

# Electrical Technology DIPLOMA

## Program Overview

An electrician is employed to install electrical wiring and equipment for lighting, heating, cooling and other power requirements in residential, commercial and industrial buildings. Using blueprints, diagrams and specifications, students perform installations in accordance with national, state and local safety codes. Considerable physical exertion is often required and the work may be performed outdoors or under such hazardous conditions as heights, unfinished construction or high voltages.

Students should have an interest and aptitude in applied algebra, trigonometry, drawing and science. Good eyesight and color vision are important.

## Career Opportunities

According to the U.S. Department of Labor, "As the population and the economy grow... more electricians will be needed to maintain the electrical systems used by industry and to install electrical devices and wiring in new homes, factories, offices and other structures."

Graduates are employed as apprentices by electrical construction firms. Upon completion of apprenticeship and the obtaining of a journeyman's license, students are open to opportunities as master electricians, inspectors, contractors, estimators and repair persons.

## Program Outcomes

1. Graduates will have the ability to communicate and conduct themselves in a professional manner with the customers and co-workers.
2. Graduates will have the skills for performing entry level tasks required of an apprentice electrician in residential, commercial and industrial construction.
3. Graduates will have knowledge of the National Electric Code, enabling them to legally and safely install electrical services with supervision.
4. Graduates will have the ability to apply electrical theory to practical applications.
5. Graduates will meet the MN Department of Labor and Industry's electrical program requirement of specific curriculum and 95% course attendance policy.

## Apprenticeship opportunity

Completion of the Electrical Technology Diploma program meets the Minnesota Department of Labor and Industry requirements. 95% attendance in each course and completion of the diploma may qualify for one year of apprenticeship credit.

*Information is subject to change.  
This Program Requirements Guide is not a contract.*

## Program Faculty

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## Program Requirements

Check off when completed

Certain classes must be taken concurrently and certain classes are prerequisites to other classes.

Course	Cr
<input type="checkbox"/> ELTN 1410 National Electrical Code 1 and Trade Calculations	.4
<input type="checkbox"/> ELTN 1422 Direct Current Circuit Analysis	.5
<input type="checkbox"/> ELTN 1432 Alternating Current Circuit Analysis	.5
<input type="checkbox"/> ELTN 1442 Single-Phase Motors and Generators	.5
<input type="checkbox"/> ELTN 1512 Three-Phase Systems Motors and Generators	.5
<input type="checkbox"/> ELTN 1522 Introduction to Electronics and Test Equipment	.5
<input type="checkbox"/> ELTN 1532 Intermediate Electronics and PLC's	.5
<input type="checkbox"/> ELTN 1540 Low Voltage Systems and Job Site Safety	.4
<input type="checkbox"/> ELTN 2410 Distribution Power and Specialty Transformers	.4
<input type="checkbox"/> ELTN 2420 Motor Controls	.4
<input type="checkbox"/> ELTN 2430 Residential Wiring and Blueprint Reading	.4
<input type="checkbox"/> ELTN 2440 Heating and Cooling System Controls	.4
<input type="checkbox"/> ELTN 2510 Wiring Methods and Systems	.4
<input type="checkbox"/> ELTN 2522 Commercial Wiring Methods	.5
<input type="checkbox"/> ELTN 2532 Industrial Wiring Methods and Service Entrance	.5
<input type="checkbox"/> ELTN 2540 National Electrical Code 2	.4
<input type="checkbox"/> ELTN 2550 Renewable Energy	.2

**Total Program Credits . . . . .74**

## Additional Program Requirements/Costs

- Students must attend orientation.
- Textbooks are required the first day of class. Go to [www.saintpaulcollegebookstore.com](http://www.saintpaulcollegebookstore.com) for textbook information.
- Multimeter and hand tools, approximately \$500 new.

## Transfer Opportunities

Saint Paul College has a transfer articulation agreement between the following program and post-secondary institution for the baccalaureate degree program listed below.

For more information please go to [saintpaul.edu/Transfer](http://saintpaul.edu/Transfer).

**Electrical Technology Diploma**  
BS Operations Management  
Minnesota State University-Moorhead

## Program Start Dates

Fall, Spring

## Course Sequence

The following full-time sequence is recommended.

### First Semester

ELTN 1410 National Electrical Code 1 and Trade Calculations	.4
ELTN 1422 Direct Current Circuit Analysis	.5
ELTN 1432 Alternating Current Circuit Analysis	.5
ELTN 1442 Single-Phase Motors and Generators	.5
<b>Total Semester Credits</b>	<b>19</b>

### Second Semester

ELTN 1512 Three-Phase Systems Motors and Generators	.5
ELTN 1522 Introduction to Electronics and Test Equipment	.5
ELTN 1532 Intermediate Electronics and PLC's	.5
ELTN 1540 Low Voltage Systems and Job Site Safety	.4
<b>Total Semester Credits</b>	<b>19</b>

### Third Semester

ELTN 2410 Distribution Power and Specialty Transformers	.4
ELTN 2420 Motor Controls	.4
ELTN 2430 Residential Wiring and Blueprint Reading	.4
ELTN 2440 Heating and Cooling System Controls	.4
<b>Total Semester Credits</b>	<b>16</b>

### Fourth Semester

ELTN 2510 Wiring Methods and Systems	.4
ELTN 2522 Commercial Wiring Methods	.5
ELTN 2532 Industrial Wiring Methods and Service Entrance	.5
ELTN 2540 National Electrical Code 2	.4
ELTN 2550 Renewable Energy	.2
<b>Total Semester Credits</b>	<b>20</b>

**Total Program Credits . . . . .74**

**Minimum Program Entry Requirements**  
Students entering this program must meet the following minimum program entry requirements:

**Reading:** Score of 60+ or a grade of "C" or better in READ 0721

**Writing:** Score of 60+ or a grade of "C" or better in ENGL 0921

**Arithmetic:** Score of 31+

**Assessment Results and Prerequisites:**  
Students admitted into Saint Paul College programs may need to complete additional courses based on assessment results and course prerequisite requirements. Certain MATH, READ, and ENGL courses have additional prerequisites.

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