



## INDUSTRIAL MAINTENANCE APPRENTICESHIP

### FALL 2022

#### **ELT 1015 INTRODUCTION TO ENGINEERING**

(1 CREDIT) AUGUST 24-DECEMBER 14, 2022 | W 5-8 PM

This course facilitates a successful transition to college and to engineering strategies and tools needed as a freshman in ECET programs. It focuses on orientation to college, academic success strategies, professional development, and an introduction to a degree program. Topics include student rights and responsibilities; grading and graduation requirements; campus/site resources; time management; note taking; introduction to career opportunities; and program-specific topics. The course provides hands-on experience using technical software and creating technical documentation using many different software programs, including Word, Excel, MATLAB, and Multisim. Topics include terminology; layout; chart creation; effective chart usage; and integrating text and graphics.

#### **ELT 1031 ELECTRICAL CIRCUITS I**

(4 CREDITS) AUGUST 23-DECEMBER 13, 2022 | T/TH 5-8 PM

This course is an introductory study of DC and AC electrical circuits. Content includes electrical charge, current, voltage, resistance, energy, power, capacitance, inductance, and the transient behavior of RC and RL circuits. For AC, the concepts of frequency, period, phase, and magnitude of sine waves are developed. Electrical circuit parameters are studied as phasors and complex numbers and are expressed in polar and rectangular form. Major AC topics include reactance, impedance, power, and resonance. Electric circuit theory includes Ohm's law; Kirchhoff's laws; series and parallel circuits; and electrical sources. It also introduces voltage and current dividers and Thevenin's theorem. Lab exercises develop the use of basic measurement equipment, such as the ammeter, voltmeter, and oscilloscope while verifying concepts studied in lectures.

### WINTER/SPRING 2023

#### **ELT 2075 PROGRAMMABLE LOGIC CONTROLLERS**

(3 CREDITS) DATES: TBD

The course presents PLC design methodology, programming procedures, and practical system implementation topics in an interactive lecture setting. The design principles discussed during lecture are reinforced with demonstrations and participative exercises.

#### **ELT 1032 ELECTRICAL CIRCUITS II**

(4 CREDITS) DATES: TBD

This course is a continuation of ELT 1031 and introduces circuit analysis using advanced network theorems and techniques. It covers topics such as superposition; mesh and nodal analysis; Thevenin's theorem; controlled sources, bridges, power factor correction, transformers, polyphase circuits, filters, parallel resonance, frequency response, and response to non-sinusoidal signals. Lab exercises use oscilloscopes, function generators, and frequency counters on circuits.

Hands-on training taught by industry professionals. Earn college credit while you learn the skills you need to succeed in the field of industrial maintenance.

#### **LOCATION**

Vermont Tech Campus  
Williston, Vermont

#### **COST**

None! These courses are fully-funded by the U.S. Department of Labor

\* Dates subject to change.