



## **ELCC4 – Construction Electrician Apprenticeship Level 4**

### **Trades**

**Effective Term & Year:** Fall 2026

**Program Outline Review Date:** 2031-03-01

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**Program Area:** Trades Apprenticeship Training

#### **Description:**

This 10-week Construction Electrician Level 4 program delivers the skills, knowledge and training required for the 4-level Construction Electrician. Program competencies include applying circuit concepts, installing and maintaining power conditioning, Uninterruptible Power Supply (UPS) and surge suppression systems, installing power conditioning, installing and maintaining protective devices, renewable energy generating and storage, installing and maintaining branch circuitry, airport runway lighting systems, traffic signal lights and controls, non-rotating equipment and associated controls, signaling systems, fire alarm systems, security and surveillance systems, communication systems, nurse call systems, voice/data/video (VDV) systems and maintaining, installing and programming automated control systems. Safe work habits are important in this trade and are emphasized, reinforced and practiced throughout the program.

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#### **Credentials Granted:**

Upon successful completion of the 10 week Level 4 Construction Electrician Apprenticeship program, students receive:

- Level 4 technical training credit for the Construction Electrician Apprenticeship program.

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**Delivery Methods:** On-Campus (Face-to-Face)

**Program Duration:** 10 weeks

**Instructional Activity and Hours:**

| Activity                     | Hours     |
|------------------------------|-----------|
| Instructional Hours (hrs/wk) | 28 hrs/wk |
| Directed Studies (hrs/wk)    | 2 hrs/wk  |
| Total (hrs/wk)               | 30 hrs/wk |
| Total Program Hours          | 300 Hours |

### Content Weighting:

| Activity         | Percentage |
|------------------|------------|
| Theory           | 97%        |
| Practical Skills | 3%         |

### Admission Requirements:

Sponsored Construction Electrical apprentice who has successfully completed level 3 Electrician Common Core technical training.

### Prior Learning and Recognition:

Credit cannot be awarded for this program through Prior Learning Assessment and Recognition.

### Program Transfer Credit:

For information about block transfer agreements between programs in British Columbia, Alberta, and elsewhere, please visit <http://www.cotr.bc.ca/transfer>.

To minimize transfer issues, check with an academic advisor at the institution that will receive the transfer credits.

### Textbooks and Required Resources:

Textbook selection varies by instructor and may change from year to year. At the Program Outline Effective Date the following textbooks were in use (most current edition):

- Canadian Electrical Code. BC Amendments. BC Bulletins. CSA Group.
- Construction Electrician Level 4 – COTR Custom Package. Available from the Campus

store.

Recommended:

- Herman, S. L. (2012). Alternating Current Fundamentals (8<sup>th</sup> ed.). Cengage Learning.
- Herman, S. L. (2006). Direct Current Fundamentals (8<sup>th</sup> ed.). Cengage Learning.
- Herman, S. L. (2020). Standard Textbook of Electricity (7<sup>th</sup> ed.). Cengage Learning.

*Please see the instructor's syllabus or check COTR's online text calculator [Textbook Calculator](#) – [Get your COTR textbook quote](#) for a complete list of the currently required textbooks.*

### **Program Competencies and Technical Training Content:**

Upon the successful completion of this program, students will be able to:

#### **ELEA 401 Apply Circuit Concepts**

- Analyze Electronic Circuits

#### **ELEA 402 Organize Work**

- Interpret plans, drawings and specifications
- Identify hazardous locations

#### **ELEA 403 Install and Maintain Power Conditioning, Uninterruptible Power Supply (UPS) and Surge Suppression Systems**

- Install power conditioning, UPS and surge suppression systems
- Maintain power conditioning, UPS and surge suppression systems

#### **ELEA 404 Install and Maintain Renewable Energy Generating and Storage Systems**

- Install renewable energy generating and storage systems

#### **ELEA 405 Install and Maintain High Voltage Systems**

- Install high voltage systems
- Maintain high voltage systems

#### **ELEA 406 Install and Maintain Branch Circuitry**

- Install and maintain airport runway lighting systems
- Install and maintain traffic signal lights and controls

