

RAET 205C : PLC Programming

Students will develop a thorough understanding of modern, industry-standard PLC hardware and software to enable them to use PLCs effectively. Topics include the PLC as a task specific computer, program scan, relay ladder logic, digital and analog, sequencers/drums, functions and function blocks, RLL, SCL, FBD, human machine interface, and other industry related topics. Numerous industry examples will be explored and discussed. Labs will emphasize program organization, documentation, audience awareness, maintainability, robustness, fault tolerance, and debugging.

Credits 3

Lab/Practicum/Clinical Hours 3

Lecture Hours 2

Prerequisite Courses

MATH 124C

CPET 107C

ELET 101C

Learning Outcomes

- Describe PLC architecture.
- Describe PLC input/output wiring.
- Use descriptive tags and comments.
- Write code in relay ladder logic, graph programming, statement list, and function block diagrams.
- Effectively use timers and counters to solve programming problems.
- Understand and use PLC memory and registers.
- Describe and use a PID loop.
- Describe and use a master control relay.
- Effectively use functions and function blocks.
- Write clear and easy to understand code.
- Describe and use edge trigger contacts.
- Understand and use the binary, hexadecimal, octal number systems.
- Use analog input/output.
- Setup and use a human machine interface.