

Introduction to Programmable Controls
Course Syllabus
2025-2026

Lexington High School
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Class Purpose

This course covers fundamental concepts of programmable controls; hardware identification and application, circuit design and utilization of diagrams, system testing and construction.

The class is also a great opportunity to learn, strengthen and apply knowledge in the following areas:

- Engineering
- Problem solving
- Tool use - common and no common tools
- Physics
- Programming
- Math
- Communication skills

Objectives

1. Examine the physical structure and design of the controller
2. Interconvert values between number systems
3. Summarize relay logic symbols and layout rules
4. Transcribe relay logic circuits into equivalent ladder logic circuits
5. Develop programs using comparison and control functions
6. Manipulate the programming platform
7. Develop basic workable programs
8. Explore networking principles
9. Explore troubleshooting and service issues

Learned Unit

1. Introduction to Micro850mPLC and Hardware
2. Introduction to PLC Software
3. PLC Numbering System
4. Micro850 Addressing
5. I/O Configuration
6. Communicating between PC and Micro850 PLC
7. Introduction to Logic
8. Memory Logic and Interlocking
9. Running the instrumentation Trainer with the PLC Trainer
10. Timer Instructions
11. Counters
12. Arithmetic and Compare Instructions
13. Analog I/O

Resources

CCC Canvas Course / Other Printed Materials

Grading

Tests/Quizzes (**50%**) + Projects (**30%**) + Homework/Activities (**20%**) = **100%**

Quarter 1 (**45%**) + Quarter 2 (**45%**) + Semester Final (**10%**) = **100%**

Late Work

All assignments have a due date. I expect all work to be turned in on time.

20 points will be deducted for every day it is late. After 4 days it will be counted as a "0%"

Classroom Expectations and Procedures:

- Come to class prepared (Charged chromebook, pencil, paper, etc.)
- Respect one another
- Listen wholeheartedly when others are speaking
- Speak with good purpose
- Be accountable for your actions
- Learn from failure

Beginning of Class:

- Place phones in backpack (No tolerance policy)
- Find your seat, take out supplies needed for class (CHARGED COMPUTER, pencil, etc.)
- When finished, sit quietly and wait for further instructions

During class:

- Actively participate in class
- Keep order
- Be respectful

End of Class:

- Clean up your area (paper on floor around you, your supplies, put extension cords away, etc.)
- Sit IN seat until the bell rings. DO NOT LINE UP AT THE DOOR!!!!
- Push in your chair and leave the room quietly