



# Electrician Common Core Level 1 – ECC1

## Trades Training

### Program Outline

PROGRAM IMPLEMENTATION DATE: March 2005  
OUTLINE EFFECTIVE DATE: March 2023  
PROGRAM OUTLINE REVIEW DATE: September 2028

---

#### GENERAL PROGRAM DESCRIPTION:

This 10-week Electrician Common Core Level 1 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, analyzing DC circuits and electromagnetism, using measuring and testing equipment, interpreting plans and drawings, using the Canadian Electrical Code, installing and maintaining single phase consumer/supply metering equipment, installing surge protective devices, ground fault and arc fault detection systems, installing low voltage distribution systems and grounding and bonding systems, installing conductors, cables, raceways, boxes, fittings, luminaries, wiring devices and lighting controls and standards and voice/data/video systems. 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.

---

**Credential Granted:** Upon successful completion of the 10-week Level 1 Electrician Common Core Program, students receive:

- Level 1 technical training credit for the Construction Electrician or Industrial Electrician Apprenticeship programs.

---

**Delivery:** This program can be delivered face to face or hybrid (online with face-to-face components).

**Time for this program:** 10 weeks

#### Structure of Instructional Hours:

Instructional Activity	Duration
Instructional Hours	28 hrs/wk
Directed Studies	2 hrs/wk
Hours per Week	30 hrs/wk
Total Program Hours	300 hrs

Content Weighting	Duration
Theory	90%
Practical Skills	10%
<b>Total</b>	<b>100%</b>

**Program Outline Author or Contact:**

Dave Murdoch, CE–RSE, IE–RSE, IE Registered Assessor, FSR, BA

\_\_\_\_\_  
Signature

---

**APPROVAL SIGNATURES:**

Department Head

Joy Brown

E-mail: [jbrown3@cotr.bc.ca](mailto:jbrown3@cotr.bc.ca)

Dean of Trades and Technology

Dr. Jack Moes

E-mail: [jmoes@cotr.bc.ca](mailto:jmoes@cotr.bc.ca)

\_\_\_\_\_  
Department Head Signature

\_\_\_\_\_  
Dean Signature

EDCO

Valid from: March 2023 – September 2028

\_\_\_\_\_  
Education Council Approval Date

---

**PROGRAM PREREQUISITES AND TRANSFER CREDIT:**

**Prerequisites:** Sponsored electrician apprentice

**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 1 Exercise Booklet, BCIT*

*Electrician Level 1 Custom Bundle, Nelson Publisher*

*Please see the instructor's syllabus or check COTR's online text calculator <https://textbook.cotr.bc.ca/> for a complete list of the currently required textbooks.*

---

## TECHNICAL TRAINING CONTENT AND PROGRAM COMPETENCIES:

### **ELEA 101 Apply Circuit Concepts**

- Use electrical circuit concepts
- Analyze DC Circuits
- Analyze principles of electromagnetism
- Analyze electronic circuits

### **ELEA 102 Perform Safety-Related Functions**

- Use personal protective equipment (PPE) and safety equipment
- Maintain safe work environment
- Perform lock-out and tag-out procedures

### **ELEA 103 Use Tools and Equipment**

- Use measuring and testing equipment

### **ELEA 104 Organize Work**

- Interpret plans, drawings and specifications
- Use Canadian Electrical Code (CEC)

### **ELEA 105 Use Communication and Mentoring Techniques**

- Use mentoring techniques

### **ELEA 106 Install and Maintain Consumer/Supply Services and Metering Equipment**

- Install single-phase consumer/supply services and metering equipment
- Maintain single-phase services and metering equipment

### **ELEA 107 Install and Maintain Protection Devices**

- Install ground fault, arc fault, and surge protection devices

### **ELEA 108 Install and Maintain Low Voltage Distribution Systems**

- Install low voltage distribution equipment

**ELEA 109 Install and Maintain Bonding, Grounding and Ground Fault Detection Systems**

- Install grounding and bonding systems

**ELEA 110 Install and Maintain Raceways, Cables and Enclosures**

- Install conductors and cables
- Install raceways, boxes and fittings

**ELEA 111 Install and Maintain Branch Circuitry**

- Install luminaries
- Install wiring devices
- Install lighting controls
- Install lighting standards

**ELEA 112 Install and Maintain Motor Starters and Controls**

- Install motor starters and controls
- Maintain motor starts and controls

**ELEA 113 Install and Maintain Communication Systems**

- Install voice/data/video (VDV) systems

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

See instructor's syllabus for the detailed outline of weekly readings, activities and assignments.

**EVALUATION AND ASSESSMENT:**

<b>ELECTRICIAN COMMON CORE LEVEL 1</b>			
<b>COTR COURSE</b>	<b>SUBJECT COMPETENCIES</b>	<b>THEORY WEIGHTING</b>	<b>PRACTICAL WEIGHTING</b>
ELEA 101	Apply Circuit Concepts	50%	40%
ELEA 102	Perform Safety-Related Functions	3%	10%
ELEA 103	Use Tools and Equipment	2%	10%
ELEA 104	Organize Work	3%	0%
ELEA 105	Use Communication and Mentoring Techniques	0%	0%
ELEA 106	Install and Maintain Consumer/Supply Services and Metering Equipment	5%	0%
ELEA 107	Install and Maintain Protection Devices	4%	0%
ELEA 108	Install and Maintain Low Voltage Distribution Systems	5%	0%
ELEA 109	Install and Maintain Bonding, Grounding and Ground Fault Detection Systems	4%	0%
ELEA 110	Install and Maintain Raceways, Cables and Enclosures	8%	0%
ELEA 111	Install and Maintain Branch Circuitry	6%	15%

ELEA 112	Install and Maintain Motor Starters and Controls	8%	10%
ELEA 113	Install and Maintain Communication Systems	2%	15%
	<b>Total</b>	<b>100%</b>	<b>100%</b>

<b>In-School Theory/Practical Subject Competency Weighting</b>	90%	10%
<b>Final in-school percentage score</b>	<b>IN-SCHOOL %</b>	
<b>In-School Percentage Score</b> Combined theory and practical subject competency multiplied by	80%	
<b>Standard Level Exam Percentage Score</b> The exam score is multiplied by	20%	
<b>Final Percentage Score</b>	<b>FINAL%</b>	

**Pass Requirements:**

**In order to pass this program, students are required to**

- achieve a minimum overall 70% final percentage score

**SAFETY:**

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.

**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 $\Omega$ /v

**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:

<b>COM</b>	Completed to defined standard $\geq 70\%$
<b>NCG</b>	No Credit Granted $< 70\%$

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

---

**ACADEMIC POLICIES:**

See [www.cotr.bc.ca/policies](http://www.cotr.bc.ca/policies) for general college policies related to course 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.