BAPATLA COLLEGE OF PHARMACY

(Sponsored by Bapatla Education Society), (Recognized by A.I.C.T.E & PCI)
(Affiliated to Jawaharlal Nehru Technological University, Kakinada)
Bapatla, Bapatla (Dist), AndhraPradesh-522101

Course Outcomes of M.Pharmacy Pharmaceutics

Course Code	Course	Course Outcomes
I SEMESTER		
MPH101T	Modern Pharmaceutical Analytical Techniques	1. The analysis of various drugs in single and combination dosage forms 2. To determine the Compounds by Spectroscopy Techniques. 3. To determine the compounds by Chromatography Techniques. 4. To Determine the Compounds by Electrochemical methods. 5. To Interpret the Compounds by various analytical Techniques
MPH102T	Drug Delivery System	1. The various approaches for development of novel drug delivery systems. 2. The criteria for selection of drugs and polymers for the development of delivering system. 3. The formulation and evaluation of Novel drug delivery systems. 4. Able to understand the importance of Personalized medicine and 3D printing of Pharmaceuticals
MPH103T	Modern Pharmaceutics	1. To understand the elements of preformulation studies. 2. The Active Pharmaceutical Ingredients and Generic drug Product development Industrial Management and GMP Considerations. 3. To understand the basic concepts of Optimization Techniques & Pilot Plant Scale Up Techniques. 4. To study the principles of Stability Testing, sterilization process & packaging of dosage forms. 5. To understand Industrial Management and cGMP Considerations. 6. Understand the physics of tablet compression, consolidation and compaction profiles.

MPH104T	Regulatory Affairs	1. To understand the Concepts of innovator and generic drugs and drug development process. 2. The Regulatory guidance's and guidelines for filing and approval process. 3. Preparation of Dossiers and their submission to regulatory agencies in different countries. 4. Post approval regulatory requirements for drug substances and drug products. 5. Submission of global documents in CTD/ eCTD formats. 6. Clinical trials requirements for approvals for conducting clinical trials. 7. Able to understand Pharmacovigilance and process of monitoring in clinical trials
MPH 105PA	Pharmaceutics Practical I	1. Analyse Pharmacopoeial compounds and their formulations by UV Vis spectrophotometer 2. Quantitatively estimate multi component containing formulations by UV spectrophotometer 3. Identify the compounds based on HPLC / Gas Chromatography, fluorimetry and flame photometric techniques. 4. Determine the preformulation studies of tablets.
MPH 105PB	Pharmaceutics Practical II	1. Analyse the effect of particle size and binding agents on dissolution of a tablet. 2. Construct Heckal plot, Higuchi and peppa's plot. 3. Calculate similarity factors. 4.evaluate the In-vitro dissolution profile of CR/ SR marketed formulation 5. Develop the sustained release matrix tablets, osmotically controlled DDS, Floating DDS- hydro dynamically balanced DDS, Muco-adhesive tablets and trans dermal patches.
II SEMESTER		
MPH201T	Molecular pharmaceutics (nano technology & targeted DDS) (ntds)	1. Understand the various approaches for the development of novel drug delivery systems. 2. The criteria for selection of drugs and polymers for the development of NTDS. 3. The formulation and evaluation of novel drug delivery systems. 4. Able to understand the concepts of ex-vivo and in-vivo gene therapy. 5. To Study the principles of the Liposomal & gene delivery systems.

MPH202T	Advanced Biopharaceutics &Pharmacokinetics	1. To understand the basic concepts in biopharmaceutics and pharmacokinetics. 2. The use raw data and derive the pharmacokinetic models and parameters 3. The critical evaluation of biopharmaceutics studies involving drug product equivalency. 4. The design and evaluation of dosage regimens of the drugs using pharmacokinetic and biopharmaceutical parameters. 5. To understand the potential clinical pharmacokinetic problems and application of basic pharmacokinetics to targeted drug delivery systems.
MPH203T	Computer Aided Drug Delivery System	1. Computer applications in pharmaceutical research and development 2. Statistical modeling in pharmaceutical research and development. 3. Computational modeling of drug disposition. 4. Optimization, factorial design, screening design, ethics of computing in pharma research 5. Computer aided biopharmaceutical characterization, computer simulation. 6. Artificial intelligence, robotics and computational fluid dynamics.
MPH204T	Formulation development of pharmaceutical and cosmetic products	1. The pre formulation studies of pilot batches of pharmaceutical industry. 2. The significance of dissolution and product stability 3. To know the key building blocks for various formulations 4. To understand the current technologies in the market 5. To aware about the scientific knowledge to develop cosmetics with desired safety, stability and efficacy
MPH205PA	Pharmaceutics Practical III	1. Understand the Formulation, Preparation and evaluation of various nano and targeted drug delivery systems. 2. Evaluate the Protein binding studies of a highly protein bound & poorly protein bound drug. 3. Develop the techniques for Improvement of dissolution characteristics of slightly soluble drugs. 4. Analyze the concepts of Quality-by-Design (QbD) in Pharmaceutical Development. 5. Develop and evaluate of various cosmetic preparations with special emphasis on herbal cosmetics.

