

An interactive program on the latest trends and advanced characterisation techniques in the field of science

- TGA
- FTIR
- BET SURFACE AREA ANALYSER
- PCR
- XRD
- GC

CONTACT US

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ADVANCED CHARACTERISATION TECHNIQUES

30 HOURS OFFLINE
CERTIFICATE COURSE

TITLE – ADVANCED CHARACTERISATION TECHNIQUES.

Course Objectives:

1. Provide hands-on training in the operation and handling of advanced characterization instruments.
2. Familiarize participants with the principles and applications of Photocatalytic reactor, X-ray diffractometer, BET Surface area analyser, Gas Chromatography, FTIR, and Thermogravimetric analyser.
3. Enhance participants' skills in interpreting data obtained from advanced instruments for the characterization of various organic and inorganic compounds.
4. Prepare participants for research and industrial roles requiring proficiency in advanced characterization techniques.

5. Foster a deeper understanding of the significance of advanced characterization in the context of global advancements in science and technology.

Learning Outcomes: By the end of the course, participants will be able to:

1. Operate and handle Photocatalytic reactor, X-ray diffractometer, BET Surface area analyser, Gas Chromatography, FTIR, and Thermogravimetric analyser proficiently.
2. Understand the underlying principles behind each characterization technique and its applications.
3. Analyze and interpret data obtained from advanced instruments to characterize organic and inorganic compounds effectively.
4. Apply advanced characterization techniques in research and industrial settings to enhance the quality of work.
5. Appreciate the importance of staying updated with global advancements in advanced characterization techniques.

Course Content: Session 1: Introduction to Advanced Characterization Techniques

- Overview of advanced characterization instruments
- Importance of advanced characterization in research and industry

Session 2: Hands-on Training with Photocatalytic Reactor

- Principles and operation of Photocatalytic reactor
- Practical demonstration and hands-on exercises

Session 3: X-ray Diffractometer

- Principles of X-ray diffraction analysis
- Data interpretation and applications in material characterization

Session 4: BET Surface Area Analyser

- Theory of BET analysis
- Practical demonstration and interpretation of surface area data

Session 5: Gas Chromatography

- Fundamentals of gas chromatography
- Sample preparation, injection techniques, and data analysis

Session 6: Fourier Transform Infrared Spectroscopy (FTIR)

- Introduction to FTIR spectroscopy
- Spectral interpretation and applications in compound identification

Session 7: Thermogravimetric Analyser

- Basics of thermogravimetric analysis
- Interpretation of thermal degradation profiles and applications

Session 8: Data Analysis and Interpretation

- Statistical analysis of characterization data
- Case studies and real-world applications

Session 9: Applications of Advanced Characterization Techniques

- Case studies showcasing the use of advanced techniques in various fields
- Future trends and advancements in advanced characterization techniques

Session 10: Hands-on Practice and Assessment

- Recap of learned techniques
- Practical exercises and assessment of participants' proficiency

This course is designed to provide a comprehensive understanding of advanced characterization techniques through a blend of theoretical knowledge and hands-on experience, enabling participants to become proficient in utilizing these techniques in their research and professional endeavors.