ELECTRICAL TECHNOLOGY (ET)

Electrical Technology

Overview

The electrical industry continues to grow in its scope and employment opportunities due to technological advances, as well as economic changes and expansion. Electrical work is becoming more complex with electronics, microprocessor-based controls and data communications integrated into residential, commercial and industrial electrical systems. This increasing complexity is creating an ever-growing need for well-trained and qualified licensed electricians and electrical technicians. Classroom instruction highlights contemporary and evolving electrical technologies applications. Once enrolled in the program, you will have the opportunity to obtain a NH electrical apprentice identification card. The ID card enables you to earn practical working experience, as well as related classroom hours in accordance with NH electrical apprenticeship requirements.

Degree & Certificate Options / Three Pathways*

The Electrical Technology program offers an Associate of Applied Science (A.A.S.) degree with three distinct pathways and one Electrical Technology certificate. The three degree pathways allow you to align your studies to these specific career goals:

- Electrical Technology – Technician Pathway (A.A.S.)
- Electrical Technology – Substation Pathway (A.A.S.)
- Electrical Technology – State Licensure Pathway (A.A.S.)

**In addition to the Electrical Technology certificate and degree options, MCC provides Lineworker certificate training through a workforce partnership with Eversource and the International Brotherhood of Electrical Workers (IBEW) For more about the Lineworker program see mccnh.edu/program/electrical-lineworker.*

Technical Standards

It is highly recommended that you have:

- The physical strength necessary to maneuver and lift moderately heavy objects.
- Good manual dexterity.
- Adequate vision for reading printed instructions and electrical diagrams and should not have color blindness. (Adaptive equipment is acceptable.)
- Adequate hearing to distinguish various sounds and changes in pitch. (Adaptive equipment is acceptable.)
- Ability to visualize and portray ideas graphically.

Admission Requirements

In addition to college-wide admissions requirements students must:

- Read at the college-level based on placement
- Place into the required Mathematics and College Composition I per the pathway requirements
- Interview with the Electrical Technology Program Advisor

Acquired Skills

Per the chosen pathway, students who graduate from this program will:

- Possess the required theory training for an electrician apprenticeship.
- Be well-versed in fundamental electrical theory.
- Demonstrate safe and appropriate use of electrical equipment and tools.
- Possess in-depth knowledge of the National Electrical Code.
- Be prepared for entry-level positions as electrical technicians, linemen, substation electricians or licensed electricians.

Outcomes

Potential Jobs

- Electrician
- Electrical Maintenance Tech
- Substation Electrician/Electronics
- Licensed Electrician
- Industrial Electrical Tech
- Utility Lineworker

Transfer Opportunities

- Ferris State University
- UNH College of Professional Studies
- Southern NH University
- UMass Amherst
- Wentworth Institute of Technology
- ...and many more!

The mission of the Electrical Technology program is to provide students with the foundation to become effective Electrical Technicians, Electrical Apprentices, Utility Substation Electricians or Utility Lineworkers.

Electrical Technology Degree

Degree Program - First Year

Fall Semester

Course Code	Title	TH	LAB	CR
ETEC110M	Electrical Fundamentals I (1st 8 weeks)	3	3	4
ETEC120M	Pathway Elective (ETEC120M or ETEC122M)	3	3/0	4/3
	Mathematics Elective (MATH135M, MATH151M or MATH155M)	4	0	4
	Lab Science Elective (4 credits from BIOL, CHEM, ENVS, ESCI, GEOL or PHYS)	3	3	4
FYE100M	MCC Essentials	1	0	1
	Sub-Total Credits	**14**	**6/9**	**16/17**

Spring Semester

Course Code	Title	TH	LAB	CR
ETEC150M	Power, Transformers and Rotating Machinery	3	3	4
	Pathway Elective *(ETEC160M or ETEC135M)*	3	3/0	4/3
	Pathway Elective *(ETEC165M, MATH155M or MATH171M)*	4	0	3/4/4
ENGL110XM or ENGL110M	College Composition I with Corequisite or College Composition I	4	0	4
	Sub-Total Credits	**14**	**3/6**	**16**

