COLLEGE OF
THE ROCKIES

ECC3 – Electrician Common Core Level 3

Trades

Effective Term & Year: Fall 2022
Program Outline Review Date: 2026-09-01

Program Area: Trades Apprenticeship Training

Description:

This 10-week Electrician Common Core Level 3 program delivers the skills, knowledge and training required for the 4-level Construction Electrician apprenticeship program or the Industrial Electrician apprenticeship program. Program competencies include analyzing three-phase circuits and electronic circuits, installing and maintaining consumer/supply services and metering equipment, installing and maintaining low voltage distribution systems, bonding, grounding and ground fault detection systems, power generation systems, installing and maintaining low voltage and high voltage transformers, motor starters and controls, drives and AC and DC motors. This program includes classroom theory, demonstrations and practical hands-on training in a state-of the art electrical concepts lab as well as in the electrician shop. 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 3 Electrician Common Core program, students receive:
• Level 3 technical training credit for the Construction Electrician or Industrial Electrician Apprentice 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	90%
Seminar/Tutorials	10%

Admission Requirements:

Sponsored Electrician Common Core apprentice who has successfully completed Level 2 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 Level 3

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

BCIT Workbook

Recommended:

Delmar's *Direct Current Fundamentals and Alternating Current Fundamentals,* 8th Ed.

Electrical Wiring: Industrial

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

Electronics for Electricians, 6th Ed.

Program Competencies and Technical Training Content:

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

ELEA 301 Apply Circuit Concepts

- Analyze Three-phase AC Circuits
- Analyze Electronic Circuits

ELEA 302 Use Tools and Equipment

- Use Measuring and Testing Equipment

ELEA 303 Organize Work

- Interpret Plans, Drawings and Specifications

ELEA 304 Install and Maintain Consumer/Supply Services and Metering Equipment

- Install Three-phase Consumer/Supply Services and Metering Equipment
- Maintain Three-phase Services and Metering Equipment

ELEA 305 Install and Maintain Low Voltage Distribution Systems

- Install Low Voltage Distribution Equipment

ELEA 306 Install and Maintain Bonding, Grounding and Ground Fault Detection Systems

- Install Grounding and Bonding Systems
- Install Ground Fault Detection Systems

ELEA 307 Install and Maintain Power Generation Systems

- Install AC Generating Systems
- Maintain AC Generating Systems
- Install DC Generating Systems
- Maintain DC Generating Systems

ELEA 308 Install and Maintain Transformers

- Install Low Voltage Three-Phase Transformers
- Install High Voltage Transformers

ELEA 309 Install and Maintain Branch Circuitry

- Install Wiring Devices

ELEA 310 Install and Maintain Motor Starters and Controls

- Install Motor Starters and Controls
- Maintain Motor Starters and Controls

ELEA 311 Install and Maintain Drives

- Install Drives

ELEA 312 Install and Maintain Motors

- Install AC Motors
- Maintain AC Motors
- Install DC Motors
- Maintain DC Motors

Evaluation and Assessment:

ELECTRICIAN COMMON CORE LEVEL 3

COTR COURSE	SUBJECT COMPETENCIES	THEORY WEIGHTING	PRACTICAL WEIGHTING
ELEA 301	Apply Circuit Concepts	33%	20%
ELEA 302	Use Tools and Equipment	2%	0%
ELEA 303	Organize Work	4%	0%
ELEA 304	Install and Maintain Consumer/Supply Services and Metering Equipment	4%	0%
ELEA 305	Install and Maintain Low Voltage Distribution Systems	4%	0%
ELEA 306	Install and Maintain Bonding, Grounding and Ground Fault Detection Systems	2%	0%
ELEA 307	Install and Maintain Power Generation Systems	10%	10%
ELEA 308	Install and Maintain Transformers	12%	25%
ELEA 309	Install and Maintain Branch Circuitry	1%	0%
ELEA 310	Install and Maintain Motor Starters and Controls	6%	20%
ELEA 311	Install and Maintain Drives	5%	0%
ELEA 312	Install and Maintain Motors	17%	25%

Total	**100%**	**100%**
In-school theory & practical subject competency weighting	90%	10%
Final in-school percentage score	**IN-SCHOOL %**	
In-School Percentage Score Combined theory and practical subject competency multiplied by	80%	
Standardized Level Exam Percentage Score The exam score is multiplied by	20%	
Final Percentage Score	**FINAL%**	

Pass Requirements:

1. Successful completion of the in-school training is defined as a final overall minumum 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/