

AUTOMATION AND ROBOTICS 14.4201.00

Program Description, Industry Credential, Coherent Sequence, and Teacher Certification

PROGRAM DESCRIPTION

The **Automation and Robotics** instructional program prepares students to become an automation technician who can apply basic engineering principles and technical skills to production systems. These technician positions support engineers and other professionals engaged in installing, calibrating, modifying and maintaining automated systems used in manufacturing facilities. This would include knowledge and application of computer systems; MRP (material requirement planning) Software; electronics and instrumentation; programmable logic controllers (PLCs); electric, hydraulic and pneumatic control systems; actuators and sensor systems; process control; robotics; and applications to specific industrial tasks. Industrial automation and robotic systems are about the control of physical processes through artificial intelligence that collects information from various sensors to perform a task without human interaction.

The **Automation and Robotics** Career and Technical Education program is delivered as a coherent sequence of courses designed to offer students' knowledge and skills that meet the needs of the workplace. The Professional Skills developed by business and industry leaders across Arizona are integrated throughout the program. Automation and Robotics students develop leadership, social, civic, and career skills through participation in the state recognized Career and Technical Student Organizations, SkillsUSA.

INDUSTRY CREDENTIALS

The following credentials have been approved for the A-F CCR and are CTED eligible for the **Automation and Robotics** instructional program:

- Certified SolidWorks Associate (CSWA)
- Google Data Analytics Certificate
- Machining Manufacturing Skill Standards Council (MSSC) – Certified Production Technician (CPT)
- Machining Manufacturing Skill Standards Council (MSSC) – Green Production Certification
- Mechatronics
- National Center for Construction Education and Research (NCCER) – Electronics Systems Technician (EST) – Level 1
- National Center for Construction Education and Research (NCCER) – Electronics Systems Technician (EST) – Level 2
- National Institute for Metalworking Skills (NIMS) – Level 1
- Smart Automation Certification Alliance (SACA) Certified Industry Associate Level 1

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COHERENT SEQUENCE

14.4201.10 – Automation and Robotics I, **and**

14.4201.20 – Automation and Robotics II, **and program may elect to add:**

14.4201.30 – Automation and Robotics III, **or**

14.4201.40 – Automation and Robotics IV, **or**

14.4201.70 – Automation and Robotics – DCE (Diversified Cooperative Education) **or**

14.4201.75 – Automation and Robotics – Internship

14.4201.80 – Automation and Robotics – Cooperative Education

TEACHER CERTIFICATION REQUIREMENTS

The instructor must be ADE/CTE certified in one of the following Certificates:

SCTIET Standard Career and Technical Education Industrial and Emerging Technologies

SSCTEIET Standard Specialized Career and Technical Education Industrial and Emerging Technologies

Note:

- Automation and Robotics 14.4201.70 (DCE) requires a CTE Teacher to have the Cooperative Education Endorsement (CEN).
- Automation and Robotics 14.4201.75 (Internship) does not require a CTE Teacher to have a Cooperative Education Endorsement (CEN).
- Automation and Robotics 14.4201.80 (Cooperative Education) does require a CTE Teacher to have a Cooperative Education Endorsement (CEN).