

**POST GRADUATE DIPLOMA IN SOPHISTICATED ANALYTICAL
INSTRUMENTATION TECHNIQUES FOR PHARMA AND RELATED
INDUSTRIES**



SYLLABUS

Semester-I

PGDI-101 BASIC CONCEPTS OF PHARMACEUTICAL AND CHEMICAL ANALYSIS

- Classical methods Vs Instrumental techniques, Sampling, Analytical standards, Calibration, Standardization of instruments, Selection of methods for analysis, Selection of equipments,
- Making measurements and reporting, statistical and computational tools.
- Principles, theory and applications of Volumetric, Gravimetric, Precipitation, Redox, Complexometry, Non aqueous titrimetry.
- Principles, theory and applications of pH metry, Potentiometry including Karl-Fischer, Polarimetry, Spectrophotometry.

PGDI-102 SEPARATION SCIENCES AND HYPHENATED TECHNIQUES FOR PHARMACEUTICAL AND OTHER ANALYSIS

- Introduction, fundamentals, Principles, theory and applications of Classical Chromatographic techniques (Paper, TLC, Column)
- Introduction, fundamentals, Principles, theory and applications of advanced chromatographic techniques. (GC-MS, LC-MS, HPTLC, IC)
- Practices

PGDI-103 PRACTICALS

Semester – 2

PGDI-201 ADVANCED SPECTROSCOPIC AND THERMAL METHODS OF ANALYSIS FOR PHARMA AND CHEMICAL PRODUCTS

- Introduction, fundamentals, Principles, theory and applications of UV-visible, FT-IR, Mass, NMR (1H and 13C) Spectroscopic technique, XRD and other important instruments.
- Introduction, fundamentals, Principles, theory and applications of DSC, DTA, TGA, Particle size analyzer and other important instruments.

PGDI-202 IPR, PATENT, DOCUMENTATION, STATUTORY AND REGULATORY AFFAIRS

- Introduction to statutory and regulatory requirement for the industries overviews of Laws related to environmental protection and international standard certification awareness.(ISO, OHSAS, NABL)
- Regulatory requirements for Pharmaceutical products (API and Formulations) FDA, DCGI, WHO, Schedule-M, GMP, GLP, ICH Guidelines.
- Documentation in Pharmaceutical organizations, SOP's, Validations, Calibrations, Qualifications, Standardizations and preparation of various dossiers.
- Patent, IPR and related topics. IPR, Patent, Indian Patent Act , International patentization related to generics.
- Recent updates.

PGDI-203 PROJECT WORK/DISSERTATION

- Selected analytical problem solving by Specific Sophisticated instrumental technique
- Exposure to the Scientific Database
- Statistical Analysis of the data
- Result, Data compilation and Thesis writing
- Publication

PGDI-204 VIVA-VOICE