## COURSE CONTENTS

**MANAGMENT DEVELOPMENT PROGRAM ON**

**OPERATION AND MAINTENANCE OF ANALYTICAL EQUIPMENT**

###### Introductory

* Activities of CSIR-Central Scientific Instrument Organisation (CSIO)
* Importance of Operation and Maintenance of Analytical Equipments
* Instrumental Method of Analysis
* General Design Considerations of Analytical Instruments
* Basic Electronics/ SMD components & Optics used in Analytical Instruments

###### Maintenance Management & Safety Aspects

* Maintenance of Analytical Instruments
* Test, Measurements and Calibration of Analytical Equipment
* Safety aspects in Analytical Instruments

###### Analytical Instrumentation

* Basic Analytical instrument: Analytical Balances, pH Meter, Micropipette, Conductivity Meter
* Colorimetry
* Flame Photometer
* Atomic Absorption Spectrophotometer
* Spectrophotometers (UV-Visible, Photoluminiscence, Fluorescence etc.)
* Spectrophotometers (FT-IR, FT-NIR, Raman etc.)
* Refractometers
* ICP-AES
* Electron Microscopy
* X-Ray Diffractometry
* Mass Spectrometry
* Chromatography (HPLC, GC, LC-MS etc)