Practical Scanning Electron Microscopy Laboratory

MATSCEN 6740

Credit Hours:
2.00 - 2.00

Course Levels:
Graduate (5000-8000 level)

Course Components:
Lecture
Lab

Course Description:
Provides basic understanding of scanning electron microscopy characterization methods, understanding of sample preparation & compatibility, various imaging modes, and analytical techniques. This course focuses primarily on the practical operation of a scanning electron microscope, and not on its theoretical background.

Prerequisites and Co-requisites:
Prereq: Grad standing; or permission of instructor.

Course Goals / Objectives:
- Basic SEM operation
- Sample preparation
- Electron Beam Alignment; Electron imaging modes and detectors; Image acquisition
- Energy dispersive spectroscopy; Electron backscatter diffraction
Course Topics:
- Overview of Scanning Electron Microscopy
- Introduction to Scanning Electron Microscopy
- Scanning Electron Microscopy Alignment and Parameters
- Scanning Electron Microscopy Imaging
- Scanning Electron Microscopy Energy Dispersive Spectroscopy
- Scanning Electron Microscopy Electron Backscatter Diffraction
- Scanning Electron Microscopy Electron Sample Preparation
- Scheduled paired student practice sessions
- Scheduled one-hour individual Laboratory Practical Examination

Designation:
Elective