



Industrial Maintenance Cohort Program (Year 2)

Title	Credits	Course	Semester
Concepts of Programming	1	10-628-101	1
Fluid Power 1	1	10-620-111	1
Fluid Power 2	1	10-620-112	1
Electrical Power Distribution 1	1	10-620-131	1
Electrical Power Distribution 2	1	10-620-132	1
PLC 1	1	10-620-151	2
PLC 2 (Allen Bradley)	1	10-620-152	2
Electronic Construction Applications	1	10-628-113	2
Elements of Machines 1	1	10-620-164	2
Elements of Machines 2	1	10-620-165	2
<i>Books and materials provided</i>	10		

Education Pathways (Year 1 + Year 2):

- 16 credits toward Industrial Maintenance Certificate (17 credits)
- 20 credits toward Industrial Maintenance Diploma (26 credits)
- 21 credits toward Electro-Mechanical Technology Associate Degree (60 credits)
- 21 credits toward Automated Manufacturing Systems Technology Associated Degree (60 credits)

Course Descriptions

Concepts of Programming

Introduces students to programming fundamentals necessary in automation related careers. Students will discuss proper programming structures including flow chart and pseudocode programming. Students will create and troubleshoot programs

Fluid Power 2

Introduces intermediate fluid power systems. Students examine how fluid power components operate and how they interact within fluid power systems. This course will primarily deal with hydraulic systems. Laboratory activities are performed to verify the theory. Coreq: Fluid Power 1 (10620111)

Fluid Power 3

Introduces intermediate fluid power systems. Examine how fluid power components operate and how they interact with fluid power systems. This course will primarily deal with pneumatic systems. Laboratory activities are performed to verify the theory. Coreq: Fluid Power 2 (10620112)

Electrical Power Distribution 1

Introduces electrical work hazards and basic safe work practices. Students learn to recognize, evaluate, and control electrical hazards, and OSHA Lockout/Tagout procedures and NFPA 70E safety training are introduced. Coreq: Ladder Logic and Control Devices (10660170)

Electrical Power Distribution 2

Focuses on industrial power distribution systems applied to automated manufacturing operations. The National Electrical Code applied to manufacturing operations is introduced. Coreq: Electrical Power Distribution 1

PLC 1

Introduces Programmable Logic Controllers (PLC)s and RSLogix 500 Programming Software. The PLC hardware will consist of Allen Bradley products. Students use the RSLogix 500 programming software to create logical solutions for real world applications. The applications will require students to create, download, and debug programs in RSLogix 500. Coreq: Ladder Logic and Control Devices (10660170) OR Digital 1 (10605130)

PLC 2

Introduces Programmable Logic Controllers (PLC)s and Studio 5000 (formerly RSLogix5000) Programming Software. The PLC hardware will consist of Allen Bradley products. Students will configure Ethernet communications to connect to the Allen Bradley PLC hardware. Students will use Studio 5000 programming software to create logical solutions for real world applications. The applications will require students to create, download, and debug their programs. Students will study industrial sensors and their uses. Students will wire and test sensor operations. Coreq: Programmable Logic Controllers (10609173) OR PLC 1 (10628151)

Electronic Construction Applications

Introduces industrial control panel design, layout, mounting, and wiring of industrial relays, push buttons, pilot lights, plc, fuses, transformers, 3 phase motor, and motor starters are applied. Quality installation and NEC standards are emphasized throughout the course.

Elements of Machines 1

Emphasizes the mechanical elements of industrial machines. Principles of leveling motors, fasteners, bearings, and couplings are covered. Terminology, selection, and proper installation and maintenance are stressed.

Elements of Machines 2

Emphasizes the mechanical elements of industrial machines. Principles of power transmission, belt drives, and chain drives are covered. Terminology, selection, and proper installation and maintenance are stressed. Coreq: Elements of Machines 1 (10620164)