

# ELECTRONICS TECHNOLOGY (IELT), AAS

At Dunwoody College of Technology, the Electronics Technology program provides evening students with the entry-level skills and theoretical knowledge needed to design and troubleshoot circuits utilizing the latest semiconductor devices; biomedical devices; microprocessors; microcontrollers; circuit design; fabrication equipment; and data acquisition devices.

Graduates from this program are prepared to enter the industry as electronics technicians, assemblers, calibration technicians, and field service technicians.

The course of study includes: basic electricity and electronics; digital electronics; microprocessors and microcontrollers; programmable logic controllers (PLCs); communication systems; and circuit engineering.

Arts & Sciences curriculum supports the technical coursework by enhancing the students' communication, mathematics, and critical thinking skills.

A shorter certificate option (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/robotics-manufacturing/electronics-technology-ielt-certificate/>) is also available.

**Credential Earned:** AAS

**Length of Program:** 2 years (4 semesters)

**Classes Offered:** Evening

**Available Starts:** Fall Semester; Spring Semester

**Bachelor's Completion Option(s):** Automation Controls Engineering Technology (AENT), Bachelor of Science (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/engineering/automation-controls-engineering-technology/>) | Industrial Engineering Technology (IENG), Bachelor of Science (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/engineering/automation-controls-engineering-technology/>)

## Program Outcomes

- Apply the concepts of basic electricity.
- Demonstrate required industry safety standards.
- Explain the operation of electronic devices.
- Troubleshoot circuits and systems using industry standard test equipment.
- Analyze electrical schematics and mechanical prints.
- Employ fundamental concepts of industrial electronics and process control.
- Apply concepts of analog and digital communication systems.
- Analyze the operation of microprocessors, micro-controllers, and computers.

## Degree Requirements

Code	Title	Credits
<b>General Requirements</b>		
MATH1000	Algebra & Trigonometry	3
MATH1250	Boolean Algebra	3
Communications		3
Humanities		3

Science Elective		3
Social Sciences		3
<b>Technical Requirements</b>		
ELTT1100	Basic Electricity & Electronics Lab	2
ELTT1120	Basic Electricity & Electronics Theory	8
ELTT1200	Digital & Microprocessors Lab	2
ELTT1220	Digital & Microprocessors Theory	8
ASRO2101	Industrial Controls & PLC's Lab	3
ASRO2120	Industrial Controls & PLCs Theory	8
ELTT2201	Advanced Electronics Lab	3
ELTT2230	Advanced Electronics Theory	8
<b>Total Credits</b>		<b>60</b>

## Courses

### Descriptions

#### ELTT1100 | Basic Electricity & Electronics Lab | Laboratory (2 Credits)

Analyze, design, and build series, parallel and combination AC and DC circuits. Build and test semiconductor circuits, power supplies, transistor circuits using protoboards and various test equipment.

**Corequisite(s):** ELTT1120

#### ELTT1120 | Basic Electricity & Electronics Theory | Lecture (8 Credits)

Identification, recognition and calculations associated with basic electricity, including Ohm's Law, resistance, capacitance, inductance in AC and DC circuits, as well as solid state principles of diodes, power supplies and transistors.

**Corequisite(s):** ELTT1100 ELTT1110

#### ELTT1200 | Digital & Microprocessors Lab | Laboratory (2 Credits)

Design, build, and troubleshoot digital circuits. Debug and program microprocessors and microcontrollers for various operations and interface to external devices. Analyze digital and microprocessor circuits using industry standard test equipment.

**Prerequisite(s):** ELTT1100

#### ELTT1220 | Digital & Microprocessors Theory | Lecture (8 Credits)

Identification, recognition and calculations associated with combinational and sequential logic circuits as well as internal architecture of microprocessors and microcontrollers, programming, logic operations, memory mapping, addressing, data transfer, and system control.

**Prerequisite(s):** ELTT1120

#### ASRO2201 | Automation & Robotics Lab | Laboratory (3 Credits)

Set up, configuration, programming and troubleshooting industrial robots to meet industry standards. Configuration and troubleshooting of installed automation and packaging equipment using machine schematics and related documentation.

#### ASRO2120 | Industrial Controls & PLCs Theory | Lecture (8 Credits)

Wiring and programming fundamentals associated with programmable logic controllers. Identification, recognition and calculations associated with inductive and capacitive proximity, photo-electric, temperature and other industrial sensors.

#### ELTT2201 | Advanced Electronics Lab | Laboratory (3 Credits)

Design and build single and multistage transistor amplifiers, operation amplifier control circuits, thyristors, motors, radio frequency circuits; other advanced electronics topics.

**ELTT2230 | Advanced Electronics Theory | Lecture (8 Credits)**

Identification, recognition and calculations associated with single and multistage transistor amplifiers, operation amplifier control circuits, thyristors, motors, radio frequency circuits as well as other advanced electronics topics.

**Prerequisite(s):** ELTT1220

**Corequisite(s):** ELTT2200

**MATH1000 | Algebra & Trigonometry | Lecture (3 Credits)**

Real numbers and polynomials, exponents and radicals, fractional equations; proportions and linear equations; trigonometric functions, solutions of triangles, radians, trig functions graphs, vectors, and basic identities.

**General Education:** Mathematics

**MATH1250 | Boolean Algebra | Lecture (3 Credits)**

Binary, octal and hexadecimal number systems. Boolean algebra and mapping.

**General Education:** Mathematics