#### **ELEA 407 Install and Maintain Non-Rotating Equipment and Associated Controls**

- Install non-rotating equipment and associated controls

## ELEA 408 Install and Maintain Signaling Systems

- Install fire alarm systems
- Install security and surveillance systems

## ELEA 409 Install and Maintain Communication Systems

- Install voice/data/video (VDV) systems
- Install nurse call systems

## ELEA 410 Install and Maintain Building Automation Systems

- Install building automation systems

## ELEA 411 Install, Program and Maintain Automated Control Systems

- Install automated control systems
- Program automated control systems

### Evaluation and Assessment:

#### CONSTRUCTION ELECTRICIAN LEVEL 4

| COTR COURSE                                                          | SUBJECT COMPETENCIES                                                                                      | THEORY WEIGHTING   | PRACTICAL WEIGHTING |
|----------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|--------------------|---------------------|
| ELEA 401                                                             | Apply Circuit Concepts                                                                                    | 10%                | 0%                  |
| ELEA 402                                                             | Organize Work                                                                                             | 7%                 | 0%                  |
| ELEA 403                                                             | Install and Maintain Power Conditioning, Uninterruptible Power Supply (UPS) and Surge Suppression Systems | 7%                 | 0%                  |
| ELEA 404                                                             | Install and Maintain Renewable Energy Generating and Storage Systems                                      | 10%                | 0%                  |
| ELEA 405                                                             | Install and Maintain High Voltage Systems                                                                 | 10%                | 0%                  |
| ELEA 406                                                             | Install and Maintain Branch Circuitry                                                                     | 13%                | 0%                  |
| ELEA 407                                                             | Install and Maintain Non-Rotating Equipment and Associated Controls                                       | 2%                 | 0%                  |
| ELEA 408                                                             | Install and Maintain Signaling Systems                                                                    | 12%                | 100%                |
| ELEA 409                                                             | Install and Maintain Communication Systems                                                                | 7%                 | 0%                  |
| ELEA 410                                                             | Install and Maintain Building Automation Systems                                                          | 7%                 | 0%                  |
| ELEA 411                                                             | Install, Program and Maintain Automated Control Systems                                                   | 15%                | 0%                  |
| <b>Total</b>                                                         |                                                                                                           | <b>100%</b>        | <b>100%</b>         |
| <b>In-school theory &amp; practical subject competency weighting</b> |                                                                                                           | <b>97%</b>         | <b>3%</b>           |
| <b>Final in-school percentage score</b>                              |                                                                                                           | <b>IN-SCHOOL %</b> |                     |

### In-School Percentage Score

Combined theory and practical subject competency multiplied 70%  
by

### Proprietary Level 4 Exam Percentage Score

The exam score is multiplied by 30%

### Final Percentage Score

Apprentices must achieve a minimum of 70% as the final in-school percentage score to be eligible to write the Interprovincial Red Seal exam.

**FINAL%**

### Pass Requirements:

- Successful completion of the in-school training is defined as a final overall minimum of 70% to meet SkilledTradesBC standards.
- Refer to Policy 2.6.2 Vocational Student Withdrawals as a Result of Absence.

### Students must provide their own:

- Safety glasses

### Academic Policies:

College of the Rockies policies related to courses can be found at <https://cotr.bc.ca/about-us/college-policies/> and include the following:

- Policy 2.1.4 Course Audit
- Policy 2.4.1 Credential Framework
- Policy 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Rights, Responsibilities and Conduct
- Policy 2.4.8 Academic Performance
- Policy 2.4.9 Student Feedback and Concerns
- Policy 2.4.11 Storage of Academic Works
- Policy 2.5.3 Student Appeal
- Policy 2.5.5 Prior Learning Assessment and Recognition (PLAR)

## Program Grade

| COM                                                | NCG                               |
|----------------------------------------------------|-----------------------------------|
| Completed to the defined standard – 70% or greater | No Credit Granted – less than 70% |

### **Program Changes:**

Information contained in program outlines is correct at the time of publication. Content of the program is revised on an ongoing basis to ensure relevance to changing educational, employment, and marketing needs. The instructor endeavours to provide notice of changes to students as soon as possible. The instructor reserves the right to add material to programs.

### **Industry Training:**

The program competencies and technical training content delivered in this program follow the SkilledTradesBC Program Outline for this trade.

### **Safety Catalog:**

WorkSafeBC regulations apply to all trades programs. Students are expected to follow all safe work practices and have high regard for the safety of others as well as of themselves. Students are responsible to wear personal protective equipment (PPE) as directed. At a minimum, students must provide and wear approved safety footwear and eyewear at all times in the shop. Additional PPE may be required for specific tasks. Students are expected to wear clothing suitable for working safely in the shop.