



Electrician Common Core Level 2 – ECC2

Trades Training

Program Outline

PROGRAM IMPLEMENTATION DATE:	March 2005
OUTLINE EFFECTIVE DATE:	January 2021
PROGRAM OUTLINE REVIEW DATE:	September 2026

GENERAL PROGRAM DESCRIPTION:

This 10-week Electrician Common Core Level 2 program delivers the skills, knowledge and training required for the 4-level Construction Electrician program or the Industrial Electrician program. Program competencies include applying circuit concepts, installing and maintaining metering equipment, protective devices, ground fault detection systems, power generation systems, renewable energy generating and restoring systems, transformers, raceways, cables and enclosures, branch circuitry, HVAC systems, exit and emergency lighting systems, cathodic protection systems, and motor starters and controls. 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 2 Electrician Common Core program, students receive:

- Level 2 technical training credit for the Construction Electrician or Industrial Electrician Apprentice program.

Delivery: This program is delivered face to face as a block intake.

Time for this program: 10 weeks

Typical Structure of Instructional Hours:

Instructional Activity	Duration
Theory based training (approximately per day)	90%
Practical shop floor training (approximately per day)	10%
Trades Contact Hours	28 hrs/wk

Practicum Hours (if applicable):

Type of Practicum	Duration
On-the-job Experience	N/A
Formal Work Experience	N/A
Other	N/A
Total	

Program Outline Author or Contact:

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Signature

APPROVAL SIGNATURES:

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Department Head Signature

Dean Signature

EDCO

Valid from: January 2021 – September 2026

Education Council Approval Date

PROGRAM PREREQUISITES AND TRANSFER CREDIT:

Prerequisites: Sponsored Electrician Apprentice that has successfully completed Level 1 technical training or Electrician Foundation, **OR**

Journeyman Electrician (for skills upgrading)

Flexible Assessment (FA):

Credit can be awarded for this program through FA

Yes No

Prior Learning Credit: Apprentices that have extensive work experience in a trade (in BC or elsewhere) but have never been certified must apply through the Industry Training Authority (ITA) to challenge the certification for advanced placement in a program. Refer to the ITA website (<http://www.itabc.ca/apply-apprenticeship/challenging-exams>) for details regarding the challenge procedure. Trade specific requirements can be found for each trade in the Trades Program Profiles on the ITA website.

Prior Course Number: N/A

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 2018; BC Amendments, BC Bulletins, Others as requested (available through BCSA).

Level 2 Exercise Booklet, BCIT

Electrician Level 2 Custom Bundle, Nelson Publisher

Please see the instructor's syllabus or check COTR's online text calculator <http://go.cotr.bc.ca/tuition/tCalc.asp> for a complete list of the currently required textbooks.

PROGRAM DESIGN:

Apprenticeship programs cover the general area competencies (GAC) for the program as sourced from curriculum documents provided by Industry Training Authority (ITA). The Technical Training Topics are listed under the Technical Training Content section of this document, and related competencies are listed under the Program Competencies section. College of the Rockies is accredited by ITA to deliver apprenticeship programs.

TECHNICAL TRAINING CONTENT:

ELEA 201 Apply Circuit Concepts

- Use Electrical Circuit Concepts
- Analyze Single-phase AC Circuits
- Analyze Electronic Circuits

ELEA 202 Organize Work

- Interpret Plans, Drawings and Specifications

ELEA 203 Install and Maintain Consumer/Supply Services and Metering Equipment

- Install Single-phase Consumer/Supply Services and Metering Equipment

ELEA 204 Install and Maintain Protection Devices

- Install Overcurrent Protection Devices
- Install Ground Fault, Arc Fault and Surge Protection Devices

ELEA 205 Install and Maintain Bonding, Grounding and Ground Fault Detection Systems

- Install Grounding and Bonding Systems

ELEA 206 Install and Maintain Renewable Energy Generating and Storage Systems

- Install Renewable Energy Generating and Storage Systems

ELEA 207 Install and Maintain Transformers

- Install Extra-Low and Low-Voltage Single-Phase Transformers

- ELEA 208 Install and Maintain Raceways, Cables and Enclosures**
- Install Conductors and Cables
 - Install Raceways, Boxes and Fittings
 - Maintain Conductors, Cables, Raceways, Boxes and Fittings
- ELEA 209 Install and Maintain Branch Circuitry**
- Install Luminaires
 - Install Wiring Devices
 - Install Lighting Controls
 - Maintain Luminaires, Wiring Devices, Lighting Controls, Lighting Standards and Branch Circuitry
- ELEA 210 Install and Maintain Heating, Ventilating and Air-Conditioning (HVAC) Systems**
- Install HVAC Systems and Controls
 - Maintain HVAC Systems and Controls
- ELEA 211 Install and Maintain Exit and Emergency Lighting Systems**
- Install Exit and Emergency Lighting Systems
 - Maintain Exit and Emergency Lighting Systems
- ELEA 212 Install and Maintain Cathodic Protection Systems**
- Install Cathodic Protection Systems
 - Maintain Cathodic Protection Systems
- ELEA 213 Install and Maintain Motor Starters and Controls**
- Install Motor Starters and Controls
 - Maintain Motor Starters and Controls
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PROGRAM COMPETENCIES:

