

INDUSTRIAL PLC TECHNICIAN, ASSOCIATE IN SCIENCE DEGREE

Banner Code: 1_AS_ELIP

Control Number: 41480

Financial Aid Eligible

The Industrial PLC Technician Associate of Science degree is designed to provide students who have completed the PLC Technician Certificate of Achievement the opportunity to earn an associate's degree. Students will leave with the skills and knowledge required to work on the PLC-based industrial control systems commonly found in advanced manufacturing facilities. Students will gain hands-on experience with Siemens and Allen-Bradley controllers. Upon completion of this certificate, students will be able to troubleshoot PLC based systems, replace faulty electrical components, and program and commission systems.

Students must complete the Industrial Electronics Technician Certificate of Achievement (13-14 units) as a part of the required coursework.

Program Outcomes

1. Students will gain the basic knowledge required to take the CET (Certified Electronics Technician) exam.
2. Students will be able to work safely in accordance with NFPA 70E.
3. Students will acquire the skills necessary to connect to a PLC, diagnose system problems, backup a program, and restore a program to a controller.
4. Students will gain proficiency in reading and creating schematics, wiring diagrams, and ladder logic diagrams for advanced control systems.
5. Students will acquire hands-on skills working with HMIs, SCADA, and industrial communication protocols.

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 Prerequisites

Industrial Electronics Technician Certificate of Achievement (13-14 Units)

Course	Title	Units
Required Courses		
ELEC A100 or MATH A115 or MATH A120	Electronic Problem Solving College Algebra Trigonometry	3-4
ELEC A111	D.C. Circuits	3
ELEC A112	A.C. Circuits	3
ELEC A131	Automation 1- Industrial Control Systems	4
Total Units		13-14

Required Courses

Course	Title	Units
Required Courses		
ELEC A232	Automation 2 - Programmable Logic Controller	4
ELEC A233	Automation 3 - Industrial Networks, HMI, and SCADA	4
ELEC A102	Safety, Maintenance, and Calibration	1
ELEC A103	Computer Hardware Configuration & Diagnostics	3
or ELEC A290	Electronic Troubleshooting	
Total Units		12

Requirement	Units
Minimum Program Major Units	25-26
AS General Education Option 1, 2, or 3	Varies
Transferable electives to satisfy unit requirement	Varies
Total Minimum Degree Units	60

These sequences at Orange Coast College are general course curriculum maps for students to finish all major and general education requirements for two-year completion of degrees, and/or fulfillment of transfer requirements. The course sequence may include course prerequisites and other placement requirements. **Students are advised to meet with an Orange Coast College Counselor to review course selections and sequences to ensure that completion of this program will meet a student's transfer and career goals.**

Course	Title	Units
Year 1		
Semester 1		
ELEC A100 or MATH A115 or MATH A120	Electronic Problem Solving ¹ or College Algebra	3-4
ELEC A111	D.C. Circuits	3
ELEC A102	Safety, Maintenance, and Calibration	1
OCC AS GE Area A1 - CHOOSE ONE		3
OCC AS GE Area C2 - CHOOSE ONE		3
Units		13-14

Semester 2		
ELEC A112	A.C. Circuits	3
ELEC A131	Automation 1- Industrial Control Systems	4
ELEC A232	Automation 2 - Programmable Logic Controller	4
OCC AS GE Area A2 - CHOOSE ONE ²		3-4
Units		14-15

Year 2		
Semester 1		
ELEC A103 or ELEC A290	Computer Hardware Configuration & Diagnostics or Electronic Troubleshooting	3
Select one of the following or satisfy Math competency (completion of High School Algebra 2 with a "C" or better): ³		3-4

Course	Title	Units
MATH A030 or MATH A045	Intermediate Algebra (or Higher) or Combined Elementary and Intermediate Algebra	4-6
OCC AS GE Area C1 - CHOOSE ONE		3
ELECTIVE (DEGREE APPLICABLE)		3
Units		16-19
Semester 2		
ELEC A233	Automation 3 - Industrial Networks, HMI, and SCADA	4
OCC AS GE Area B - CHOOSE ONE		3-4
OCC AS GE Area D - CHOOSE ONE ³		
ELECTIVE (DEGREE APPLICABLE) ⁴		12
Units		19-20
Total Units		62-68

¹ MATH A115 or MATH A120 meet AS GE Area A23 and Math requirement

² Required if level MATH A100+ will not be taken, if Math A100+ taken, needs to take degree applicable elective units.

³ Math requirement needed if not met by HS Algebra 2, OR take 3 - 4 degree applicable elective units if already met, *100-level Math courses satisfy AS Math Requirement and OCC AS GE Area A2

⁴ VARIES TO REACH MINIMUM 60 DEGREE APPLICABLE UNITS