Welcome to Introduction to Robotics: Robotic Control. Robotics is a multidisciplinary field that requires a working knowledge of Mechanical, Electrical and Software Engineering. Typically, researchers and professionals in the field are experts in just one of these areas; however basic knowledge of the other areas increases the chance for success.

**Course Description**
Overview of robot control technology from open-loop manipulators and sensing systems, to single-joint servo valves and servomotors, to integrated adaptive force and position control using feedback form machine vision and touch sensing systems. Design emphasis on accurate tracking accomplished with minimal algorithm complexity.

**Course Prerequisite**
Prerequisites: ECE 6A-B: or, ME 6 and 104

**Course Objectives**
1. Programming and interfacing with "Handy Board" battery powered microcontroller systems
2. C Programming
3. Sensors
4. Mobile robot design

**Credit units of class/laboratory Schedule**
3 units lab

**Course Assignments**
- Bump and avoid robot (demonstrate by 1/13)
- Motor and encoder test platform (demonstrate by 1/20)
- Line following robot (demonstrate by 1/27)
- Line following robot race (competition on 1/29)
- Wall following robot (demonstrate by 2/5)
- Wall following robot race (competition on 2/10)
- Solo Robo-Rat race (competition on 2/26)
- Robo-Rat competition (competition on 3/10)
- Hardware check in (3/12)
- Final report due (midnight, 3/16)

**Program Outcomes**
1. An ability to design mobile robots to achieve a specific function.
2. An ability to function on a team to addresses mechanical, electrical, and software design problems.
3. An ability to identify, formulate, and solve problems in intelligent machine design.
4. An understanding of professional and ethical responsibility to a lab partner and to competitors in mobile robot contests.
5. An ability to use design methods, the C computer language, and electronics skills for the practice of intelligent machine design.

**Relationships to Program Objectives**
1. This course prepares students to integrate electronics, software, and mechanisms. Thus, it prepares them to practice in robotics and the emerging areas of mechatronics.
2. This course enhances students' background in design, teamwork, and hand-on problem solving.