INDUSTRIAL ELECTRONICS TECHNOLOGY ATC

The program offers both degrees and certificates. The Industrial electronic student will get a general electronic education emphasizing Programmable Logic controllers; the Electronic Engineering student has an emphasis on design, testing, and product development in electrical/electronic systems; and the Instrument Mechanic student is exposed to more instrumentation and control systems found in production equipment located regionally. The Associate of Applied Science degree (AAS) is for students entering this field or for those already employed in the field and needing an upgrade of both electronic skills and academic skills (oral and written communications, mathematics, and human relations).

A Bachelor of Applied Science Degree is offered upon completion of the AAS degree.

Potential positions include industrial electrician, instrument technician, power systems maintenance technician, electronic maintenance technician, process control technician, and electrical apprentice. Typical employers are engineering and manufacturing firms and utility companies.

Entrance requirements for students seeking enrollment in the Industrial Electronics program include:

- Students must score a 30 or higher in math on ALEKS and have a 2 or higher score on the Writing Placement Exam, or qualify for MTHPT-137 and either ENGL-101 or ENGL-103.
- Enrollment priority for students seeking entrance into the program is on a first-come first-serve basis as determined by the student's faculty advising date.

Upon completion of the Industrial Electronics Technology program, the student will: will be able to:

- Have knowledge of basic electrical and electronic theory
- Know appropriate safety procedures
- Have the ability to assemble, test, analyze and troubleshoot solid state circuits containing discrete components wired as power supplies and regulators, solid state displays, amplifiers, SCR-TRIAC motor controllers, and oscillators
- Be able to locate and analyze replacement semiconductor devices using data sheets and other reference sources
- Perform calculations, predictions, measurements, and demonstrate proper circuit construction and analysis of electrical and electronic circuits
- Have a foundation in the use of phasor and vector analysis for analyzing alternating current circuits
- Be able to configure a modular PLC, write programs using discrete and analog I/O, and troubleshoot system problems
- Demonstrate mastery of a variety of electrical and electronic topics including AC theory, inductive and capacitive reactance, resonance, impedance, transformers, methods of power generation, and basic electrical wiring
- Comprehension of programmable operator terminals and Human Machine Interface (HMI) software
- Know how to configure a ControlLogix PLC, write programs using discrete and analog I/O, and develop a project
- Assemble, analyze, and troubleshoot digital circuits containing, encoder-decoders, digital displays, multiplexer-demultiplexers, counters, and registers
- Have the ability to interface different families of logic circuits with other electronic devices given their electrical/electronic parameters
- Ability to identify common logic gate symbols and connect their actual circuits for testing and analysis; troubleshoot logic gate circuits to the component level

All students entering the Industrial Electronics program are required to have program-specific counseling and entry-level assessment.

Students can choose either the Instrument Mechanics(IM) track or the Electronic Engineering Technology (EET) track. First-year courses for both tracks are offered on two different schedules, and as such students are encourage to research their options with faculty advisors.

The EET track provides training in advanced electronics and computer programming. The EET track emphasizes skills required to be an Electronics Technician in engineering, manufacturing, and communications.

The IM track provides advance training in installation, repair, and maintenance of industrial instruments. The IM track emphasizes skills required to be an Instrument Mechanics Technician in manufacturing, production, and other industrial business.

Advanced Technical Certificate Requirements

Code	Title	Credits
Program Requirement		
MTHPT-137	MATH FOR TECHNOLOGY	4.00
Technical Core		
Select 50 credits from the following:		50.00
IETTI-101	BASIC DC CIRCUIT THEORY	
IETTI-102	DIGITAL ELECTRONICS	

IETTI-103	INTRODUCTION TO MICROCONTROLLERS	
IETTI-104	ADVANCED ELECTRICAL PRINCIPLES	
IETTI-105	SOLID STATE DEVICES	
IETTI-106	EMBEDDED SYSTEMS	
IETTI-108	INTRODUCTION TO PLC'S	
IETTI-110	BASIC DC CIRCUIT LAB	
IETTI-201	INTRO TO INSTRUMENTATION	
IETTI-204	PROGRAMMING HUMAN MACHINE INTERFACES (HMI)	
IETTI-205	ELECTRIC MOTORS, DRIVES AND CONTROLS	
IETTI-207	PROGRAM AND TROUBLESHOOT PLC'S	
IETTI-208	PLC'S SYSTEMS APPLICATIONS	
IETTI-211	ADVANCED INSTRUMENTATION	
Total Credits		**54.00**