Industrial Maintenance Cohort
Year 2

Title	Credits	Course	Semester
Concepts of Programming for Technicians	1	10-628-101	1
Pneumatics 1	1	10-620-111	1
Pneumatics 2	1	10-620-112	1
Electrical Power Distribution 1	1	10-620-131	1
Industrial Electrical Applications	1	10-620-132	1
PLC 1	1	10-628-151	2
PLC 2	1	10-628-152	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
Total	10		
Books and materials provided			

Education Pathways:

Year 1 + Year 2

- 15 credits toward Industrial Maintenance Foundations Certificate (16 credits) – (AutoCAD Fundamentals would need to be completed for the Industrial Maintenance Foundations certificate.)
- 19 credits toward Industrial Maintenance Diploma (26 credits) – (AutoCAD Fundamentals, Blueprint Reading & AutoCAD, Computers Systems & Networks 1, Motors & Drives 1, Operator Interfaces, PLC 3 and Technical Software Essentials would need to be completed for the Industrial Maintenance Mechanic diploma.) (PLC 3 is completed in year 3 of the cohort.)
- 21 credits toward Electro-Mechanical Technology Associate Degree (60 credits) (Industrial Electrical Applications would apply as an elective credit.)
- 21 credits toward Automated Manufacturing Systems Technology Associated Degree (60 credits) (Hydraulics 1 would apply as an elective credit.)

Course Descriptions

Concepts of Programming for Technicians

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.

Pneumatics 1

Introduces fundamental principles and laws of fluid power, with a focus on pneumatics. Laboratory activities are performed to verify the theory. Coreq: College Technical Math 1 - 10804115 OR College Algebra and

Trigonometry with Apps 10804197 OR College Technical Math 1A 10804113 OR Industrial Maintenance Math 31804308

Pneumatics 2

Introduces advanced pneumatic and electropneumatic systems. Students examine how pneumatic components operate and how they interact in industrial systems. Laboratory activities are performed to verify the theory. Coreq: Pneumatics 1 - 10620111; Ladder Logic and Control Devices 10660170 OR 10609170

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.

Industrial Electrical Applications

Introduces the National Electrical Code as it applies to safe installation of electrical wiring and equipment. This includes motor design, wiring methods, and fusing of automated systems. Coreq: DC Circuits 3 10660112; Ladder Logic & Control Devices 10660170 OR 10609170; Essentials of Manufacturing Safety 10449188

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. Prereq: Ladder Logic & Control Devices 10660170 OR 10609170; Coreq: Essentials of Manufacturing Safety 10449188

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)