



## EGR 211: Programmable Control Systems

This course will provide students with the knowledge of digital systems and the skills required to install, program, operate and troubleshoot automated industrial equipment. It will concentrate on the use of Programmable Logic Controllers (PLCs), robotics and the associated proximity sensors and actuators (hydraulic and pneumatic). Additionally, this course will introduce a variety of automation methods and equipment including microprocessors, vision systems and motor controls. Three class hours and three laboratory hours per week. NOTE: Utilizes Windows based software only. Spring

### Course Student Learning Outcomes

1. Program PLCs, microprocessors and robots using ladder diagrams and PC interfaces.
2. Use binary logic systems, Logic Gates, Boolean Algebra, Flip-Flops, Shift Registers, Timers and Counters in Digital Systems.
3. Describe the utilization and applications of limit switches, proximity sensors, ultrasonic sensor and photo-switch sensors.
4. Define terminology and utilization of Robots, PLCs and other forms of automated equipment in industry, including reliability and economics.
5. Explain the basic design and function of Microprocessors and Microcomputers.

**Credits:** 4

**Prerequisites:**

EGR 131 or EGR 151.

**Co-Requisites:**

EGR 131 or EGR 151.

**Subject:** Engineering

Instructional Support Fee Applies