



Electronics/Robotics and Automation

Approved by New York State Education Department (NYSED)



ELECTRONICS / ROBOTICS AND AUTOMATION is a two-year program that consists of lab-based, hands-on curriculum combining electrical, mechanical and engineering principles. Students will learn to design, build, program, and control robotic devices. Theory and applications of electrical concepts will include: sources of energy, electrical safety, use and identification of basic electronic components, sensors and actuators. Engineering concepts will include: mechanical design, prototype development, design testing, programming, and proper engineering documentation.

Work Environment

Operators control and oversee daily machine tasks, and communicate with engineers and technicians to keep autonomous systems running. Maintenance Technicians maintain and repair the mechanical and electrical systems involved in robotic automation.

Control Technicians maintain and repair the control systems associated with robotic automation, which generally deals with software, computer programming and networking.

Career Opportunities

Robotics Operator
Maintenance Technicians
Control Technician
Automation Programmer
Engineering Assistant
Field Technician
Electromechanical Assembler
Engineer Design Assembler
Inspector

Advanced Standing Available*

Five Towns College
Island Drafting and Technical Institute

*College credits may be earned by meeting the criteria of articulation agreements (see listing in Handbook) Tech has established with SELECT colleges. In addition, check directly with the post-secondary institutions for any additional credits they may offer.

Helpful Preparatory Courses

- Math: Geometry, Algebra II
- Science: Chemistry, Physics
- Computer Science/ Programming

Academic credits integrated:

Tech Math, Tech Phys Sci, Eng. 12, CFM, Comp App

CTE Endorsement

Students must meet the academic and attendance criteria for a two-year Wilson Tech Certificate of Completion, be High School diploma eligible, and pass the following exam: Precision Exam - Robotics

Student Supplies

No additional supplies are needed for this program.

Average Annual Wage

Salaries are subject to market fluctuations.

For the most current updates on local & national wages go to job search engines on the internet and www.careerzone.ny.gov

Course Outline

- Tool Safety
- Electrical Safety
- Industrial/ Manufacturing Safety
- Impact of automation on manufacturing
- Ethical and societal impact of automation
- Fundamentals of electricity
- Power sources
- Robotic components
- Actuators and Sensors
- Control Systems
- Programming: Python
- Preventative maintenance
- Mechanical advantage
- Programming: C++
- Robotic Control
- Design/ 3D modeling
- Robotics Competitions
- Engineering pathways
- Career opportunities