Electrical Systems Installation and Maintenance

Degree Type
Associate in Applied Science

The Electrical Systems Installation and Maintenance degree program provides the knowledge needed for employment as an electrical construction electrician, industrial electrical technician, electrical estimator, or electrical inspector. This program meets the education requirements of the New Hampshire Electrical Licensing Board. Opportunities for electrical construction electricians are available in nearly all geographic locations. Employment opportunities exist in residential construction, industrial construction, and commercial construction as an electrician or as a maintenance electrician. Graduates may find employment as industrial electricians, maintenance electricians, electrical inspectors, electrical estimators, or in any of the high-tech electrical fields.

Technical Requirements

A successful ESIM or EPCT student must:

- have command of the English language;
- have the ability to stand for extended periods of time and have the physical strength to lift components and
- equipment;
- be able to purchase the minimum required tools and textbooks;
- be able to complete requirements for college level classes;
- have a high school diploma or equivalent;
- be able to understand and follow both written and oral instructions;
- have communication skills sufficient to prepare required reports;
- have sufficient dexterity to perform manual skills;
- be able to distinguish various sounds and noises and read instructions for course materials and other manipulative tasks (adaptive equipment acceptable);
- have reading comprehension skills sufficient to read and comprehend service literature.

Students who complete the program will

- demonstrate the mathematical skills necessary to solve electrical problems through the understanding of fraction and decimals, algebra, geometry, trigonometry, linear equations, roots, and practical applications of trigonometry, algebra, and geometry.
- demonstrate proficiency in the understanding and applications of electrical theory including but not limited to Alternating Current (AC) circuits, Direct Current (DC) circuits, series circuits, parallel circuits, series/parallel circuits, voltage, current, resistance, impedance, and power.
- have completed Occupational Safety and Health Administration's (OSHA) 30-hour construction site and safety certification for the Construction Industry and NFPA70E training for safe electrical work protocols.
- demonstrate proficiency in understanding and wiring electrical circuits including but not limited to residential, commercial, and industrial applications.
- demonstrate proficiency in designing, troubleshooting, and installing electrical controls.
- demonstrate an understanding of the operation and installation of Photovoltaic (PV) systems.
- accumulate lab hours that count toward the work experience requirement as a licensed State of New Hampshire electrical apprentice.
- demonstrate an in-depth understanding and application of the National Electric Code (NEC).

First Year

Fall Semester

Item #	Title	Class Hours	Lab Hours	Credits
ETEC126L	Residential Wiring and Electrical Blueprint Reading	3	0	3
ETEC127L	Residential Wiring and Electrical Blueprint Reading Lab	0	6	2
ETEC124L	AC/DC Theory	4	3	5
ETEC141L	NEC I	2	0	2
MATH129L	Quantitative Reasoning	4	0	4
INDL100L	College Essentials	1	0	1
	Sub-Total Credits	**14**	**9**	**17**

Spring Semester

Item #	Title	Class Hours	Lab Hours	Credits
ETEC123L	Wiring Theory and Techniques (Commercial)	4	6	6
ETEC142L	NEC II	2	0	2
ENGL100L	English Composition	4	0	4
PHYS125L	Technical Physics	2	2	3
	Sub-Total Credits	**12**	**8**	**15**

Second Year

Fall Semester

Item #	Title	Class Hours	Lab Hours	Credits
ETEC143L	NEC III	2	0	2
ETEC215L	Photovoltaics	2	3	3
ETEC230L	Electrical Motor Controls	2	3	3
	Social Science Elective	3	0	3
	Open Elective	3	0	3
	Sub-Total Credits	**12**	**6**	**14**

Spring Semester

Item #	Title	Class Hours	Lab Hours	Credits
ETEC210L	Introduction to Electrical Estimating and Design	2	2	3
ETEC224L	Wiring Theory and Techniques (Industrial)	3	3	4
ETEC234L	Construction Site Safety	3	0	3
	Humanities/Fine Arts/Foreign Language Elective	3	0	3
	Liberal Arts Elective	3	0	3
	Sub-Total Credits	**14**	**5**	**16**
	Total Credits			**62**