to design and optimize pharmaceutical formulations. CO-2 Evaluate various Industrial Management aspects, Pharmaceutical Validation and GMP Considerations.

	CO-3 Analyze the concepts of Physics of tablet compression, compaction and consolidation. CO-4 Apply various Statistical techniques in pharmaceutical development.
MPH104T Regulatory Affair	CO1: Discuss the concept of innovator and generic drugs, the drug development process, and the regulatory guidance and guidelines for the filing and approval process CO2: Categorize the preparation of dossiers and their submission to regulatory agencies in different countries CO3: Assess the post-approval requirements for actives and drug products and enumerate the documents required for submission in CTD/eCTD CO4: Describe the clinical trials requirements for approvals for conducting clinical trials CO5: Discuss the concept of non-clinical drug development and discuss the role of Pharmacovigilance and the process of monitoring in clinical trials
MPH105P Pharmaceutics Practical I	CO-1 Evaluate drugs by various instrumental analytical techniques. CO-2 Perform preformulation studies for development of various dosage forms. CO-3 Design and optimize various types of controlled oral, transdermal and mucosal drug delivery systems. CO-4 Evaluate the compressional force, micromeritic properties, effect of particle size, binders on formulation of Tablets with the prediction of pharmaceutical factors affecting drug release kinetics
Pharmaceutical Chemistry	
MPC102T Advanced Organic Chemistry – I	CO1 Explain different organic intermediate and mechanism of action CO2 Study mechanism and synthetic application of reaction CO3 Explain various protecting group and synthetic reagent CO4 Explain chemistry, synthesis and mechanism of reaction of heterocyclic compound CO5 The concept of disconnection to develop synthetic routs for small target molecule
MPC103T Advanced Medicinal Chemistry	CO1 Explain different organic intermediate and mechanism of action CO2 Study mechanism and synthetic application of reaction CO3 Explain various protecting group and synthetic reagent CO4 Explain chemistry, synthesis and mechanism of reaction of

	heterocycliccompound CO5 The concept of disconnection to develop synthetic routs for small target molecule
MPC104T Chemistry of Natural Products	CO1: To attain detailed knowledge about chemistry of medicinal compounds from natural origin. □ CO2: To understand general methods of structural elucidation of medicinally active natural Compounds. □ CO3: To attain knowledge regarding isolation and purification of medicinal compounds from Natural origin. □ CO4: To characterize products by physical and spectroscopic means including IR, NMR, GC, and MS. □ CO5: To identify different types of natural products, their occurrence, structure, biosynthesis and Properties. □ CO6: To know the use of natural products as starting materials.
MPC105P Pharmaceutical Chemistry Practical I	1 Perform Analysis of pharmacopoeial compounds and their formulations by UV Vis spectrophotometer 2 Perform Experiments based on HPLC, fluorimetry, flame photometry 3 Perform Simultaneous estimation of multi component containing formulations by UV spectrophotometry 4 Perform the reactions of synthetic importance like Claisen–Schimidt reaction., Benzyllic acid rearrangement, Beckmann rearrangement 5 Perform the reactions of synthetic importance like Hoffmann rearrangement , Mannich reaction 6 Do purification and Characterization of synthesized compounds using TLC, melting point and IR spectroscopy
Pharmaceutical Quality Assurance	
MQA102T Quality Management System	CO1: Understand importance of quality and Quality Management System. CO2: Know about ISO management systems, Identify requirements of quality improvement programs. CO3: To build the knowledge and importance of quality in pharmaceutical industry CO4: To compare the ICH guidelines for determining stability of drug and drug substances. CO5: To make use of statistical approaches to maintain quality of drug and drug products.

MQA103T **Quality Control and Quality Assurance**	CO1Understand the cGMP aspects in a pharmaceutical industry CO 2 Appreciate the importance of documentation CO 3 Understand the scope of quality certifications applicable to Pharmaceutical industries CO 4 Understand the responsibilities of QA & QC departments
MQA 104T **PDTT**	CO1: Understand the regulatory principles and requirements of pharmaceutical drug discovery and developments. CO2: Learn the concept of pre-formulation studies for various formulations. CO3: Understand the concept and designing of pilot plants and scale up. CO4: Learn various pharmaceutical packaging systems and their quality testing. CO5: Learn the concept of technology transfer from R&D to production plant CO6:Understand the product registration guidelines in India and USA.
MQA 105T **PQA Practical**	CO 1 Perform Analysis of pharmacopoeial compounds and their formulations by UV Vis spectrophotometer CO 2 Perform Experiments based on HPLC, fluorimetry, flame photometry CO 3 Perform Simultaneous estimation of multi component containing formulations by UV spectrophotometry CO 4 Perform Case studies on – Total Quality Management, Six Sigma, Change Management/ Change control. Deviations , Out of Specifications , Out of Trend CO 5 Do Assay of raw materials as per official monographs CO 6 Do Quality control tests for Primary and secondary packaging materials