



TENNESSEE COLLEGE
OF APPLIED TECHNOLOGY
SHELBYVILLE

**Industrial Maintenance Automation
Dual Credit Agreement**

Program Description: This program is designed to prepare students to enter the Industrial Maintenance field in an entry-level position and to enhance the skills of students already employed in the field. The program provides instruction to develop the skills needed to succeed in the repair and maintenance of machinery and equipment in industrial environment. Broad Units of Study include Industrial Mechanics, Fluid Power, Math & Schematics, Industrial Electricity & Electronics, Programmable Logic Controllers, and Robotics. Optional Units of Study include Welding. For more information, visit <https://tcatshelbyville.edu/programs/industrial-maintenance>.

Instructor(s): Butch Arnold - butch.arnold@tcatshelbyville.edu; Randy Edens - randy.edens@tcatshelbyville.edu; Jared Hale - jared.hale@tcatshelbyville.edu; Mike Foster - mike.foster@tcatshelbyville.edu; Shaun Mason - shaun.mason@tcatshelbyville.edu; Chris Cantrell - chris.cantrell@tcatshelbyville.edu; Chris Parker - chris.parker@tcatshelbyville.edu

Total Time Commitment of Program: 2160 clock hours

Aligned Secondary Program(s) of Study: Technology; Mechatronics; Engineering; Electromechanical Technology; Project Lead the Way

Postsecondary Course(s) for which Dual Credit will be Awarded: Basic and Applied Math; Basic Electrical Theory

Assessment Range and Hours Awarded:

- See Below

Skill Assessment:

Assessment will include both hands-on and written evaluations.

- Basic and Applied Math – 60 clock hours
 - Test will consist of addition, subtraction, multiplication, and division of whole numbers, fractions and decimals, equations, and trigonometry.
 - 0-74 = 0 clock hours
 - 75 -90 = 40 clock hours
 - 90 – 100 = 60 clock hours
- Basic Electrical Theory – 12 clock hours
 - Evaluation will consist of written and hands-on evaluations.
 - Ohm's Law: Written test demonstrating knowledge of Ohm's Law and solve 15 Ohm's Law problems

- Watt's Law: Written test demonstrating knowledge of Watt's Law and solve 15 Watt's Law problems
 - 0-80 = 0 clock hours
 - 80-90 = 6 clock hours
 - 90-100 = 12 clock hours

STUDENT MUST SCORE AT LEAST A 90 TO ADVANCE TO NEXT PROGRESSION.

- Series Circuit – 24 clock hours
- Written test demonstrating knowledge of series circuits and solve 15 series circuit problems.
- Hands-on test where student must build a series circuit, calculate all currents and voltages. All values must be checked with meters.
 - 0-89 = 0 clock hours
 - 90-100 = 24 clock hours

SCORE 90 AND BE COMPETENT ON HANDS-ON EVALUATION TO ADVANCE TO NEXT PROGRESSION

- Parallel Circuit – 24 clock hours
- Written test demonstrating knowledge of parallel circuits and solve 15 parallel circuit problems.
- Hands-on test where student must build a parallel circuit, calculate all currents and voltages. All values must be checked with meters.
 - 0-89 = 0 clock hours
 - 90-100 = 24 clock hours

SCORE 90 AND BE COMPETENT ON HANDS-ON EVALUATION TO ADVANCE TO NEXT PROGRESSION

- Series-Parallel Circuit – 24 clock hours
- Written test demonstrating knowledge of series-parallel circuits and solve 6 series-parallel circuit problems.
- Hands-on test where student must build a series-parallel circuit, calculate all currents and voltages. All values must be checked with meters.
 - 0-89 = 0 clock hours
 - 90-100 = 24 clock hours

TOTAL OF 30 CLOCK HOURS AWARDED IN METERS FOR PROPER METER SKILLS DEMONSTRATED IN HANDS-ON EVALUATIONS.

Aligned Industry Certifications and Hours Awarded:

- FANUC – Up to 30 clock hours based on assessment
- Level 1 Siemens Certified Mechatronic Systems Assistant –Up to 30 clock hours based on assessment

Total Possible Dual Credit Hours Awarded from TCAT Shelbyville Assessment: 144 clock hours

Total Possible Dual Credit Hours Awarded from Industry Certifications: 60 clock hours

Disclaimer: The maximum possible award that a student can earn is 432 clock hours.