MPH205PB	Pharmaceutics Practical IV	1.Estimate the data analysis Using DoE Using Design Expert Software 2. Develop the Quality-by-Design in Pharmaceutical Development 3. Conduct Computer Simulations in Pharmacokinetics and Pharmacodynamics and Computational Modeling of Drug Disposition 4. Develop Clinical Data Collection manual 5. Determine the Sensitivity Analysis, and Population Modeling. 6. Development and evaluation of Creams, Shampoo, Toothpaste base, Multi Vitamin Syrup 7. Evaluate the Optimization techniques in Formulation Development of Tablets
III & IV SEMESTER		
MRM 301T	Research methodology and biostatistics	1. To understand the General research methodology objectives and study designs. 2.To focus on Various methods of Biostatistics & applications 3. Medical research-History & ethics 4.Out line of CCSEA guidelines for laboratory animal facility 5.To perform Helsinki-Principles in all medical research
II/II M.Pharm Pharmaceutics	Journal club and project work	1. Review scholarly literature collected from various sources Critically for the project and formulate a research solution. 2. Prepare and present a research article & research proposal 3. Conduct research to achieve research aim and objectives 4. Propose new ideas/ methodologies or procedures for further improvement of the research problem 5. Create Project Thesis book of research documents of the Findings. 6. Discussion & final presentation 7. Defend the research findings in front of scholarly audience.

Course Outcomes of M.Pharmacy Pharmaceutical Analysis

Course Code	Course	Course outcomes
I SEMESTER		
MPA101T	Modern Pharmaceutical Analytical Techniques	1. The analysis of various drugs in single and combination dosage forms 2 To Determine the Compounds by Spectroscopy Techniques. 3 To Determine the compounds by Chromatography Techniques. 4 To Determine the Compounds by Electrochemical methods. 5 To Interpret the Compounds by various analytical Techniques.
MPA102T	Advanced Pharmaceutical Analysis	1. Analysis of Impurities in drugs, residual solvents etc. 2. Stability studies of drugs and biological products. 3. Principles of various reagents used in functional group analysis. 4. Impurity profiling and degradant characterization. 5. Biological tests and assays. 6. Appropriate analytical skills required for the analytical method development.
MPA103T	Pharmaceutical Validation	1. Student achieves the knowledge completely on the aspect of validation. 2. The student learns the concept of Patent and Intellectual property rights. 3. Student is trained to carry out qualification aspects of instruments. 4. Student is taught calibration procedure to be performed for the instruments. 5. Student is trained on validation procedures to be carried out for instrument validation, cleaning validation and manufacturing process validation. 6. Student achieves knowledge completely on the aspects of validation of utility systems.
MPA104T	Food Analysis	1. To understand various analytical techniques in the determination of Carbohydrates, Proteins and other food constituents. 2. To understand various analytical techniques in the determination of Lipids, Vitamins and other food constituents. 3. To understand various analytical techniques in the determination of Food additives. 4. To understand various analytical techniques in the determination of milk, milk constituents, milkproducts and fermentation products. 5. To understand various analytical techniques in the determination of pesticides and also knowledge on food regulations and legislations

MPA105PA	Pharmaceutical Analysis Practical - I	1. To learn the spectroscopic and chromatographic techniques for analysis of pharmacopoeial compounds 2. It also gives the hand on experience in the determination of percentage purity by using Fluorimetry, photometry. 3. This practical provides the knowledge about calibration of glassware used in laboratories such as volumetric flasks, burettes, pipettes also calibration of instruments such as pH meter, UV, FTIR, HPLC. 4. It gives the practical knowledge about determination of functional group such as -OH, -NH2 and evaluation tests for fats and oils. 5. It also deals with the analysis of natural and synthetic colors, pesticides, preservatives, pesticide residues, food additives in food materials.

MPA105PB	Pharmaceutical Analysis Practical - I	1. Analyse Pharmacopoeial compounds and their formulations by UV Vis spectrophotometer 2. Quantitatively estimate multi component containing formulations by UV spectrophotometer 3. Identify the compounds based on HPLC / Gas Chromatography, fluorimetry and flame photometric techniques. 1. Determine functional group such as -OH, -NH2 and evaluation tests for fats and oils. 2. Estimate natural and synthetic colors, pesticides, preservatives, pesticide residues, food additives in food materials.