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

MPharm Pharmaceutical Chemistry

SEMESTER I - COURSE OUTCOMES (CO's)

PCH-MPC 101T: MODERN PHARMACEUTICAL ANALYTICAL TECHNIQUES

After completion of the course, a student will be able to understand:

1. The theory and working of sophisticated analytical instruments for quality control of drugs and pharmaceuticals.
2. The analysis of various drugs in single and combination dosage forms.
3. Applications of various analytical techniques for drug analysis.

PCH-MPC102T: ADVANCED ORGANIC CHEMISTRY I

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

1. Advanced reactivity principles of organic synthesis
2. The principles and application of retrosynthetic methods in organic synthesis
3. The mechanism and application of various named reactions
4. The various special reagents used in organic synthesis
5. The nomenclature and chemistry of heterocyclic compounds.

PCH-MPC103T: ADVANCED MEDICINAL CHEMISTRY

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

1. Different stages of drug discovery
2. Role of Medicinal chemistry in drug research
3. Different techniques in drug discovery
4. Various strategies to design and develop new drug molecules for biological targets & peptidomimetics.

PCH-MPC104T: CHEMISTRY OF NATURAL PRODUCTS

Upon completion of this course students will be able to understand-

1. Different types of natural compounds and their chemistry and medicinal importance
2. The importance of natural products as lead compounds for new drug discovery
3. The concept of rDNA technology as a tool for new drug discovery
4. General methods of structural elucidation of compounds of natural origin
5. Isolation, purification and characterization of few chemical constituents from natural source

PCH-MPC105P: PHARMACEUTICAL CHEMISTRY PRACTICAL I

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

1. Practical skills for the estimation of active ingredients/ formulations using spectrophotometric analysis
2. Process chemistry aspects involved in synthesis of intermediates/drugs
3. Isolation, determination of physicochemical properties, characterization of few phytochemical constituents & their qualitative analysis

PCH- MPC106S: SEMINAR IN PHARMACEUTICAL CHEMISTRY

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

1. Develop skills to gather,organize, deliverinformation, and defenda given topic in herbal research.
2. Learn to utilize audio-visual aids foreffectivedeliverance of the topic.
3. Acquire communication and presentation skills.
4. Effectively respond to thequestions raised by peers and stand scientificscrutiny.
5. Developa write-up on the subject ofseminar presentation.
6. Cultivate a sense of upgradation of knowledgethrough self and continuous learning.

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SEMESTER II - COURSE OUTCOMES (CO's)

PCH-MPC201T: ADVANCED SPECTRAL ANALYSIS

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

1. Structure determination by decoding the various spectral information
2. Interpret NMR, Mass and IR spectra of various organic compounds.
3. Understand the theoretical and practical skills of the hyphenated techniques
4. Identification of organic compounds

PCH-MPC202T: ADVANCED ORGANIC CHEMISTRY II

Upon completion of this course the student shall be able to

1. The principles and application of green chemistry
2. The concept of peptide chemistry
3. The various catalysts used in organic reactions,
4. The concept of stereochemistry and asymmetric synthesis

PCH-MPC203T: COMPUTER AIDED DRUG DESIGN

Upon completion of the course the students will be able to understand the

1. Role of CADD in drug discovery.
2. Different CADD techniques and their application.
3. Various strategies to design and develop new drug like molecules.
4. Working with molecular modeling softwares to design new drug molecules.
5. The in-silico virtual screening protocol.

PCH-MPC204T: PHARMACEUTICAL PROCESS CHEMISTRY

After completion of the course the students will be able to understand the

1. The strategies of scale up process of APIs and intermediates
2. The various unit process and various reactions in process chemistry

PCH-MPC205P: PHARMACEUTICAL CHEMISTRY PRACTICAL II

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

1. The practical skills in the preparation of important drugs.
2. Basic approachesin Interpretation of spectra of the selected synthetic drugs.
3. The various aspects of molecular modelling, both in 2D and 3D QSAR, along with docking studies of few of the known drugs

PCH- MPC206S: SEMINAR IN PHARMACEUTICAL CHEMISTRY

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

1. Develop skills to gather, organize, deliver information, and defend a given topic in pharmaceutical chemistry
2. Learn to organize pharmaceutical chemistry concepts using audio-visual aids.
3. Acquire communication and presentation skills.
4. Effectively respond to the questions raised by peers and stand scientific scrutiny.
5. Develop scientific writing skill.
6. Cultivate a sense of upgradation of knowledge through self and continuous learning

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SEMESTER III - COURSE OUTCOMES (CO's)

PHA-MRM301T: RESEARCH METHODOLOGY AND BIOSTATISTICS

Upon completion of the course the student shall be able to

1. Know the various components of research design and methodology.
2. Appreciate advanced statistical techniques in solving the research problems.

MJC 302P: JOURNAL CLUB IN PHARMACEUTICAL CHEMISTRY

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

1. Learn to organize scientific research concepts using audio-visual aids.
2. Acquire communication and presentation skills.
3. Effectively respond to the questions raised by peers and stand scientific scrutiny.
4. Cultivate a sense of up-gradation of knowledge through self and continuous learning

MPHARM - CHOICE BASED INTERDISCIPLINARY COURSES

The following electives are offered by the department to provide pharmaceutical research and development oriented knowledge in various topics such as

1. PCH-001E: PREPARATIVE SEPARATION TECHNIQUES
2. PCH-002E: MOLECULAR MODELLING AND DRUG DESIGN
3. PCH-003E: HYPHENATED TECHNIQUES