MANIPAL COLLEGE OF PHARMACEUTICAL SCIENCES
MANIPAL
(A constituent unit of MAHE, Manipal)

MPHARM PHARMACEUTICS COURSE OUTCOMES (COs)

PQA-MPH101T: Modern Pharmaceutical Analytical Techniques

This course deals with various advanced analytical instrumental techniques for identification, characterization and quantification of drugs. Instruments dealt are NMR, Mass spectrometer, IR, HPLC, GC etc.:

Upon completion of this course the student should be able to understand -

CO 1: The theory and working of sophisticated analytical instruments for quality control of drugs and pharmaceuticals.

CO 2: The analysis of various drugs in single and combination dosage forms.

CO 3: Applications of various analytical techniques for drug analysis.

PCE-MPH102T: DRUG DELIVERY SYSTEMS

This course deals with the development and evaluation of various novel drug delivery systems.

Upon completion of this course the student should be able to understand -

CO 1: The basic concepts of modified release drug delivery systems.

CO 2: The criteria for selection of drugs and excipients.

CO 3: Various approaches/methods for the development of novel drug delivery systems.

CO 4: The evaluation tests for the novel drug delivery systems.

PCE-MPH103T: MODERN PHARMACEUTICS

This course is designed to impart advanced knowledge and skills required to learn various aspects and concepts at pharmaceutical industries.

On completion of this course, student will be able to understand -

CO 1: The elements of optimization techniques.

CO 2: The validation master plan requirements as per FDA.

CO 3: Industrial management and GMP considerations.

CO 4: Optimization techniques and pilot plant scale up techniques.

PMA-MPH104T: REGULATORY AFFAIRS

This course deals with various concepts of drug regulations. A brief mention about the drug regulations in a few countries is also dealt. A brief outlook of cosmeceutical and nutraceutical are also dealt in this course.

Upon completion of this course the student should be able to -

CO 1: Comprehend regulations pertaining to drugs.

CO 2: Know the regulatory documentations.

PCE-MPH 105P: PHARMACEUTICS PRACTICAL I

This course is designed to gain practical skills on formulation and evaluation of various types of tablets and novel drug delivery systems. This course also includes preformulation and analytical techniques for estimation of pharmaceutical active ingredients and their formulations.

Upon completion of this course, the student will be able to -

CO 1: Understand the formulation techniques for various types of drug delivery systems and to evaluate them.

CO 2: Understand the importance of preformulation studies and gain knowledge on analytical techniques for estimation of pharmaceutical active ingredients and their formulations.

MANIPAL COLLEGE OF PHARMACEUTICAL SCIENCES
MANIPAL
(A constituent unit of MAHE, Manipal)

MPHARM PHARMACEUTICS COURSE OUTCOMES (COs)

PCE-MPH106S: SEMINAR IN PHARMACEUTICS

The subject is designed to create an environment where teachers provide the students a critical eye and openness to fortify the presentation and academic writing skills of students in the field of Pharmaceutics and industrial pharmacy.

Upon completion of the course the student shall be able to -

CO 1: Develop skills to gather, organize, deliver information, and defend a given topic in Pharmaceutics and industrial pharmacy

CO 2: Learn to organize complex concepts using audio-visual aids.

CO 3: Acquire communication and presentation skills.

CO 4: Effectively respond to the questions raised by peers and stand scientific scrutiny.

CO 5: Develop a write-up on the subject of seminar presentation.

CO 6: Cultivate a sense of upgradation of knowledge through self and continuous learning

PCE-MPH201T: MOLECULAR PHARMACEUTICS (NANO TECH AND TARGETED DDS)

This course is designed to impart knowledge in the area of advances in nanotechnology and targeted drug delivery systems.

Upon completion of this course, student will be able to understand

CO 1: The concepts of nanotechnology based drug delivery systems and targeted drug delivery systems.

CO 2: The criteria for selection of drugs and excipients for the development of nanopharmaceuticals and targeted drug delivery systems

CO 3: Various approaches/ methods for the development of such formulations.

CO 4: Evaluation tests for nanopharmaceuticals and targeted drug delivery systems

PCE-MPH202T: ADVANCED BIOPHARMACEUTICS AND PHARMACOKINETICS

This course is designed to impart knowledge and skills necessary for dose calculations, dose adjustments and to apply biopharmaceutics theories in practical problem solving. Basic theoretical discussions of the principles of biopharmaceutics and pharmacokinetics are provided to help the students to clarify the concepts.

