EE 399 - Introduction to Robotics

Get ready for an exciting hands-on exploration into the world of robotics!

Offered on: Autumn 2023 - Restr 14092 A 4

Instructor
Prof. Sep Makhsous
Office: ECE 234
Email: sosper30@uw.edu

Course Description
This course introduces students to the basic methodologies and tools used in robotics research and applications. It includes hands-on lab exercises and project-based learning. Students will work in teams to design, model, and create a variety of controllers for the MechArm Pi, a 6-Axis Robot Arm Figure 1. We'll be utilizing popular development environments such as ROS, Python (ctrl lib), and MATLAB (Simulink.)

Weekly Topics (Tentative)
1. Introduction to MechArm Pi and Basic Blockly Programming
2. Simple Pick and Place Operations with Blockly
3. Introduction to the Robotic Operating System (ROS)
4. Basic Robot Control using Python and ROS
5. Overview of Path Planning Concepts
6. Introduction to MATLAB for Robotics
7. Basic Use of Simulink for Robot Control
8. Introduction to Speed Planning with MATLAB and Simulink
9. Introduction to the Final Project: Basic Robot Control
10. Completion of the Final Project: Simple Maze Navigation and Pick and Place Operations

Grading
- Labs: %60
- Midterm: %25
- ICTE (In-Class Team Exercise): %15

Figure 1. Lab Kit: MechArm Pi, a 6-Axis Robot Arm.

Prerequisites
The prerequisites for this course are CSE143, EE241, and EE242.