



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Practical Scanning Electron Microscopy Laboratory

## MATSCEN 6740

**Credit Hours:**

2.00 - 2.00

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**Course Levels:**

Graduate (5000-8000 level)

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**Course Components:**

Lecture  
Lab

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**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.

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**Prerequisites and Co-requisites:**

Prereq: Grad standing; or permission of instructor.

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**Course Goals / Objectives:**

- Basic SEM operation
  - Sample preparation
  - Electron Beam Alignment; Electron imaging modes and detectors; Image acquisition
  - Energy dispersive spectroscopy; Electron backscatter diffraction
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**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
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**Designation:**

Elective