

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/>)

Guided Pathways of Study Suggested Course Sequence (<https://www.mtsac.edu/guided-pathways/pathway-results.html?pthwyvar=T0908&desc=Electronics%3A+Industrial+Systems%2C+Certificate+T0908>)

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.