

# CSIR Integrated Skill Initiative



## Certificate course on Skill Development in Advanced Spectroscopic (NMR, HPLC LC-MS, UV/IR) Techniques CSIR-CDRI



Under CSIR-Integrated Skill Initiative, CSIR-Central Drug Research Institute is offering a certificate course on SKILL DEVELOPMENT in advanced spectroscopic techniques. It is intended to generate human resources that are employment ready who gains the knowledge of operating, maintenance of state-of-art spectrometers and also the analysis of the spectroscopic data to fulfil the need and requirement of Pharmaceutical industry and research in the country.

CSIR-CDRI invites applications for “Certificate course on Skill Development in Advanced Spectroscopic (NMR, HPLC, LC-MS, UV/IR) techniques” as per the details given below:

<b>Title of the course</b>	<b>: Certificate course on Skill Development in Advanced Spectroscopic (NMR, HPLC, LC-MS, UV/IR) Techniques</b>
<b>Duration</b>	<b>: 3 Months</b>
<b>No of Seats</b>	<b>: 28</b>
<b>Educational Qualification</b>	<b>: B.Sc., B.Tech., B. Pharm., M.Sc., M.Tech., M. Pharm. and Ph.D.</b>
<b>Age Group</b>	<b>: 21-45 years</b>
<b>Date of Commencement</b>	<b>: 20<sup>th</sup> Aug-16<sup>th</sup> Nov'2018 (AST01)</b>
<b>Venue of the course</b>	<b>: CSIR-CDRI, Lucknow</b>
<b>Course Fee</b>	<b>: Rs. 20000/-</b>
<b>Sponsorship</b>	<b>: Public/private sectors are welcomed to sponsorship.</b>

### TRAINING CURRICULUM

- Basic Principles of Mass Spectrometry, instrumentation, types of ion formation, fragmentation process and pattern, Various ionization techniques i.e., EI & CI, API-MS, FAB-MS, MALDI-MS, interpretation of Mass spectral data and MS applications in Drug Discovery.
- Basics of NMR Spectroscopy, nuts & bolts of NMR instrumentation, chemical shifts and spin-spin coupling constants, FT-NMR, homo and hetero nuclear two-dimensional NMR. Hands on training on state-of-art NMR spectrometers and interpretation of data, its variety of applications in Drug Discovery.
- Chromatographic methods and theory of chromatography. Principles, techniques, instrumentation, derivatization and applications of GC, HPLC and HPTLC. Applications of ion exchange and ion pair chromatography, affinity, size exclusion, SFC, GC-MS and LC-MS methods.
- Theory and applications of UV-VIS spectroscopy, interpretation of spectra, multi component assay, difference and derivative spectra.
- Theory, instrumentation and applications of FT-IR, ATR and NIR.

### SALIENT FEATURES OF THE TRAINING

- Practical sessions as per the course curriculum.
- Understanding basic principles.
- Lectures assisted with multimedia aids.
- Interactive session.
- Exposure to diverse sample preparation techniques
- Brief Hands-on practical exposure on the state-of-the-art equipments
- Planning experiments for obtaining meaningful results.
- Troubleshooting
- Additional inputs on soft skills and personality development

### **SALIENT FEATURES OF THE TRAINING**

- About 40% Theory and 60% Practical sessions as per course curriculum
- Hands on training
- Job oriented curriculum
- Understanding basic principles
- Lectures assisted with multimedia aids
- Interactive session
- Exposure to animal's health and genetic monitoring techniques.
- Brief Hands-on practical exposure on the state-of-the-art equipments
- Planning, setting of breeding and obtaining meaningful results
- Troubleshooting

### **EVALUATION OF TRAINEES**

Evaluation will consist of the following components

#### **Theory Courses (50 Marks)**

- (a) Continuous assessment through assignments
- (b) Term end examination

#### **Practical Courses (50 Marks)**

- (a) Guided Experiments
- (b) Unguided Experiments

### **CERTIFICATION**

Certificate will be issued to the successful candidates for the course