

INDUSTRIAL ELECTRONICS TECHNOLOGY ATC

The Advanced Technical Certificate (ATC) consists of those technical courses common to both the Electronics Engineering Technology (EET) and Instrument Mechanic (IM) degree tracks.

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 equivalent college placement exams.
- 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.

Successful completers will demonstrate the following:

(1) COMMUNICATION and TEAMWORK – Accurately communicate ideas across a variety of media (oral, written, graphical) to both technical and non-technical audiences; Function effectively as a member of a technical team.

(2) SELF-MANAGEMENT – Arrive on time and prepared; Work diligently until the job is done; Budget resources appropriately to achieve objectives.

(3) SAFE WORK HABITS – Comply with relevant national, state, local, and college safety regulations when designing, prototyping, building, and testing systems.

(4) ANALYSIS and DIAGNOSIS – Select and apply appropriate principles and techniques for both qualitative and quantitative circuit analysis; Devise and execute appropriate tests to evaluate electronic system performance; Identify root causes of electronic system malfunctions.

(5) PROBLEM-SOLVING – Devise and implement solutions for technical problems appropriate to the discipline.

(6) DOCUMENTATION – Interpret and create technical documents (e.g. electronic schematic diagrams, block diagrams, graphs, reports) relevant to the discipline.

(7) INDEPENDENT LEARNING – Select and research information sources to learn new principles, technologies, and/or techniques.

Students may choose either the Instrument Mechanics (IM) track or the Electronic Engineering Technology (EET) track. The first two semesters' worth of technical courses are common to both tracks; part-time enrollment options also exist to give students more options and flexibility in their education.

The EET track emphasizes skills required to be an Electronics Technician in engineering, manufacturing, and telecommunications industries. After the common first-year courses in DC, AC, and Digital circuits (including basic PLC programming), the EET student goes on to study computer programming, advanced analog circuitry, radio-frequency circuits, electric power system control and protection, digital communications, and data acquisition systems. Successful completion of the EET track can open doors into industries like Electronics Manufacturing, Semiconductor Manufacturing, Energy & Utilities, Research and Development, Broadcasting, and Telecommunications. All technical coursework for this track is open-source and available online at: <https://www.ibiblio.org/kuphaldt/socratic/model/>.

The IM track provides the solid technical foundation required to pursue a career as an Instrumentation Mechanic/Technician, or Instrumentation Controls Technician. After the common first-year courses in DC, AC, and Digital circuits (including basic PLC programming), the IM student goes on to study process indication measurements like pressure, level, temperature, flow, and chemical measurement. IM students also study control valves, motor control systems, PLC- and HMI-based control systems, and closed-loop controls. Successful completion of the IM track can open doors into industries like Energy & Utilities, Pulp & Paper, Biotech & Pharmaceutical, Chemical, Food & Beverage, Mining & Minerals, and Electronic Manufacturing.

Advanced Technical Certificate Requirements

Code	Title	Credits
Program Requirement		
MTHPT-137	MATH FOR TECHNOLOGY	4.00
Technical Core		
Select 48 credits from the following:		48.00
IETTI-101	DC CIRCUIT THEORY	
IETTI-102	DC CIRCUIT PROJECTS	
IETTI-103	DC CIRCUIT EXPERIMENTS	
IETTI-104	AC CIRCUIT THEORY	
IETTI-105	AC CIRCUIT PROJECTS	
IETTI-112	AC CIRCUIT EXPERIMENTS	

IETTI-220	Intermediate Electronics Projects
IETTI-221	INTERMEDIATE ELECTRONICS EXPERIMENTS
IETTI-222	INTERMEDIATE ELECTRONICS THEORY
IETTI-223	ADVANCED ELECTRONICS THEORY
IETTI-225	ADVANCED ELECTRONICS EXPERIMENTS
IETTI-236	ADVANCED ELECTRONICS PROJECTS
IETTI-270	INDUSTRIAL MEASUREMENT THEORY
IETTI-271	INDUSTRIAL MEASUREMENT EXPERIMENTS
IETTI-272	INDUSTRIAL MEASUREMENT PROJECTS
IETTI-280	INDUSTRIAL CONTROL THEORY
IETTI-281	INDUSTRIAL CONTROL EXPERIMENTS
IETTI-282	INDUSTRIAL CONTROL PROJECTS

Total Credits**52.00**