



9062

APPLIED ELECTRICAL  
TRADES TECHNOLOGY (12D)

40S/40E/40M

An Electrical Trades Technology Course



# 9062: APPLIED ELECTRICAL TRADES TECHNOLOGY (12D) 40S/40E/40M

## Course Description

Students will synthesize and apply knowledge and skills acquired in all previous courses to design, install, troubleshoot, and document electrical circuits with a minimum of supervision and direction. Students will also focus on skills and activities to ease in the transition to employment or post-secondary education.

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### **Goal 1:** Describe and apply **health and safety** practices.

#### **GLO 1.1:** Describe and apply **health and safety** practices.

- SLO 12D.1.1.1: Identify safety and health requirements. (A2.1)
- SLO 12D.1.1.2: Describe the importance of using personal protective equipment (PPE), and identify PPE and procedures related to PPE. (A2.2) (TSA 16)
- SLO 12D.1.1.3: Outline the safety principles for working on and around electrical equipment. (A2.3) (TSA 18)
- SLO 12D.1.1.4: Identify fire safety and outline workplace fire safety principles. (A2.4) (TSA 19)
- SLO 12D.1.1.5: Recognize and control hazards. (A2.6)
- SLO 12D.1.1.6: Identify the hazards in confined spaces and the preparation needed to work in a confined space. (A2.7) (TSA 20)
- SLO 12D.1.1.7: Identify first aid/CPR. (A2.8)
- SLO 12D.1.1.8: Explain the Workplace Hazardous Material Information System (WHMIS), and identify the safety requirements as they apply to WHMIS. (A2.9) (TSA 13)
- SLO 12D.1.1.9: Identify and control hazards. (A2.10)
- SLO 12D.1.1.10: Create and maintain a safe and organized working environment.

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#### **GLO 1.2:** Demonstrate awareness of electrical safety as it pertains to the ***Trade Safety Awareness Manual***.

No applicable SLOs.

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**Goal 2:** Demonstrate the safe and appropriate **identification, selection, operation, maintenance, and management of equipment and tools.**

**GLO 2.1:** Demonstrate the safe and appropriate **identification, selection, operation, maintenance, and management of equipment and tools.**

SLO 12D.2.1.1: Demonstrate the safe and appropriate identification, selection, and operation of equipment and tools associated with motor controls.

SLO 12D.2.1.2: Demonstrate the safe and appropriate identification, selection, and operation of equipment and tools associated with various types of raceways.

SLO 12D.2.1.3: Demonstrate the safe and appropriate identification, selection, and operation of equipment and tools associated with retrofitting or upgrading existing electrical installations.

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**Goal 3:** Demonstrate the safe and appropriate **identification, selection, installation, maintenance, and management of devices and materials.**

**GLO 3.1:** Demonstrate the safe and appropriate **identification, selection, installation, maintenance, and management of devices and materials.**

SLO 12D.3.1.1: Demonstrate the safe and appropriate identification, selection, installation, maintenance, and management of motor controls.

SLO 12D.3.1.2: Demonstrate the safe and appropriate identification, selection, installation, maintenance, and management of raceways-associated boxes and devices.

SLO 12D.3.1.3: Demonstrate the safe and appropriate identification, selection, installation, maintenance, and management of retrofitting or upgrading existing electrical installations.

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**Goal 4:** Demonstrate an understanding of **electrical theory**.

**GLO 4.1:** Demonstrate an understanding of **electrical theory**.

SLO 12D.4.1.1: Synthesize theoretical knowledge required to design, lay out, and interpret electrical branch circuits and systems.

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**Goal 5:** Demonstrate an understanding of the **design, layout, and interpretation of branch circuits and systems**.

**GLO 5.1:** Demonstrate an understanding of the **design, layout, and interpretation of branch circuits and systems**.

SLO 12D.5.1.1: Synthesize knowledge and skills required to design, lay out, and interpret branch circuits and systems with minimal supervision and direction.

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**Goal 6:** Demonstrate the procedures used to **install and terminate branch circuits and systems**.

**GLO 6.1:** Demonstrate the procedures used to **install and terminate branch circuits and systems**.

SLO 12D.6.1.1: Synthesize knowledge and skills required to install and terminate branch circuits and systems with minimal supervision and direction.

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**Goal 7:** Demonstrate an understanding of the **testing, troubleshooting, and documentation of branch circuits and systems**.

**GLO 7.1:** Demonstrate an understanding of the **testing, troubleshooting, and documentation of branch circuits and systems**.

SLO 12C.7.1.1: Synthesize knowledge and skills required to design, lay out, and interpret branch circuits and systems with minimal supervision and direction.

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**Goal 8:** Describe and demonstrate the transferable **cross-curricular** knowledge and skills.

