

PROGRAM: **Electronic Technologies**

**PROGRAM
CIP CODE:** **15.0300.00**

DESCRIPTION: The **Electronic Technologies** program is designed to prepare students to apply basic engineering principles and technical skills in support of electrical, electronics and communication engineers. The program includes instruction in electrical circuitry, prototype development and testing of various micro circuits and evolving nanotechnology related to circuits, systems analysis and testing, systems maintenance, instrument calibration and report preparation, in addition to technical skills, students completing this program will understand the advances in nanotechnology, energy bands along with electronic and optical properties while developing advanced critical thinking, applied academic, career development, life management, business, economic and leadership skills required for Electronic Technologies occupations. The program is designed and delivered as a coherent sequence of experiences using technical instruction, academic foundations, experiential learning, supervised occupational experience and leadership and personal development through the Career and Technical Student Organization, SkillsUSA.

RECOMMENDED PROGRAM SEQUENCE OF COURSES:

**Career
Preparation** The following describes the recommended courses developed from industry-validated skills necessary for initial employment or continued related education.

15.0300.10 **Electronic Technologies Core Curriculum:**
Students will learn basic safety principles and practices used in electronic manufacturing industries and/or repairing electronic equipment. Students will learn how to use basic hand tools, test equipment and troubleshooting techniques. Other units of instruction include basic math through trigonometry, reading and interpreting schematic diagrams and technical drawings, soldering-desoldering techniques and other basic assembly skills.

-and-

15.0300.20 **Electricity Principles and Applications:** This course includes units of instruction in basic concepts, electrical quantities and units, basic circuits, laws and measurements, circuit components, multiple-load circuits, complex-circuit analysis, becoming familiar with the newly developed “transfer and join” technology in nanotechnology with CMOS electronics, thin-film transistors, magnetism to include the introduction of magnetic and electronic properties of magnetic nanocrystals, electron microscopy, electron defraction, alternating current and voltage, power in AC circuits, capacitance, inductance, transformers, RCL circuits, electric motors, and test equipment.

-and-

15.0300.25 **Electronic Principles and Applications:** This course includes units of instruction in semiconductors, diodes, power supplies, transistors, small-signal amplifiers, large-signal amplifiers, operational amplifiers, oscillators, communications theory, integrated circuits, silicon-controlled rectifiers, regulated power supplies and digital signal processing.

And program may elect to add:

15.0300.75 **Electronic Technologies - Internship:** This course provides CTE students an opportunity to engage in learning through participation in a structured work experience that can either be paid or unpaid and does not necessarily require classroom instruction that involves the application of previously developed Electronic Technology knowledge and skills.

-or-

15.0300.80 **Electronic Technologies - Cooperative Education:** This course utilizes a cooperative education methodology to combine school-based and supervised work-based learning experiences directly related to the standards identified for the Electronic Technology program.

TEACHER CERTIFICATION REQUIREMENTS FOR THE ELECTRONIC TECHNOLOGIES PROGRAM

CAREER PREPARATION: The instructor must be CTE certified according to the following table

Electronic Technologies	CERTIFICATES Types: PCTI, PCTIEP, SCTI, SCTIEP
Note:	
<ul style="list-style-type: none"> ▪ Electronic Technologies, 15.0300.70 may be a part of the sequence and the teacher must hold a Cooperative Education Endorsement (CEN). ▪ Teacher/Coordinator 15.0300.75 is not required to have a Cooperative Education Endorsement (CEN). ▪ Teacher/Coordinator 15.0300.80 is required to have a Cooperative Education Endorsement (CEN). 	

CERTIFICATE ABBREVIATIONS FOR THE ELECTRONIC TECHNOLOGIES PROGRAM

Certificate Types	
PCTI	Provisional Career and Technical Education Industrial Technology
PCTIEP	Provisional Career and Technical Education Industrial and Emerging Technologies
SCTI	Standard Career and Technical Education Industrial Technology
SCTIEP	Standard Career and Technical Education Industrial and Emerging Technologies