



**THE OHIO STATE UNIVERSITY**  
COLLEGE OF ENGINEERING

# Introduction to Robotics with Vision

## ENGRTEC 2100

**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:**

Introduction to Robotics teaches the basics of robotics, focused on the role of an operator, technician, or engineer/programmer. It covers robots, robot safety, robot programming, and setup and training of a 2D vision system. The knowledge learned in lectures will be applied to a robot in a laboratory environment through a series of guided labs.

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**Prerequisites and Co-requisites:**

Prereq or concur: 2500.

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**Course Goals / Objectives:**

- Learn how to use robotics to perform a task applicable to industry
  - Know fundamentals of different types of robots and their applications
  - Understand how robotics can be used to optimize a non-automated process
  - Coordinate and communicate robot programming with a team
  - Know how to use robots to aid in product assembly
  - Learn basic automation processes performed by robots
  - Comprehend ways to use robots for consistency and what factors influence this
  - Learn how to set up and apply vision systems to robot applications
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**Course Topics:**

- Robot types, uses, systems, and safety
  - File Manipulation, Initial Set-up, and alarms
  - Creating frames
  - Robot programming
  - Manufacturing Visits to see applications of robots in industry
  - Vision System Introduction and Set up
  - Vision system Frames, Lighting , and Vision Applications
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**Designation:**

Required