

SYLLABUS :-

Expt. No. Titles of Experiments
1 Determination of chemical composition of commercial alloys by optical emission spectroscopy.
2 Optical microscopy and quantitative image analyses of microstructures of single and dual phase alloys as well as composites.
3 Scanning electron microscopy
Specimen preparation - Secondary and Backscattered Electron Imaging
Energy dispersive spectroscopy/wavelength dispersive spectroscopy
observation of microstructure
fracture surfaces
fibers/powders
4 Scanning electron microscopy
Introduction to Electron Backscattered Diffraction.
5 Electron Probe Microanalyzer and Wavelength Dispersive Spectroscopy
6 Atomic force microscopy and Profilometry
Study of topography and phases in materials; and measurement of thickness and roughness of thin films.
7 Thermal analysis
Determination of phase transition temperatures by differential scanning calorimetry and differential thermal analysis. Determination of coefficient of thermal expansion by thermo-mechanical analyzer.
8 Raman spectroscopy and X-Ray Fluorescence
9 TEM specimen preparation
10 Observation of specimens in TEM.