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

- use electrical circuit concepts;
- analyze single-phase ac circuits and electronic circuits;
- interpret plans, drawings and specifications;
- install single-phase consumer/supply services and metering equipment;
- install overcurrent protection devices and ground fault, arc fault and surge protection devices;
- install grounding and bonding systems;
- install renewable energy generating and storage systems;
- install extra-low and low-voltage single-phase transformers;
- install and maintain conductors and cables , raceways, boxes and fittings;
- install and maintain luminaires, wiring devices lighting controls and branch circuitry;
- install and maintain HVAC systems and controls;
- install and maintain exit and emergency lighting systems;
- install and maintain cathodic protection systems; and
- install and maintain motor starters and controls.

The program competencies covered in this program follow Industry Training Authority harmonized curriculum.

EVALUATION AND ASSESSMENT:

Assignments	% Of Total Grade
Theory	90%
Practical	<u>10%</u>
Total	100%

Students must maintain an acceptable level of attendance (as described in the College Policies and Procedures), complete all assigned projects and pass all exams to successfully complete the program.

Note: When the apprentice completes the program the instructor will forward the evaluation results to the Industry Training Authority. Students must obtain a mark of 70% overall to pass the program.

Students are continually evaluated on practical work in the shop and may request information or update of their performance at any time throughout the length of the program.

ELECTRICIAN COMMON CORE LEVEL 2			
COTR COURSE	SUBJECT COMPETENCIES	THEORY WEIGHTING	PRACTICAL WEIGHTING
ELEA 201	Apply Circuit Concepts	41%	25%
ELEA 202	Organize Work	5%	0%
ELEA 203	Install and Maintain Consumer/Supply Services and Metering Equipment	5%	0%
ELEA 204	Install and Maintain Protection Devices	2%	0%
ELEA 205	Install and Maintain Bonding, Grounding and Ground Fault Detection Systems	2%	0%
ELEA 206	Install and Maintain Renewable Energy Generating and Storage Systems	2%	0%
ELEA 207	Install and Maintain Transformers	15%	50%
ELEA 208	Install and Maintain Raceways, Cables and Enclosures	2%	0%
ELEA 209	Install and Maintain Branch Circuitry	4%	0%
ELEA 210	Install and Maintain Heating, Ventilating and Air-conditioning (HVAC) Systems	6%	0%
ELEA 211	Install and Maintain Exit and Emergency Lighting Systems	1%	0%
ELEA 212	Install and Maintain Cathodic Protection Systems	1%	0%
ELEA 213	Install and Maintain Motor Starters and Controls	14%	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%	
Standard Level Exam Percentage Score The exam score is multiplied by		20%	
Final Percentage Score		FINAL%	

STUDENT RESPONSIBILITY:

Students are expected to follow all College Policies and Practices as outlined in the program handout package. Mastery of trade specific techniques and methods necessary to a given trade requires significant supervised practice. As a result, regular attendance is necessary for success in this program. Students are expected to follow Policy 2.6.2 – "***Vocational Student Withdrawals as a Result of Absence***".

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.

The shop attendant is also the first aid attendant for the building. Students may only work in the shop during assigned times. If an incident occurs, no matter how minor, it must be reported to the shop attendant immediately.

INDUSTRY SITE VISITS:

There may be off-site field trips organized in the program as opportunity or resources are available during this program. Students **ARE REQUIRED** to arrange their own transportation for such field trips. Students are expected to follow all college policies and procedures when participating in off-campus activities.

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 10M Ω /v
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EXAM POLICY:

Students must attend all required scheduled tests and exams that make up a final grade at the appointed time and place.

Individual instructors may accommodate for illness or personal crisis. Additional accommodation will not be made unless a written request is sent to and approved by the appropriate Department Head prior to the scheduled exam.

Any student who misses a scheduled test or exam without approval will be given a grade of "0" for the exam.

PROGRAM GRADE:

Program grades are assigned as follows:

COM	Completed to defined standard \geq 70%
NCG	No Credit Granted < 70%

Successful completion of the in-school training for each level is defined as a final score of 70% or greater. (ITA website)

ACADEMIC POLICIES:

See www.cotr.bc.ca/policies for general college policies related to program activities, including grade appeals, cheating and plagiarism.

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.