**GLO 8.1: Read, interpret, and communicate** information.

- SLO 12D.8.1.1: Demonstrate the ability to navigate unfamiliar portions of the Canadian Electrical Code (CEC) in order to find applicable and relevant information and regulations.
  - SLO 12D.8.1.2: Describe the communication skills/modes used in the workplace. (A3.1)
  - SLO 12D.8.1.3: Describe the importance of the customer. (A3.2)
  - SLO 12D.8.1.4: Describe effective techniques for addressing customer complaints. (A3.3)
  - SLO 12D.8.1.5: Describe techniques for maintaining good communication in the workplace. (A3.4)
  - SLO 12D.8.1.6: Describe general organization and basic reading strategies for trade-related documents. (A3.5)
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**GLO 8.2:** Apply the knowledge and skills from **mathematics**.

- SLO 12D.8.2.1: Demonstrate the mathematical skills required to install and terminate branch circuits and systems.
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**GLO 8.3:** Apply the knowledge and skills from the **sciences**.

- SLO 12D.8.3.1: Demonstrate the knowledge and skills from science required to install and terminate branch circuits and systems.
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**GLO 8.4:** Apply the knowledge and skills from **information and communication technology**.

- SLO 12D.8.4.1: Create trade-related documents using proper writing techniques. (A3.6)
  - SLO 12D.8.4.2: Demonstrate trade-related computer skills, as specified by the instructor. (A3.7)
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**Goal 9:** Understand **career opportunities and working conditions**.

**GLO 9.1:** Describe **apprenticeship, education, career opportunities, professional organizations, and working conditions** related to electrical trades technology and associated fields.

SLO 12D.9.1.1: Describe the structure and scope of the construction electrician, industrial electrician, and power electrician trades. (A1.1)

SLO 12D.9.1.2: Describe two levels of workplace competency. (A1.2)

SLO 12D.9.1.3: Describe accommodation for apprentices with disabilities. (A1.3)

SLO 12D.9.1.4: Create a portfolio for obtaining employment.

SLO 12D.9.1.5: Research potential employers in the electrical trades and associated fields.

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**Goal 10:** Demonstrate awareness of **sustainability**.

**GLO 10.1:** Describe the impact of **human sustainability** on the health and well-being of tradespersons working in the electrical trades and those who use their services.

No applicable SLOs.

**GLO 10.2:** Describe the electrical trade's **sustainability practices and impact on the environment**.

SLO 12D.10.2.1: Minimize wastage of materials.

SLO 12D.10.2.2: Design circuits and systems that maximize the efficient use of materials.

**GLO 10.3:** Describe **sustainable business practices** within the electrical trades.

SLO 12D.10.3.1: Demonstrate an understanding of the importance of remaining up to date with current technologies.

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**Goal 11:** Demonstrate awareness of **ethical and legal standards** as they pertain to the electrical trades.

**GLO 11.1:** Demonstrate awareness of **ethical and legal standards**.

No applicable SLOs.

**GLO 11.2:** Demonstrate an understanding of **electrical codes**.

No applicable SLOs.

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**Goal 12: Demonstrate employability skills.****GLO 12.1: Demonstrate fundamental employability skills.**

- SLO 12D.12.1.1: Demonstrate regular and punctual attendance.
  - SLO 12D.12.1.2: Demonstrate the ability to communicate respectfully and effectively with teachers, supervisors, co-workers, and students.
  - SLO 12D.12.1.3: Demonstrate accountability by taking responsibility for their actions.
  - SLO 12D.12.1.4: Demonstrate adaptability, initiative, and effort.
  - SLO 12D.12.1.5: Demonstrate teamwork skills.
  - SLO 12D.12.1.6: Demonstrate the ability to stay on task and effectively use time in class and work environments.
  - SLO 12D.12.1.7: Demonstrate the responsible use of wireless communication devices.
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**GLO 12.2: Demonstrate an awareness of cultural competence and its importance in the workplace.**

- SLO 12D.12.2.1: Demonstrate respect for cultural differences.
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**GLO 12.3: Demonstrate an understanding of the business operation of an electrical trades facility.**

- SLO 12D.12.3.1: Estimate time required to complete assigned task.
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**GLO 12.4: Demonstrate critical thinking skills in planning, procedures, analysis, and diagnosis.**

- SLO 12D.12.4.1: Demonstrate critical-thinking skills required to install and terminate branch circuits and systems with a minimum of supervision and direction.
  - SLO 12D.12.4.2: Demonstrate critical-thinking skills required to analyze and diagnose problems with a minimum of supervision and direction.
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**Goal 13: Understand the evolution, technological progression, and emerging trends in the electrical trades.****GLO 13.1: Understand the evolution, technological progression, and emerging trends in the electrical trades.**

- SLO 12D.13.1.1: Demonstrate an awareness of the evolution, technological progression, and emerging trends in electrical power generation.
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