

Program- M.Pharm

Pharmaceutics

MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

Course Outcomes

After undergoing this course students will be able to:

1. Recognize the importance of modern instruments in the pharmaceutical analysis
2. Discuss the fundamental principles and applications of UV-visible, IR, flame emission, atomic absorption, NMR and Mass spectroscopy
3. Document the principles and applications of chromatographic, and electrophoretic separation techniques
4. Appraise X-ray crystallographic methods and radioimmunological assays
5. Summarize the instrumentation of the modern analytical techniques
6. Assess appropriate techniques for the analysis of various drugs and formulations

ADVANCED BIOPHARMACEUTICS AND PHARMACOKINETICS

Course Outcomes

After undergoing this course students will be able to:

1. Recall the different mechanisms and factors affecting ADME processes
2. Discuss the concepts of bioavailability and bioequivalence with the methods of measurement
3. Select official dissolution models for various novel drug delivery systems
4. Compare and analyze the *in vitro* drug release profiles for different marketed products
5. Analyze various pharmacokinetic and pharmacodynamic parameters affecting bioavailability
6. Appraise the applications of biopharmaceutics and pharmacokinetics in the development of biopharmaceuticals and pharmaceuticals

COMPUTER AIDED DRUG DEVELOPMENT

Course Outcomes

After undergoing this course students will be able to:

Explain the history of computers in pharmaceutical research and development

Structure computational modeling of drug disposition

Illustrate the applications of computer in preclinical development

Apply the approaches of optimization techniques in pharmaceutical formulation

Predict the market analysis of pharma products and clinical data management using softwares

Critique the role of computers in robotics, computational fluid dynamics and pharmaceutical automation process

COSMETICS AND COSMACEUTICALS

Course Outcomes

After undergoing this course students will be able to:

- Explain regulatory requirements for cosmetics
- Correlate the relation between body parts and cosmetics applications
- Identify suitable excipients for cosmeceutical preparations
- Formulate and evaluate various cosmetic products
- Develop various delivery systems for herbal cosmetics
- Discuss recent trends and advances in cosmetics and cosmeceuticals

DRUG DELIVERY SYSTEMS

Course Outcomes

After undergoing this course students will be able to:

1. Discuss the physiology of Gastro-intestinal Tract (G.I.T.) and the strategies for oral drug delivery
2. Identify suitable polymers for specific controlled drug delivery systems
3. Select specific delivery systems for protein and peptide drugs
4. outline the approaches for parenteral controlled drug delivery systems
5. Develop various delivery systems for controlled release / a specific drug target
6. Discuss recent trends and advances in novel oral and parenteral controlled drug delivery systems

MODERN PHARMACEUTICS

Course Outcomes

After undergoing this course students will be able to:

1. Explain the process of compaction and compression in solid dosage form development
2. Discuss various preformulation concepts in dosage form development
3. Apply the cGMP and Industrial management principles in dosage form development
4. Develop new dosage forms by applying the principles of optimization
5. Design validation protocol for solid and liquid dosage forms
6. Discuss recent advances in preformulation concepts, cGMP, validation, optimization, compression and compaction principles

MOLECULAR PHARMACEUTICS

Course Outcomes

After undergoing this course students will be able to:

1. Explain the various approaches for development of novel drug delivery systems
2. Explain the need for drug targeting in terms of site and target specificity
3. Identify and discuss suitable polymers/excipients for formulation design
4. Design and develop various delivery systems for a specific drug target
5. Perform evaluation of the developed targeted drug delivery system
6. Analyse and recommend formulation approaches and pharmaceutical processes for site specific drug delivery

PHARMACEUTICS PRACTICAL - I

Course Outcomes

After undergoing this course students will be able to:

1. Evaluate therapeutic agents by various instrumental analytical techniques
2. Perform preformulation studies for development of various dosage forms
3. Design and optimize various types of controlled oral, transdermal and mucosal drug delivery systems
4. Evaluate various developed drug delivery systems using suitable methods
5. Predict pharmaceutical factors affecting drug release kinetics

PHARMACEUTICS PRACTICALS - II

Course Outcomes

After undergoing this course students will be able to:

1. Compare the dissolution efficiency of various marketed pharmaceutical products
2. Formulate and evaluate various cosmetic products
3. Design experiments based on QbD for optimization of drug delivery
4. Analyze and predict pharmacokinetic parameters using softwares
5. Evaluate computational modeling of drug disposition

REGULATORY AFFAIRS

Course Outcomes

After undergoing this course students will be able to:

Discuss the concepts of innovator and generic drugs in drug development process
Organize the process involved in new drug application of pharmaceuticals
Structure the guidelines for filing and approval process in different countries
Analyze the post approval regulatory requirements for actives and drug products and submission of global documents in Common Technical Document / eCTD formats
Identify regulatory procedures involved in non-clinical and clinical drug development
Apply the principles of regulatory affairs in drug development process, filing and approval, non-clinical and clinical drug development in global scenario

RESEARCH METHODOLOGY & BIostatISTICS

Course Outcomes

After undergoing this course students will be able to:

1. Recognize the value, scope, objective and requirements of research
2. Discuss the basic concept and importance of statistical analysis
3. Discuss the basic principles of medical research
4. Describe the guidelines for the maintenance of laboratory animals
5. Perform the profession of Pharmacy with code of conduct and ethics
6. Apply the principles of medical research for the development of knowledge in the field of medicine

DISCUSSION / SYNOPSIS PRESENTATION

Course Outcomes

After undergoing this course students will be able to:

1. Identify the research problem
2. Discuss research problem with team and peers for solution
3. Develop a protocol report on the critically appraised research problem
4. Present the critically appraised research problem in appropriate forum

GROUP PROJECT

Course Outcomes

After undergoing this course students will be able to:

1. Work in a team and undertake a project in the area of Pharmaceutical Sciences
2. Apply concepts of pharmaceutical sciences for executing the project
3. Apply appropriate research methodology while formulating a project
4. Generate specifications, synthesize, analyse, develop and evaluate a project
5. Defend the project, exhibit, make a presentation and document the work

JOURNAL CLUB

Course Outcomes

After undergoing this course students will be able to:

1. Select scientific articles from reputed journals
2. Use search engines to select scientific articles
3. Critically appraise scientific articles and assess the quality
4. Develop a report on the critically appraised article
5. Present the critically appraised article in appropriate forum

RESEARCH METHODOLOGY AND BIOSTATISTICS.

Course Outcomes

After undergoing this course students will be able to:

1. Recognize the value, scope, objective and requirements of research
2. Discuss the basic concept and importance of statistical analysis
3. Outline the basic principles of medical research
4. Summarize the guidelines for the maintenance of laboratory animals
5. Perform the profession of Pharmacy with code of conduct and ethics
6. Apply the principles of medical research for the development of knowledge in the field of medicine

DISCUSSION / COLLOQUIUM PRESENTATION

Course Outcomes

After undergoing this course students will be able to:

1. Identify the research problem
2. Discuss research problem with team and peers for solution
3. Develop a protocol report on the critically appraised research problem
4. Present the critically appraised research problem in appropriate forum

RESEARCH WORK

Course Outcomes

After undergoing this course students will be able to:

1. Review scholarly literature collected from various sources critically for the project and formulate a research problem
2. Prepare and present a research proposal
3. Conduct research to achieve research objectives
4. Propose new ideas/ methodologies or procedures for further improvement of the research problem
5. Create research document of the findings
6. Defend the research findings in front of scholarly audience