



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Materials Science and Engineering Laboratory for Welding Engineering Students

## MATSCEN 3333

**Credit Hours:**

2.00

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**Course Levels:**

Undergraduate (1000-5000 level)

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**Course Components:**

Lecture

Lab

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**Course Description:**

Lab experiments related to heat treating, casting, welding, materials characterization, and properties. Introduction to experimental techniques in materials science. Development of technical writing skills.

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**Prerequisites and Co-requisites:**

Prereq: WeldEng 2001 and 2601; and enrollment as WeldEng-BS major; or permission of instructor.

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**Course Goals / Objectives:**

- Develop metallographic preparation skills.
  - Introduction to heat treating of steels.
  - Introduction to casting and methods for producing phase diagrams.
  - Development of techniques for interpreting microstructures.
  - Introduction to interpretation of weld fusion and heat-affected zones.
  - Development of technical writing skills.
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**Course Topics:**

- Heat treating of steels.
  - Metallography.
  - Casting.
  - Microstructural analysis.
  - Weld fusion and heat affected zones.
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**Designation:**

Required