

# INDUSTRIAL CONTROLS (ICOT), CERTIFICATE

## Overview

At Dunwoody College of Technology, the Industrial Controls certificate program provides evening students with the entry-level skills and theoretical knowledge to wire and program the latest Programmable Logic Controllers (PLCs), Human Machine Interfaces (HMIs), and motor controls. Graduates from this program are prepared to enter the industry as programmers, control system designers, panel builders, maintenance mechanics, and field service technicians.

The course of study includes: basic electricity and electronics; electronic sensors; programmable logic controllers; human machine interfaces; motion-control systems; and motor controllers.

The program's curriculum is aligned with standards set forth by the Packaging Machinery Manufacturers Institute (PMMI), the Institute of Packaging Professionals (IoPP), and the National Fire Protection Association (NFPA).

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

Credits earned in the Industrial Controls certificate directly transfer into Dunwoody's Industrial Controls & Robotics (ICON) (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/robotics-manufacturing/industrial-controls-robotics-icon-aas/>), Automated Systems & Robotics (ASRO) (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/robotics-manufacturing/automated-systems-robotics-asro-aas/>), or Electronics Technology (IELT) (<https://catalog.dunwoody.edu/catalog-student-handbook/academic-programs/robotics-manufacturing/electronics-technology-ielt-aas/>) associate's degree programs.

**Credential Earned:** Certificate

**Length of Program:** 1 year (2 semesters)

**Classes Offered:** Evening

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

## Program Outcomes

- Apply the concepts of basic electricity.
- Demonstrate required industry safety standards.
- Troubleshoot circuits and systems using industry standard test equipment.
- Analyze electrical schematics.
- Commission and maintain industrial control systems.

## Degree Requirements

Code	Title	Credits
<b>General Requirements</b>		
MATH1000	Algebra & Trigonometry	3
<b>Technical Requirements</b>		
ASRO2101	Industrial Controls & PLC's Lab	3
ASRO2120	Industrial Controls & PLCs Theory	8
ELTT1100	Basic Electricity & Electronics Lab	2

ELTT1120	Basic Electricity & Electronics Theory	8
<b>Total Credits</b>		<b>24</b>

## Courses

### Descriptions

#### ASRO2101 | Industrial Controls & PLC's Lab | Laboratory (3 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.

#### 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.

#### 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.

#### 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