Degree Program - Second Year

Fall Semester

Course Code	Title	TH	LAB	CR
ETEC210M	Electrical and Electronic Motor Controls	3	3	4
ETEC230M	Electrical Print Reading	3	0	3
	Pathway Elective *(ETEC220M or ETEC225M)*	3	3/0	4/3
	Pathway Elective *(Open Elective or MATH204M)*	4	0	4
	Social Science Elective *(3 Credits from ANTH, ECON, GEOG, HIST, POLS, PSYC, SOCI))*	3	0	3
	Sub-Total Credits	**16**	**6/3**	**18**

Fall Semester

Course Code	Title	TH	LAB	CR
ETEC250M	Advanced Controls 1 — Digital Fundamentals, PLC Basics	3	3	4
	Pathway Elective *(ETE260M, ETEC265M or ETEC270M)*	3	3/0/0	4/3/3
	Lab Science Elective *(4 credits from BIOL, CHEM, ENVS, ESCI, GEOL, PHYS)*	3	3	4
	Foreign Language / Humanities/Fine Arts Elective	3	0	3
	Sub-Total Credits	**12**	**9/6/6**	**15**
	Total Credits			**62/63***

**Total Credits depends on chosen electives.*

All courses and degree requirements are subject to change. For the most current information on MCC programs, see mccnh.edu/programs.

Electrical Technology Certificate

Course Code	Title	TH	LAB	CR
ETEC110M	Electrical Fundamentals I	3	3	4
ETEC120M	AC Fundamentals and Residential Wiring	3	3	4
ETEC150M	Power, Transformers and Rotating Machinery	3	3	4
ETEC160M	Commercial and Industrial Wiring	3	3	4
ETEC165M	National Elecrical Code Fundamentals	3	0	3
ETEC210M	Electrical and Electronic Motor Controls	3	3	4
ETEC220M	Communications & Low Voltage Building Systems	3	3	4
ETEC230M	Electrical Print Reading	3	0	3
ETEC250M	Advanced Controls - Digital Fundamentals - PLC Basics	3	3	4
ETEC260M	Renewable and Alternative Energy Systems	3	3	4
	Total Credits			**38**

This Program Offers **THREE** Degree Pathways!

Manchester Community College is pleased to be offering the following educational pathways through the Electrical Technology program.

1. Substation Pathway

Developed in partnership with **EVERSOURCE,** to meet workforce demands, **MCC's Electrical Technology - Substation Pathway** provides you with a combination of both electrician and electronics training.Developed in partnership with Eversource, to meet workforce demands. This Electrical Technology concentration focuses on fundamentals of both substation hardware and substation electronics. Hardware includes the power lines, insulators, transformers, capacitors, switches, circuit breakers and other mechanical devices. The Electronics concentration includes learning about sensors, telemetering, radio transmissions, controls, PLC's, data acquisition, monitoring and central control interfacing. *(Note! Entry-level salary at Eversource for its substation group starts at $70,000 annually!)*

2. State Licensure Pathway

The Electrical Technology - State Licensure Pathway enables you to fulfill the 600 apprenticeship educational schooling hours required to sit for the Journeyman Electrician's exam. Successful completion of either the certificate or degree program provides these hours. Since MCC has some of the best hands-on training equipment and is fully accredited, students may also earn hands-on field experience toward the 8,000 hours required by the State of NH from successful completion of laboratory and classroom experimentation. Students in this pathway must be actively registered with the State of NH OPLC as a licensed apprentice.

3. Technician Pathway

The Electrical Technology - Technician Pathway is for training as a general electrical and electronics technician. This pathway is for those who are not necessarily pursuing licensure but still wish to have a career in the electrical field. Students are prepared to work in fields such as telecom, fire alarm, security, CATV, internet infrastructure, electrical control systems and as engineering assistants.

For more about each pathway including its customized curriculum, use QR code or go to: mccnh.edu/programs/electrical-technology