

# ELECTRONICS COMMUNICATIONS

---

## Certificate of Completion #24210

In addition to courses in electronics fundamentals, the Electronics Communications certificate program encompasses the study of both wire-based and wireless forms of analog and digital communications systems. Topics include amplitude and frequency modulation, multiplexing, antennas, transmission lines, and radio-wave propagation, as well as microwave systems, including radar and satellite operations.

### Program Learning Outcomes

- Students will be technically competent.
- Students will be employed or seeking employment in the field or a related field.
- Students will employ polar and/or rectangular notation to determine the magnitude and phase shift of an unknown circuit parameter (voltage, current, impedance, and/or power).

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

### Required Courses

Course Prefix	Course Name	Units
VOC EL11	Technical Applications in Microcomputers	
VOC EL12	Computer Simulation and Troubleshooting	
VOC EL50A	Electronic Circuits - Direct Current (DC)	
VOC EL50B	Electronic Circuits (AC)	
VOC EL51	Semiconductor Devices and Circuits	
VOC EL53	Communications Systems	
VOC EL55	Microwave Communications	
VOC EL56	Digital Electronics	
VOC EL61	Electronic Assembly and Fabrication	
VOC TCH60	Customer Relations for the Technician	

Back to Vocational Programs (<http://catalog.mtsac.edu/programs/noncredit-programs/programsaz/vocational-programs/>)