



ELCC4 – Construction Electrician Apprenticeship Level 4

Trades

Effective Term & Year: Fall 2022

Program Outline Review Date: 2026-09-01

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 programing automated control systems. Safe work habits are important in this trade and are emphasized, reinforced and practiced throughout the program.

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.

Delivery Methods: Face-to-Face, Online

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
Classroom, Directed Studies or Online Instruction	97%
Seminar/Tutorials	3%

Admission Requirements:

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

Flexible Assessment:

Credit cannot be awarded for this program through Flexible Assessment.

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):

Complete Modules Year 4

Canadian Electrical Code; BC Amendments, BC Bulletins, Others as requested.(available through BCSA)

Recommended:

Electric Motor Control, 8TH Edition, by Delmar

Delmar's *Direct Fundamentals and Alternating Current Fundamentals*, 7TH Ed.

Electrician's Guide to Programmable Controllers, 5th ed. Delmar/COXCO.

Delmar's *Standard Textbook of Electricity*, 3rd Ed. (Supplemental)

BCIT Workbook

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%

Total	100%	100%
In-school theory & practical subject competency weighting	97%	3%
Final in-school percentage score	IN-SCHOOL %	
In-School Percentage Score	Combined theory and practical subject competency multiplied by 70%	
Proprietary Level 4 Exam Percentage Score	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:

1. Successful completion of the in-school training is defined as a final overall minimum of 70% to meet SkilledTradesBC standards.
 - Students must maintain an acceptable level of attendance, complete all assigned projects and pass all exams to successfully complete the program.

Students must provide their own:

- linesman pliers
- diagonal cutters
- hacksaw
- wire strippers
- Phillips screwdriver
- slotted screwdriver
- Robertson screwdriver
- torpedo level
- knife
- tape measure
- channel lock pliers
- 6" crescent wrench
- personal digital multimeter minimum 10mW/v

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 2.4.3 Students with Documented Disabilities
- Policy 2.4.4 Student Conduct (plagiarism, other cheating, behavioral misconduct)
- Policy 2.5.8 Academic Performance

- Policy 2.5.3 Grade Appeal
- Policy 2.4.9 Student Concerns Re Faculty

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.

Course Descriptions: Refer to Course Outlines – <https://outlines.cotr.bc.ca/course/>