

PROGRAMMABLE CONTROLLERS (PLC/PAC) TECHNICIAN CERTIFICATE

MFG 250	Advanced Automation Applications (PLC/PAC/HMI)	4
Hours		8
Total Hours		15

Note: Pathway is a recommended sequence of courses. Students should contact the department chair or program coordinator with questions about course prerequisites and recommendations.

15 Semester Credit Hours; Curriculum: 0248

The Programmable Controllers (PLC/PAC) Technician Certificate consists of 15 credit hours. The job of Programmable Controllers (PLC/PAC) Technician is to design, program, calibrate, monitor, troubleshoot, and repair automation systems ranging from simple traffic lights to complex industrial automation systems. These sophisticated automation systems are controlled by devices commonly known as Programmable Logic/Automation Controllers (PLC/PAC) and Human Machine Interface (HMI). The purpose of the program is to prepare students to this challenging yet highly rewarding opportunity in modern automation/mechatronics field.

Code	Title	Hours
Courses for a Certificate		
MFG 111	Introduction to Computer Integrated Manufacturing (CIM)	3
MFG 240	Programmable Logic Controllers (PLC)	4
MFG 245	Programmable Automation Controllers (PAC)	4
MFG 250	Advanced Automation Applications (PLC/PAC/HMI)	4
Total Hours		15

Program Learning Outcomes

1. Define Programmable Logic Controllers (PLC) and Programmable Automation Controllers (PAC) and describe their advantages over old Relay Logic systems.
2. Compose state diagrams and logical flow charts based on machine functional sequence and equipment operational requirements.
3. Create Ladder Logic (LL), Function Block Diagram (FBD), and Sequential Function Chart (SFC) programs to control automated machine operation sequence.
4. Evaluate PLC/PAC programs to assure they meet OSHA operational safety requirements including manually activated and continuously running machines.
5. Design various PanelView Plus screen layouts including setup and automatic modes to control automated industrial equipment from Human Machine Interface (HMI) device.
6. Compose diagnostic routines to monitor industrial machines operation and display detected warnings and errors on an HMI screen.

Programmable Controllers (PLC/PAC) Technician Certificate Pathway

The following Pathway is recommended for students pursuing the Programmable Controllers (PLC/PAC) Technician Certificate.

Course	Title	Hours
First Year		
Fall Semester		
MFG 111	Introduction to Computer Integrated Manufacturing (CIM)	3
MFG 240	Programmable Logic Controllers (PLC)	4
Hours		7
Spring Semester		
MFG 245	Programmable Automation Controllers (PAC)	4