

Technical and Vocational Programs

D 35 13 0 Electrical Systems Technology — Diploma

C 35 13 0 I R Electrical Systems Residential Wiring — Certificate

C 35 13 0 I M Electrical Systems Industrial Maintenance — Certificate

(Diploma program offered at COA - Elizabeth City)

(Certificate (Residential Wiring) offered at COA - Elizabeth City and COA - Dare)

CONCENTRATION OVERVIEW

The Electrical Systems Technology curriculum is designed to provide training for persons interested in the installation and maintenance of electrical/electronic systems found in residential, facilities. Course work, most of which is hands-on, will include such topics as AC/DC theory, basic wiring practices, applications of the National Electric Code, and other subjects as local needs require.

Upon completion of this concentration, graduates will be able to qualify for a variety of jobs in the electrical/electronics field as an on-the-job trainee or apprentice assisting in the layout, installation, and maintenance of electrical/electronic systems.

Student Learning Outcomes – Upon completion of the diploma program, students will:

1. Plan and install residential wiring and branch circuits in compliance with the National Electrical Code (NEC).
2. Interpret and apply the provisions of the National Electrical Code (NEC) to ensure safe and compliant installations.
3. Install and commission three-phase commercial wiring and power distribution systems safely and according to current industry standards and the National Electrical Code.
4. Program, install, and troubleshoot automated industrial control systems, including motor control and Programmable Logic Controller (PLC) technology.



Partnership: N/A

*This program offers a [Career and College Promise pathway \(CCP\) C35130RH](#). Courses within the pathway are highlighted in yellow.

D 35 13 0 Electrical Systems Technology – Diploma

Diploma Semester I Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
ELC 112 DC/AC Electricity	Pre-Requisites: None Co-Requisites: None	3	6		9	5
ELC 113 Residential Wiring	Pre-Requisites: None Co-Requisites: None	2	6		8	4
ELC 125 Diagrams & Schematics	Pre-Requisites: None Co-Requisites: None	1	2		3	2
ELC 220 Photovoltaic	Pre-Requisites: None Co-Requisites: None	2	3		5	3
ELC 118 National Electrical Code	Pre-Requisites: None Co-Requisites: None	1	2		3	2
ISC 110 Workplace Safety	Pre-Requisites: None	1			1	1
Select one of the following: COM 101 Workplace Communication OR COM 110 Intro to Comm OR COM 120 Intro to Interpersonal Comm OR ENG 111 Writing & Inquiry	Pre-Requisites: COM 101: None COM 110 : None COM 120: None ENG 111: ENG 025	3	0		3	3
TOTAL SEMESTER HOURS		13	19		32	20

Diploma Semester II Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
ELC 114 Commercial Wiring	Pre-Requisites: ELC 112 and 113 Co-Requisites: None	2	6		8	4
ELC 117 Motor and Controls	Pre-Requisites: ELC 112 and 113 Co-Requisites: None	2	6		8	4
ELC 128 Intro to PLCs	Pre-Requisites: ELC 112 and 113 Co-Requisites: None	2	3		5	3
MNT 110 Intro to Maintenance Procedures	Pre-Requisites: None Co-Requisites: None	1	3		4	2
Select one of the Following: MAT 110 Math Measurement OR MAT 143 Quantitative Lit OR MAT 171 Precalculus Algebra	Pre-Requisites: MAT 110: None MAT 143: ENG 025 and MAT 025 MAT 171: MAT 035 or MAT 110 or MAT 143 or MAT 152 with a C or higher	2-3	2		4-5	3-4
Select one of the Following: WBL 110 World of Work OR WBL 111 Work Based Learning	Pre-Requisites: None	0-1		0-10	1-10	1
TOTAL SEMESTER HOURS		9-11	20	0-10	30-40	17-18
TOTAL SEMESTER HOURS REQUIRED FOR DIPLOMA						37-38

C 35 130 I R – Residential Electrical Wiring – Certificate

Certificate Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
ELC 112 DC/AC Electricity	Pre-Requisites: None Co-Requisites: None	3	6		9	5
ELC 113 Residential Wiring	Pre-Requisites: None Co-Requisites: None	2	6		8	4
ELC 125 Diagrams & Schematics	Pre-Requisites: None Co-Requisites: None	1	2		3	2
ISC 110 Workplace Safety	Pre-Requisites: None Co-Requisites: None	1			1	1
ELC 118 National Electrical Code	Pre-Requisites: None Co-Requisites: None	2	2		3	2
ELC 220 Photovoltaic	Pre-Requisites: None Co-Requisites: None	2	3		5	3
Select one of the Following: WBL 110 World of Work OR WBL 111 Work Based Learning	Pre-Requisites: None	0-1	0-10		1-10	1
TOTAL SEMESTER HOURS						18
TOTAL SEMESTER HOURS REQUIRED FOR CERTIFICATE						18

C 35 130 I M – Electrical Systems Industrial Maintenance – Certificate

Certificate Course Number and Title	Pre-Requisites and Co-Requisites	Class Hours	Lab Hours	Clinical Hours	Total Contact Hours	Total Credit Hours
ELC 114 - Commercial Wiring	Pre-Requisites: ELC 112 and 113 Co-Requisites: None	2	6		8	4
ELC 117 Motor and Controls	Pre-Requisites: ELC 112 and 113 Co-Requisites: None	2	6		8	4
ELC 128 Intro to PLCs	Pre-Requisites: ELC 112 and 113 Co-Requisites: None	2	3		5	3
MNT 110 Intro to Maintenance Procedures	Pre-Requisites: None Co-Requisites: None	1	3		4	2
ISC 110 Workplace Safety	Pre-Requisites: None	1			1	1
Select one of the Following: WBL 110 World of Work OR WBL 111 Work Based Learning	Pre-Requisites: None	0-1	0-10		1-10	1
TOTAL SEMESTER HOURS						15
TOTAL SEMESTER HOURS REQUIRED FOR CERTIFICATE						15