



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Capstone Design I

## ECE 3900

**Credit Hours:**

1.00

---

**Course Levels:**

Undergraduate (1000-5000 level)

---

**Course Components:**

Lecture

---

**Course Description:**

Fundamentals of the engineering design process. Design principles and methodology. Project management during design.

---

**Prerequisites and Co-requisites:**

Prereq: Sr standing and enrollment in the ECE major. Prereq or concur: 3090.

---

**Course Goals / Objectives:**

- Be competent with the principles and issues of engineering design such as problem statements, requirement and objectives analysis, engineering and technical specifications, system models and representation, generation and selection of design concepts
  - Be familiar with principles and tools for management of a design project
  - Demonstrate competence in writing technical design and project management documentation
  - Demonstrate competence in a team-based environment
  - Be exposed to the purpose, development, and use of engineering standards
  - Be familiar with the need to consider multiple realistic constraints (e.g. economic, environmental, sustainability, manufacturability, ethical, health and safety, social and political issues) in engineering design
  - Be familiar with test and validation planning and execution, debugging of prototypes, and the risks and types of failures.
-

**Course Topics:**

- Engineering design methodology
  - Project management (Gantt charts, task breakdowns, budgets, etc)
  - Engineering standards
  - Test and validation plan development
  - Debugging, failure and risk analysis and management
  - Resources for design and implementation of projects
  - Group dynamics and effective professional teams
- 

**Designation:**

Required