

## Electro-Mechanical Technology Course Sequences for First Semester, Degree and Certificates

### First Semester Course Sequence

Elect 1100 Electricity and Electronics Fundamentals	2
Elmec 1101 Survey of Automation	3
Elmec 1110 Motor Fundamentals	3
Manuf 1104 Technical Mechanics	2
Manuf 1141 Hydraulics and Pneumatics	3

### Degree: 3957 Electro-Mechanical Technology: (AAS)

This program prepares students to enter the industrial and manufacturing workplace with knowledge and skill levels in three areas: programmable controllers, process control instrumentation and mechanical maintenance. A certificate in programmable controllers involves programming and maintenance of various programmable controllers. The certificate in process control instrumentation trains the student to inspect, calibrate, troubleshoot and repair various instruments. Students earning the mechanical maintenance certificate learn skills in power trains, drive components, pumps and motors. The following list contains the required courses.

#### Fall Semester 1

Elect 1100	Electricity and Electronics Fundamentals	2
Elmec 1101	Survey of Automation	3
Elmec 1110	Motor Fundamentals	3
	General Education	3
Manuf 1104	Technical Mechanics	2
Manuf 1141	Hydraulics and Pneumatics	3
	TOTAL	16

#### Spring Semester 2

Elmec 1130	Industrial Electricity	3
Elmec 1400	Maintenance Management Systems	3
Elmec 1420	Drive Components	2
Elect 1120	Electronic Documentation	2
	General Education	3
Manuf 1190	Introduction to Program. Logic Controllers	3
	TOTAL	16

#### Fall Semester 3

Elmec 2510	Process and Automation Controls	3
Elmec 2410	Programmable Controller II (PLC II)	3
Manuf 1180	Quality Control	3
Manuf 1171	Introduction to Robotic Technology	3
	General Education	6
	TOTAL	18

Spring Semester 4	
Electives	9
General Education	6 to 10
TOTAL	15 to 19
DEGREE PROGRAM TOTAL	65 to 99

### **Elective Courses**

#### General Education

Students must complete all general education requirements (18 to 22 semester hours) and 2 semester hours in Global/Multicultural Studies or Contemporary Life Skills.

Total Hours 18 to 22

### **Program Electives**

Choose at least 9 credit hours from the following courses.

Airc 1161	Introduction to Sheet Metal	2
Cadd 1111	Basic Computer-Aided Drafting-AutoCad	3
Elect 1101	Circuits I	3
Elect 1102	Circuits II	4
Elect 1130	Electronics Materials and Fabrication	2
Elect 1199	Cooperative Education/Internship I	1 to 6
Elect 2220	Electronic Instruments, Meas, and Control	3
Elect 2255	Industrial Controls	3
Elect 2299	Cooperative Education/Internship II	1 to 6
Elmec 1120	Residential Wiring	3
Elmec 1150	National Electrical Code	3
Elmec 1410	Preventive and Predictive Maintenance	3
Elmec 2600	Motion Control: Servo and Stepper Motor	2
Elmec 2610	Machine Vision and Artificial Intelligence	2
Elmec 2620	Critical Thinking in Technical Applications	2
Elmec 2630	Systems Troubleshooting	2
Manuf 1101	Industrial Design/CAD	3
Manuf 2251	Computer Numerical Control (CNC)	3
Weld 1100	Welding I	3
TOTAL		9

**Certificate: 4958 Electro-Mechanical Technology: Mechanical Maintenance**

The Mechanical Maintenance certificate requires 33 credits in the courses listed below.

Fall Semester 1

Elect 1100	Electricity and Electronics Fundamentals	2
Elmec 1101	Survey of Automation	3
Elmec 1110	Motor Fundamentals	3
Manuf 1104	Technical Mechanics	2
Manuf 1141	Hydraulics and Pneumatics	3
Manuf 1151	Machine Shop I	3
TOTAL		16

Spring Semester 2

Elmec 1130	Industrial Electricity	3
Elmec 1420	Drive Components	2
Elmec 1150	National Electrical Code	3
Manuf 1171	Introduction to Robotic Technology	3
Manuf 1190	Introduction to Program. Logic Controllers	3
Weld 1100	Welding I	3
TOTAL		17

TOTAL HOURS REQUIRED 33

**Certificate: 4959 Electro-Mechanical Technology: Process Control Instrumentation**

The Process Control Instrumentation certificate requires 37 credits in the courses listed below.

## Fall Semester 1

Elect 1100	Electricity and Electronics Fundamentals	2
Elmec 1101	Survey of Automation	3
Elmec 1110	Motor Fundamentals	3
Elmec 2510	Process and Automation Controls	3
Manuf 1141	Hydraulics and Pneumatics	3
Electives		2
TOTAL		16

## Spring Semester 2

Elmec 1130	Industrial Electricity	3
Elmec 2520	Advanced Process and Automation Controls	3
Elect 1120	Electronic Documentation	2
Elect 2255	Industrial Controls	3
Elect 2220	Electronic Instruments, Meas, and Control*	3
Manuf 1190	Introduction to Program. Logic Controllers	3
TOTAL		17

## Fall Semester 3

Manuf 1180	Quality Control	3
Manuf 1171	Introduction to Robotic Technology	3
TOTAL		6

TOTAL HOURS REQUIRED 39

\* Use ET 2112 instead

**Certificate: 4960 Electro-Mechanical Technology: Programmable Controllers**

The Programmable Controllers certificate requires 35 credits in the courses listed below.

Fall Semester 1

Elect 1100 Electricity and Electronics Fundamentals	2
Elmec 1101 Survey of Automation	3
Elmec 1110 Motor Fundamentals	3
Manuf 1104 Technical Mechanics	2
Manuf 1171 Introduction to Robotic Technology	3
Manuf 1180 Quality Control	3
TOTAL	16

Spring Semester 2

Elmec 1130 Industrial Electricity	3
Elmec 1150 National Electrical Code	3
Elmec 2600 Motion Control*:	2
Elect 1120 Electronic Documentation	2
Elect 2255 Industrial Controls	3
Manuf 1190 Introduction to Program. Logic Controllers	3
TOTAL	16

Fall Semester 3

Elmec 2410 Programmable Controller II (PLC II)	3
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TOTAL HOURS REQUIRED 35

\*Use ET 2112 instead