CHARACTERIZATION OF ADVANCED MATERIALS

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COURSE OVERVIEW

- To introduce the principles of the materials analysis characterization methods based on microscopy, chemical, physical and structural analysis and thermal techniques.

- The basic principles used for the physical characterization of materials will be outlined; microscopy by light, electrons and scanned probes will be introduced; and the readily available bulk characterization methods such as diffraction, X-ray analysis and vibration spectroscopes will be described

WHAT YOU WILL LEARN

1. The fundamentals of each analytical technique.

2. Comparative review of the instrumentation (resolution, sensitivity, sample requirements).

3. Data acquisition strategies and data interpretation methods.

4. Detailed discussion of practical examples

Learning Modules

Module	Subjects	Duration	From	To
1	Introduction to Material Science and Engineering	60	9.00	10.00
2	Electron Imaging Techniques	45	10.00	10.45
3	Spectroscopy Analysis Techniques	45	10.45	11.30
4	Micro and Nano Indentation Analysis - practical	60	11.30	12.30
	LUNCH BREAK			
5	Scanning Electron Microscopy (SEM) - practical	60	2.00	4.00
6	Energy dispersive X-ray spectroscopy (EDS) - practical	45	4.00	5.00