Upon completion of this course the student should be able to understand -

CO 1: The basic concepts in biopharmaceutics and pharmacokinetics.

CO 2: The use of raw data and derive the pharmacokinetic models and parameters that describe the process of drug absorption, distribution, metabolism and excretion.

CO 3: To critically evaluate biopharmaceutics studies involving drug product equivalency.

CO 4: To design and evaluate dosage regimens of the drugs using pharmacokinetic parameters.

CO 5: The potential clinical pharmacokinetic problems and application of basics of pharmacokinetics.

PCE-MPH203T: COMPUTER AIDED DRUG DELIVERY SYSTEMS

This course is designed to impart knowledge and skills necessary for applying computers in pharmaceutical research and development. Basic theoretical discussions of the principles of more integrated and coherent use of computerized information (informatics) in the drug development process are provided to help the students to clarify the concepts.

Upon completion of this course the student should be able to understand -

CO 1: History of Computers in Pharmaceutical Research and Development

CO 2: Computational Modeling of Drug Disposition

CO 3: Computers in Preclinical Development and

CO 4: Optimization Techniques

CO 5: Computers in Market Analysis and Clinical Development

CO 6: Artificial Intelligence (AI) and Robotics

CO 7: Computational fluid dynamics(CFD)

MANIPAL COLLEGE OF PHARMACEUTICAL SCIENCES
MANIPAL
(A constituent unit of MAHE, Manipal)

MPHARM PHARMACEUTICS COURSE OUTCOMES (COs)

PCE-MPH204T: COSMETIC AND COSMECEUTICALS

This course is designed to impart knowledge and skills necessary for the fundamental need for cosmetic and cosmeceuticals products.

On completion of this course, student will be able to understand -

CO 1: The key ingredients used in cosmetics and cosmeceuticals

CO 2: The key building blocks for various formulations

CO 3: The current technologies in the market

CO 4: The various key ingredients and basic science to develop cosmetics and cosmeceuticals

CO 5: The scientific knowledge to develop cosmetics and cosmeceuticals with desired safety, sensory, stability and efficacy

PCE-MPH205P: PHARMACEUTICS PRACTICAL II

This course is designed to provide practical skills on formulation of various novel drug delivery systems. The course also includes experiments related to biopharmaceutics and pharmacokinetics, Quality by design and design of experiments.

On completion of this course the student should be able to -

CO 1: Formulate and evaluate novel drug delivery systems

CO 2: Understand and apply DoE design of experiment in formulation development

CO 3: Understand the role of biopharmaceutics in bioavailability and calculation of pharmacokinetic parameters

PCE-MPH206S: SEMINAR IN PHARMACEUTICS

The subject is designed to create an environment where teachers provide the students a critical eye and openness to fortify the presentation and academic writing skills of students in the field of Pharmaceutics and industrial pharmacy.

Upon completion of the course the student shall be able to -

CO 1: Develop skills to gather, organize, deliver information, and defend a given topic in Pharmaceutics and industrial pharmacy

CO 2: Learn to organize complex concepts using audio-visual aids.

CO 3: Acquire communication and presentation skills.

CO 4: Effectively respond to the questions raised by peers and stand scientific scrutiny.

CO 5: Develop a write-up on the subject of seminar presentation.

CO 6: Cultivate a sense of upgradation of knowledge through self and continuous learning

PHA-MRM301T: RESEARCH METHODOLOGY AND BIOSTATISTICS

This subject is designed to understand the advanced knowledge for research methodology, ethics in research, medical research, design, conduct and interpretation of results. This subject deals with principles of statistics and their applications in biostatistics involving parametric tests, non-parametric tests, correlation, regression, probability theory and statistical hypotheses.

Upon completion of the course, the student shall be able to -

CO 1: Know the various components of research design and methodology.

CO 2: Appreciate advanced statistical techniques in solving the research problems.

MJC 302P: JOURNAL CLUB IN PHARMACEUTICS

The subject is designed to create an environment where students present a published research paper, and critically analyse it, that would enhance the communication, presentation and analytical skills of the students.

Upon completion of the course the student shall be able to:

CO 1: Learn to organize complex research concepts using audio-visual aids.

CO 2: Acquire communication and presentation skills.

CO 3: Effectively respond to the questions raised by peers and stand scientific scrutiny.

CO 4: Cultivate a sense of upgradation of knowledge through self and continuous learning