

# Electronics Technology (ET)

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## Courses

### ET A101 Basic Electronics: DC Circuits 4 Credits

Presents principles of electricity in direct current (DC) circuits, including voltage, current, resistance, and power. Properties of series and parallel circuits. Covers circuit analysis theorems and techniques.

**Prerequisites:** MATH A105 with a minimum grade of C.

**Corequisites:** ET A101L.

### ET A102 Basic Electronics: AC Circuits 4 Credits

Presents principles of alternating current (AC) circuits, including vectors, phase relationships, inductive and capacitive reactance and impedance. Covers AC circuit analysis, series and parallel resonant circuits, transformers, and network analysis.

**Prerequisites:** ET A101 with a minimum grade of C and ET A166 with a minimum grade of C or concurrent enrollment and MATH A105 with a minimum grade of C.

**Corequisites:** ET A102L.

### ET A126 Digital Electronics 4 Credits

Presents principles of digital logic; including number systems, logic gates, logic functions, logic design, and analysis methods.

**Prerequisites:** MATH A105 with a minimum grade of C.

**Corequisites:** ET A126L.

### ET A151 Basic Electricity for the Trades 4 Credits

An introduction to the principles and concepts of electricity as it applies to the non-electronics major. Covers basic electricity and electrical theory, reading of blue prints and electrical plans, analysis of building electrical systems, and installation of electrical devices used in the industry: switches, receptacles, and appliances with 120-volt through 480-volt systems.

**Prerequisites:** MATH A055.

### ET A166 Technical Calculations for AC Circuit Applications 2 Credits

Presents applied calculations for students in AC electronics. Covers basic arithmetic, unit conversions, solving algebraic equations, working with logarithmic and exponential functions, applied basic concepts of trigonometry, and AC electronics applications.

**Prerequisites:** MATH A105 with a minimum grade of C.

### ET A175 Technical Introduction to Computing Systems 3 Credits

Covers principles of digital computing systems, including number systems, data representation, the central processing unit, computer system organization and programming in both assembly and the high-level languages.

**Prerequisites:** MATH A105 with a minimum grade of C.

### ET A240 Computer Systems Interfacing 3 Credits

Introduces concepts, programming techniques and device connections for computer sensing and control systems. Covers program design for device interfacing, common interfacing circuits, analog to digital conversion, digital to analog conversion, and serial communications.

**Prerequisites:** ET A126 with a minimum grade of C and ET A175 with a minimum grade of C and MATH A105 with a minimum grade of C.

### ET A241 Digital Control Systems 3 Credits

Introduces concepts, architecture and development of digital supervisory control and data acquisition (SCADA) systems. Includes systems organization, industrial data communications, data point addressing and recording, programmable logic controller (PLC) connections and programming, and human-machine interface (HMI) design and development.

**Prerequisites:** ET A240 with a minimum grade of C and MATH A105 with a minimum grade of C.

### ET A243 Programmable Logic Controllers 3 Credits

Introduces the programmable logic controller (PLC) for industrial control applications. Includes PLC system design, hardware selection, configuration, input/output connections, programming, and troubleshooting.

**Prerequisites:** ET A126 with a minimum grade of C and ET A241 with a minimum grade of C and (ALEKS Overall Test 1 with a score of 055 or ALEKS Overall Test 2 with a score of 055 or ALEKS Overall Test 3 with a score of 055 or ALEKS Overall Test 4 with a score of 055 or ALEKS Overall Test 5 with a score of 055 or MATH A105 with a minimum grade of C).

### ET A246 Electronic Industrial Instrumentation 3 Credits

Explains the methods of analog signal conditioning and transmission. Describes common sensors for level, pressure, temperature and chemical analysis. Includes instrument connections, wiring, shielding, voltage loops, current loops and digital controllers.

**Prerequisites:** ET A102 with a minimum grade of C and MATH A105 with a minimum grade of C.

### ET A248 Digital Automation Systems 2 Credits

Introduces digital automation systems for industrial control applications. Incorporates lecture and practical application using Emerson Delta V or similar automation simulator workstations.

**Registration Restrictions:** Admission to the Associate of Applied Science in Industrial Process Instrumentation

**Prerequisites:** ET A243 with a minimum grade of C or concurrent enrollment.