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Canadian Electrical Code Calculations - Advanced Practical Applications

View Course Details

COURSE DATES AND TIMES

March 18, 2026
10:00 am - 4:30 pm ET
May 13, 2026
10:00 am - 4:30 pm ET

Why Take This Course?

Designed for electricians, engineers and maintenance professionals, this 6-hour instructor-led Canadian Electrical Code Calculations course covers conductor sizing, conduit and box fill limits, overcurrent protection, motor and transformer calculations, load demands, grounding and bonding — giving you the confidence to design and install safe, code-compliant electrical systems.

Electrical professionals face growing demands to meet strict regulatory standards while ensuring safety and reliability across diverse electrical systems. Miscalculations — from conductor ampacity to conduit fill, service load, motor sizing, or grounding — can result in unsafe installations, failed inspections, costly rework, or project delays. This course equips you with practical knowledge and hands-on experience to avoid those pitfalls and consistently deliver safe, compliant work, thereby improving both project outcomes and your professional reputation.

By combining lecture, worked examples, real-world case studies and practical exercises — including sample load calculations, panelboard and service setups, motor and transformer feeders, conduit/busway fill, grounding/bonding and load-demand analysis — you'll learn not only how to read the Code tables and apply formulas but also how to interpret and navigate Code requirements efficiently in real-world contexts. Whether you’re sizing conductors for a new commercial installation, calculating demand loads for residential services, or

determining overcurrent protection for complex motor and transformer applications, this training gives you tools to work quickly, confidently and safely.

Why This Course Stands Out

This course isn’t a mere review of the Code — it’s a comprehensive, application-driven workshop crafted by experienced experts, focused on the latest 2024 Code edition. Through practical exercises, real-world scenarios and interactive instruction, you leave with actionable skills and confidence to apply calculations immediately on the job. Plus: many participants find that understanding calculations in-depth improves their wiring efficiency, reduces installation errors, and bolsters safety and compliance across projects.

The course also explains how the Canadian Electrical Code Part interacts with related Canadian standards to ensure safe, consistent installation practices across residential and commercial systems. Participants learn how to perform load based calculations, apply maximum allowable voltage drop limits, and interpret rules specific to single dwellings, giving them the skills to design compliant, efficient electrical installations in real-world applications.

Learning Outcomes

By the end of the course, participants will be able to:

- Interpret critical Code sections (conductors, service loads, grounding, overcurrent protection, motors, transformers).
- Perform accurate calculations for wire/cable sizing, conduit and box fill, service and feeder loads, and motor/transformer sizing.
- Apply grounding, bonding and load-demand rules where relevant.
- Navigate and reference Code tables and apply correction/demand factors effectively.
- Design and size feeder, branch-circuit, and panelboard installations for commercial, industrial, or residential environments.
- Recognize and avoid common compliance pitfalls to improve inspection success and reduce rework.

WHO SHOULD ATTEND

- Electricians (construction, industrial, commercial, institutional)
- Electrical engineers, and contractors
- Managers and maintenance professionals
- Electrical technologists and technicians
- Construction professionals, estimators, and managers
- Manufacturing managers and electrical mechanics
- Electrical apprentices, trade qualifiers, and educators.

This course is designed for professionals across the electrical industry who need to stay current with CE Code changes and enhance their ability to perform calculations essential for compliance in electrical systems.

STUDENTS RECEIVE

- CE Code Calculations Course Certificate
- .6 CEU credits issued by the Engineering Institute of Canada. (6 Professional Development Hours)
- An Electricity Forum Coupon (Value $50) to be used against any future Electricity Forum event (restrictions apply)
- 100+Page Digital Electrical Safety Handbook (Value $20)
- Course Materials in PDF Format

COURSE OUTLINE

CE Code Calculations Course Outline

1. Introduction and Overview

- Overview of course objectives and key concepts for CE Code compliance.
- Introduction to common calculation methods used in electrical installations.

2. Wire and Cable Applications

- Key factors for wire and cable conditions, including ampacities, temperature ratings, and flame spread.
- **Student Exercise**: Conductor ampacity calculation and table navigation.
- Review of parallel conductors, underground wiring, and mitigating sheath/eddy currents.

3. Conduit Fill and Box Fill

- Detailed calculation procedures for conduit and box fill according to Code requirements.
- **Student Exercise**: Practical conduit and box fill calculations using real-world examples.

4. Hazardous Locations

- Understanding the Zone and Class/Division systems for hazardous locations.
- Discussion: Electrical wiring requirements and equipment considerations for hazardous areas.

5. Panelboard Applications

- Identifying different types of panelboards and determining feeder connections based on the Code.
- **Student Exercise**: Conduct calculations for conductor sizing and overcurrent protection in panelboards.

6. Transformer Applications

- In-depth coverage of conductor and overcurrent sizing for transformers.
- **Student Exercise**: Real-world transformer sizing calculations based on applicable Code sections.

7. Motor Applications

- Understanding motor protection, including conductor sizing, overcurrent, and disconnection requirements.
- **Student Exercise**: Perform calculations for motor conductor sizing, overload, and overcurrent protection.

8. Electric Welders Tap Conductors

- Applicable Code sections for electric welders and tap conductors in electrical systems.
- **Student Exercise**: Conduct sizing and overcurrent calculations for tap conductors and electric welders.

9. Tap Conductors

- Panelboards
- Transformers
- Motors

COURSE SCHEDULE

Start: 10 a.m. Eastern Time
Finish: 4:30 p.m. Eastern Time