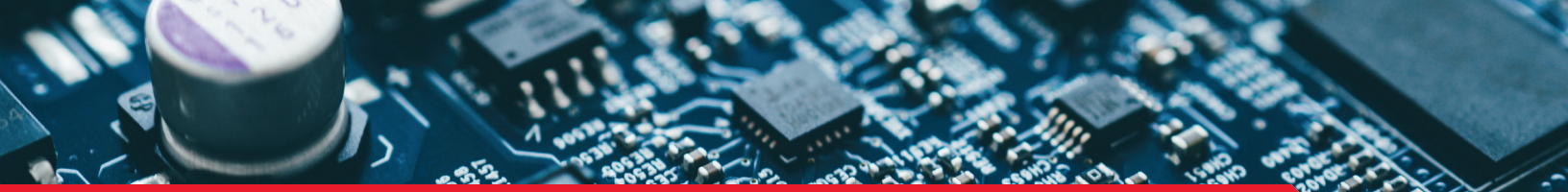

ELECTRONICS TECHNICIAN

Electronics Technician Certification

Set up, repair, and maintain electronic systems and equipment

The Electronic Technician program will help students learn a variety of skills used in the industry such as the following:

- Run performance analyses on electronic devices
- Create prototypes
- Install, modify, and troubleshoot circuits and electronics systems
- Program microcontrollers and robots
- Read and interpret prints and schematics used in the electronics industry
- Analyze and implement basic analog and digital electronic circuits
- Build various electrical circuits and document outcomes

Suggested educational levels:

- English literacy (reading, writing, speaking, and listening)
- Understanding of basic algebra

Class Hours:

- Morning: 7:50am - 10:40am Mon.- Fri.
- Afternoon: 12:05pm - 2:50pm Mon.-Fri.
- Program is 2 semesters in length, with start dates in Fall.

Tuition and Credit Hour Calculation

Semester 1	Semester 2
$2,080.00 *(Tuition)*	$2,340.00 *(Tuition)*
+ $210.00 *(Credit Hour Fee)*	+ $230.00 *(Credit Hour Fee)*
$2,290.00	**$2,570.00**

Based on Colorado Resident In-State Tuition

Estimated Program Costs *(to be paid at Picken's payment office)*

Tuition and Credit Hour Fees:

Semester 1: $2,290.00
Semester 2: $2,570.00

Required On Campus Costs:

Program Charges: $500.00 (each semester)
Student ID: $10.00 (each year)
CTSO Charge: $20.00 (each year)

Estimated Total:

Electronics Technician Certificate: $5,890.00 (+tax)

Credits: 34

Length: 1 year

Cost: $5,890

PICKENS TECHNICAL COLLEGE

Cost and information revised **March 2023**

500 Airport Blvd., Aurora, CO 80011 • www.pickenstech.org • (303)344-4910

ELECTRONICS TECHNICIAN

Courses required for this certificate: Semester 1

ELT 1206 Fundamentals of DC/AC
Introduces the basic skills needed for many careers in electronics and related fields. Covers the operations and applications of basic DC and AC circuits consisting of resistors, capacitors, inductors, transformers and diodes.
Emphasizes the use of common test instruments in troubleshooting.

ELT 1234 Solid State Devices I
Focuses on diode and transistor studies starting with a review of semiconductor materials. Emphasizes rectifier circuits, R-C and L-C filters, limiters and peak detectors, zener regulators, Schottky diodes, varactors/ veristors, LED's bipolar transistors, transistor approximation, load-lines, biasing techniques, saturation, operating point, AC models including small-signal operation, h-parameters, and data sheet understanding and interpolation.

ELT 1236 Introduction to Transistors
Introduces the operation and applications of bipolar transistors, JFETs and MOSFETs. Includes switching circuits, single-stage small-signal amplifiers and troubleshooting.

ELT 1237 Advanced Transistors
Continues ELT 136 with specifications and additional applications of bipolar transistors, JFETs and MOSFETs. Covers voltage regulation, common-collector, and power amplifiers. Includes analysis of single and cascaded amplifier stages. Emphasizes troubleshooting.

ELT 1002 Soldering
Covers the theory and practice of high reliability hand soldering in the electronics field. Includes soldering practice with wire and terminal soldering as well as PCB soldering of through-hole and surface-mount devices.

ELT 2215 Operational Amplifiers
Focuses on a study of integrated operational amplifiers and their applications. Troubleshooting is emphasized.

Courses required for this certificate: Semester 2

ELT 1247 Digital Devices I
Introduces the operation and application of logic gates, flip-flops, counters, shift registers, encoders-decoders and LED displays. Covers binary numbers, Boolean algebra and troubleshooting.

ELT 1248 Digital Devices II
Continues ELT 147 with emphasis on the operation and application of programmable logic devices, synchronous counters, multiplexers, liquid crystal displays, ROM and RAM. Includes specifications of ICs, display multiplexing, and design and minimization of circuits. Troubleshooting is emphasized.

ELT 2358 Programmable Logic Controllers
Covers the fundamentals of programmable logic controllers (PLCs) as they are applied to robotics and automation. Includes history, terminology, typical applications, hardware, and software. Incorporates lab and project activities that address operating, monitoring, programming, troubleshooting, and repairing PLC controlled lab trainers as well as actual industrial equipment.

ELT 2365 Microcontrollers
Provides the necessary software and hardware knowledge and skills to develop a microcontroller system. Incorporates programming tools and development software.

ELT 2367 Introduction to Robotics
Introduces basic robotics. Enables the student to program a robot in a higher-level language to perform various tasks. Covers building and interfacing of sensor circuits.

ELT 2368 Robotics Technologies
Introduces industrial robotics as well as a survey of the technologies and equipment used in manufacturing automation and process control. Includes axis configurations, work envelopes, programming, troubleshooting, and maintenance. Incorporates a survey of automation topics including history, computer and hardwired controls, sensors and transducers, motors and actuators, fluid power, etc. and provides a preview of the other ELT classes that cover those subjects.

ELT 2080 Internship
Provides students with the opportunity to supplement coursework with practical work experience related to their educational program. Students work under experienced personnel at the business location and with the direct guidance of the instructor.

ELECTRONICS TECHNICIAN CERTIFICATE
Certificate Total: Clock Hours: 600 Credit Hours: 34
Certificate Length: 2 semesters

Additional costs may apply. All books, kits & supply costs are estimated. Cost, information, and classes are subject to change. Statistics present are based on the US Bureau of Labor Statistics. This certificate is eligible for Financial Aid. You may begin the Financial Aid process by completing your Free Application for Federal Aid (FAFSA) at www.FAFSA.ed.gov. If you have further questions, please call (303)344-4910.