EMBEDDED SYSTEMS, ASSOCIATE IN SCIENCE DEGREE

Banner Code: 1_AS_ELES
Control Number: 41487
Financial Aid Eligible

The Embedded Systems Associate of Science degree provides an opportunity for students interested in working in embedded systems to earn an associate's degree. This degree is geared towards students who want to take their programming and circuit building skills to the next level. Students will become proficient in programming a variety of microcontrollers to perform tasks in an embedded application in C-based programming languages. Students who have obtained this certificate will be proficient at the use of multimeters and oscilloscopes to analyze circuit design and troubleshoot problems. Students will gain familiarity with digital communication protocols. This certificate is designed to teach students the skills necessary to build a career working with embedded electronics commonly found in consumer devices, IoT-connected devices, and autonomous vehicles.

Students earning this degree are encouraged to pursue a bachelor's degree in an Electrical Engineering or Computer Science discipline.

Students must complete the Robotics Technician Certificate of Achievement (12-13 units) as a prerequisite to entry into the Embedded Systems program.

Program Outcomes

1. Students will acquire skills necessary to program common microcontrollers using C.
2. Students will gain familiarity with different communication protocols to interface between electronic systems.
3. Students will be proficient at using multimeters, oscilloscopes, and spectrum analyzers to analyze circuits.
4. Students will acquire the skills necessary to methodically identify problems in circuits and propose solutions.

Review Graduation Requirements (https://catalog.cccd.edu/orange-coast/graduation-requirements/associate-degree/) and General Education (https://catalog.cccd.edu/orange-coast/general-education-patterns/).

Required Prerequisite

Robotics Technician Certificate of Achievement (12-13 Units)

Course	Title	Units
Required Courses		
ELEC A100	Electronic Problem Solving	3-4
or MATH A115	College Algebra	
or MATH A120	Trigonometry	
ELEC A111	D.C. Circuits	3
ELEC A121	Robotics 1- Mechanics & Design	3
ELEC A122	Robotics 2- Sensors, Control Theory, and Programming	3
Total Units		**12-13**

Required Courses

Course	Title	Units
ELEC A102	Safety, Maintenance, and Calibration	1
ELEC A103	Computer Hardware Configuration & Diagnostics	3
or ELEC A290	Electronic Troubleshooting	
ELEC A223	Embedded Control Systems	4
ELEC A224	Digital Communication Systems	3
Required Course Units		**11**

Requirement	Units
Minimum Program Major Units	23-24
AS General Education Option 1, 2, or 3	Varies
Transferable electives to satisfy unit requirement	Varies
Total Degree Units	60