# 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** |