

ELECTRONICS ENGINEERING TECHNOLOGY (ELTT), AAS

At Dunwoody College of Technology, the Electronics Engineering Technology program provides 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 and fabrication equipment; and data acquisition devices.

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

The course of study includes: basic electricity and electronics; digital electronics; microprocessors and micro-controllers; computer programming; 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.

Credential Earned: AAS

Length of Program: 2 years (4 semesters)

Classes Offered: Day

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.
- Perform duties on an industry-related internship or capstone project.

Degree Requirements

Code	Title	Credits
General Requirements		
MATH1000	Algebra & Trigonometry	3
MATH1250	Boolean Algebra	3
Communications		3
Humanities		3
Science Elective		3

Social Sciences		3
Technical Requirements		
ELTT1110	Basic Electricity & Electronics Lab	5
ELTT1120	Basic Electricity & Electronics Theory	8
ELTT1210	Digital & Microprocessors Lab	3
ELTT1220	Digital & Microprocessors Theory	8
ELTT1230	PCB & Circuit Development	1
ELTT1240	Programming Fundamentals	1
ASRO2110	Industrial Controls & PLCs Lab	5
ASRO2120	Industrial Controls & PLCs Theory	8
ASRO2291	Industrial Internship/Practicum	6
ELTT2211	Advanced Electronics Lab	2
ELTT2221	Advanced Electronics Theory	5
Total Credits		70

Courses

Descriptions

ASRO2110 | Industrial Controls & PLCs Lab | Laboratory (5 Credits)

Installation, wiring, programming, operation, testing and troubleshooting programmable logic controllers. Interfacing programmable logic controllers with switches, sensors, motors, pneumatics, and other I/O devices. Set-up, configuration and troubleshooting inductive and capacitive proximity, photo-electric, temperature and other industrial sensors.

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.

ASRO2291 | Industrial Internship/Practicum | Internship (6 Credits)

Internship or practicum option on various manufacturing topics: automation, electronics, robotics, mechanical systems, assembly, troubleshooting, research and/or field service.

ELTT1110 | Basic Electricity & Electronics Lab | Laboratory (5 Credits)

Analyze, design and build series, parallel and combination AC and DC circuits. Semiconductor circuits, power supplies, transistor circuits are built and tested 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

ELTT1210 | Digital & Microprocessors Lab | Laboratory (3 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): ELTT1110

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

ELTT1230 | PCB & Circuit Development | Lecture (1 Credit)

Electronic circuit prototyping using various industry standards, hardware, and software. Utilize circuit manufacturing techniques to create surface mount and through hole circuit boards.

Prerequisite(s): ELTT1110

ELTT1240 | Programming Fundamentals | Lecture (1 Credit)

Use algorithms and flowcharts to develop logic, execution control, data types, loops, and control structures for computer executable software. Utilizes National Instrument's LabVIEW.

Prerequisite(s): ELTT1110

ELTT2211 | Advanced Electronics Lab | Laboratory (2 Credits)

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

Prerequisite(s): ELTT1210

ELTT2221 | Advanced Electronics Theory | Lecture (5 Credits)

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

Prerequisite(s): ELTT1220

Corequisite(s): ELTT2210

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