

# ELECTRONICS: INDUSTRIAL SYSTEMS (CERTIFICATE T0908)

## Technology and Health Division Certificate T0908

In addition to courses in electronics fundamentals, the Industrial Systems curriculum encompasses advanced coursework in industrial electronics, including electronic devices for industrial and motor controls. The curriculum culminates in the study of programmable logic controls (PLCs) using the Allen-Bradley series of PLCs running Windows ladder logic software.

This advanced certificate is one of three available for students who do not complete all second-year systems courses at once, or who complete them one at a time. Two other certificate programs are also available: a one-year certificate in Electronics Technology, and a two-year certificate having the same title as the A.S. degree. A.S. degree recipients are automatically eligible to receive, without further examination, a 3rd class Technician License from the National Association of Radio and Telecommunications Engineers (N.A.R.T.E.), while students completing certificate programs are automatically eligible for the N.A.R.T.E. 4th Class Technician license.

### Required Courses

Course Prefix	Course Name	Units
ELEC 11	Technical Applications in Microcomputers	3
ELEC 12	Computer Simulation and Troubleshooting	2
ELEC 50A	Electronic Circuits - Direct Current (DC)	4
ELEC 50B	Electronic Circuits (AC)	4
ELEC 51	Semiconductor Devices and Circuits	4
ELEC 54A	Industrial Electronics	4
ELEC 54B	Industrial Electronic Systems	3
ELEC 56	Digital Electronics	4
ELEC 61	Electronic Assembly and Fabrication	3
TECH 60	Customer Relations for the Technician	2
Total Units		33

Electronics and Computer Technology Website (<http://www.mtsac.edu/electronics/>)

### Program Learning Outcomes

Upon successful completion of this program, a student will:

- be able to employ polar and/or rectangular notation to determine the magnitude and phase shift of an unknown circuit parameter (voltage, current, impedance, and/or power).
- demonstrate proper use of electronic test equipment and associate measurement results with circuit behaviors in the laboratory.
- quantitatively determine unknown electrical parameters from given or measured values and use these results to assess or troubleshoot faults in circuit and system operation.
- communicate, both verbally and in writing, knowledge of electrical concepts and their application to the observed behaviors of circuits and systems.

- in advanced courses, connect concepts learned in introductory courses to more general principles applicable in the employment context.

Review [Student Learning Outcomes \(SLOs\)](#) for this program.

Looking for guidance? A counselor can help. This Guided Pathways for Success (GPS) is a suggested sequence of coursework needed for program completion. It is not an official educational plan. Schedule an appointment (<https://esars2012.mtsac.edu/appointments/counseling/eSARS.asp?WCI=Init&WCE=Settings>) with a counselor or advisor as soon as possible to create an individualized Mountie Academic Plan (MAP) specific to your goals and needs.

Course	Title	Units
<b>Fall Term 1</b>		
ELEC 50A	Electronic Circuits - Direct Current (DC)	4
ELEC 50B	Electronic Circuits (AC)	4
ELEC 11	Technical Applications in Microcomputers	3
Units		11
<b>Spring Term 1</b>		
ELEC 54B	Industrial Electronic Systems	3
ELEC 56	Digital Electronics	4
ELEC 61	Electronic Assembly and Fabrication	3
TECH 60	Customer Relations for the Technician	2
Units		12
<b>Fall Term 2</b>		
ELEC 51	Semiconductor Devices and Circuits	4
ELEC 54A	Industrial Electronics	4
Units		8
<b>Spring Term 2</b>		
ELEC 12	Computer Simulation and Troubleshooting	2
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Submit petition to Admissions Records		Submit petition to Admissions Records
Units		2
Total Units		33