MASTER OF PHARMACY PROGRAMME – PHARMACEUTICAL ANALYSIS

PROGRAM OUTCOMES (PO'S)

Master of pharmacy (Pharmaceutical analysis) program designed to acquire knowledge on various chromatographic and spectroscopic techniques and differentiate with volumetric analysis. The student will be able to categorize assumptions and disclose the data according to guidelines. To utilize the principles of analytical techniques with clear and critical thinking, while solving problems and making decisions. To learn, choose and apply appropriate hyphenated methods and procedures and related computing tools with thoughtfulness of their applications. To believe and follow ethics and guidelines specified by the regulatory authorities of various countries and Government of India for good laboratory practice. To provide knowledge about the importance of analysis of drugs in biological matrices. The course is designed to gain an overall knowledge in developing newer methods, impurity profiling and validation protocols those are useful in routine and laboratory purpose. Understand and engage in problem solving and ability to develop, conduct, analyze and interpret data of pharmaceutical experiments in various departments as per the needs of pharmaceutical industries.

PROGRAM SPECIFIC OUTCOMES (PSO'S)

1. To deal with various hyphenated instrumental techniques for identification, characterization and quantification of drugs.
2. To provide studies on drug bioavailability, pharmacodynamics and ensure the efficacy and safety use of various medicine according to WHO guidelines.
3. To understand calibration, validation methodologies and their applications in industry.
4. To determine the assay of drugs by spectroscopical and chromatographical methods and preservatives in food and food products.
5. To understand quality assurance aspects of pharmaceutical industries such as cGMP, documentation, certification, GLP and other regulatory guidelines.
6. To impart knowledge about extraction and separation of drugs from biological samples by different analytical techniques.
7. To deal with detection of impurities in pharmaceutical formulations and development of protocol for stability testing of products.

COURSE OUTCOMES (CO'S)

After completion of course student is able to know about

SEMESTER - I

Advanced Pharmaceutical Analytical Techniques

CO1. To gain knowledge on principle, theory, instrumentation and various techniques of spectroscopy, chromatography, electrophoresis and their applications for analysis of drugs mentioned in IP, BP and USP.

CO2. Able to choose the spectroscopic techniques for analysis of pharmacopoeial compounds.

CO3. Deal with various advanced hyphenated analytical instrumental techniques for identification, characterization and quantification of drugs.

CO4. Able to interpret spectra include UV-Vis, IR, Mass and NMR for identification and structure determination of various pharmaceuticals.

Pharmaceutical Analysis – I

CO1. To learn the principle and procedure involved in analysis of various drugs using different titrimetric and electrometric methods.

CO2. To understand different functional groups in molecular structure of organic compounds and their quantitative determination.

CO3. Understand the principle and procedure involved in analysis of drugs using various reagents.

CO4. To gain knowledge in determination of various pharmaceutical preparations and dosage forms using conventional and hyphenated instrumental techniques.

Quality Control of Pharmaceutical Dosage Forms

CO1. To analyze the various pharmaceutical dosage forms include solids, semisolids, liquid oral preparations, parentrals, inhalations, topicals, transdermal, sprays, suppositories, pessaries, surgical dressings and novel drug delivery systems.

CO2. To understand and carryout the quality control for tests for tablets, capsules, parentrals, liquid orals and other dosage forms.

Biological Standardization

CO1. To understand about extraction, separation of drugs from biological samples using different techniques and guidelines for analytical methods.

CO2. Detail study about bioassay of vaccines, hormones, blood and blood related products, antitoxins, histamines, biotechnology products and radiopharmaceuticals.

CO3. Understand the microbiological assay of vitamins, antibiotics, vaccines and toxins.

CO4. To gain knowledge about principle, procedure, instrumentation of RIA and ELISA and their applications for analysis of pharmaceuticals.

SEMESTER - II

Quality Assurance

CO1. To gain knowledge on principle, theory, instrumentation and various techniques of spectroscopy, chromatography, electrophoresis and their applications for analysis of drugs mentioned in IP, BP and USP.

CO2. Able to choose the spectroscopic techniques for analysis of pharmacopoeial compounds.

CO3. Deal with various advanced hyphenated analytical instrumental techniques for identification, characterization and quantification of drugs.

CO4. Able to interpret spectra include UV-Vis, IR, Mass and NMR for identification and structure determination of various pharmaceuticals.

Pharmaceutical Analysis – II

CO1. To learn the principle and procedure involved in analysis of various drugs using different titrimetric and electrometric methods.

CO2. To understand different functional groups in molecular structure of organic compounds and their quantitative determination.

CO3. Understand the principle and procedure involved in analysis of drugs using various reagents.

CO4. To gain knowledge in determination of various pharmaceutical preparations and dosage forms using conventional and hyphenated instrumental techniques.

Analytical method development and validation

CO1. To know and understand the concept of validation, calibration, qualification parameters.

CO2. To learn the principle and procedure in development of analytical method, optimization and validation using various analytical instruments for pharmaceutical dosage forms, bulk drugs, active pharmaceutical ingredients (API) and pharmaceutical aids.

CO3. Development, optimization and validation of various drug extraction techniques from biological samples and bioanalytical methods.

CO4. Preparation of protocols for process, cleaning of equipments and facilities. To know the auditing and trade analysis. Also gain knowledge on control parameters, deviations and revalidation.

Regulatory affairs

CO1. Steps involved in the development of a new drug; guidelines on clinical trials for manufacture of drug products as per Drugs and Cosmetics act; submission of new drug application to NDA. To know about intellectual property rights and patents.

CO2. To learn the concepts of importance, statutory requirement and description of documentation for manufacture of pharmaceutical dosage form.

CO3. To gain knowledge about cGMP, GLP as per WHO; quality certifications like ISO9000, GATT and TQM.