

Apprenticeship and Industry Training

Apprenticeship Core Competence Statements

Electrician



Apprenticeship
and Industry
Training



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Core competence statements

Apprenticeship and Industry Training (AIT) defines the core competences as the capabilities needed for each profession. AIT works with subject matter experts from across Alberta, including individuals from industry, associations, trade organizations and post-secondary institutions, to identify the core competences for each designated trade.

Breakdown of core competence statements

Core competence statements

These are a list of specific tasks that require essential skills, knowledge, activities, or functions for someone to be deemed proficient in their trade.

Section title

This term provides a heading and overview of the content, category of related topics and is crafted from tasks found within a trade's Board Order.

Competence statement

An observable major task, work activity, or outcome that an entry-level journeyperson performs on-the-job.

Competences

The skills and knowledge demonstrated on-the-job and in classroom instruction that supports achievement of the competence statement by an apprentice or journeyperson in their skilled trade.

Profile

A profile for an apprenticeship education program in Alberta outlines the specific skills, knowledge, abilities, and behaviours necessary to work in a profession. The profile consists of a set of core competence statements, a curriculum guide, a record book and supporting documents.

NOTE: These documents are available on the Apprenticeship and Industry Training website tradesecrets.alberta.ca.



Electrician trade

A journeyperson electrician is an individual who can:

- Read and interpret electrical, mechanical, and architectural drawings, specifications, and applicable codes;
- Install, maintain, and repair cables, raceways, enclosures, and fittings;
- Install, maintain, and repair distribution and control equipment such as switches, relays, panelboards, and fuse enclosures;
- Install, maintain, and repair electrical and communication systems and related equipment;
- Install, maintain, and repair electrical generation sources and related equipment;
- Splice, join and connect wire to form circuits, and
- Test circuits to ensure integrity and safety.

Core competences

Electrician Core Competences:

1. Foundational Skills, Responsibilities, and Procedures
2. Tools, Equipment, and Instruments
3. Codes and Standards
4. Electrical Theory, Circuit Fundamentals and Electronics
5. Electrical Systems

Core Competence 1: Foundational Skills, Responsibilities, and Procedures

Core Competence Statement:



Apply foundational skills essential to convey and receive critical training and workplace information.

Competences:

- Select, use, and maintain personal protective equipment.
- Demonstrate safety awareness and safe work practices.
- Demonstrate knowledge and understanding of working at heights.
- Demonstrate knowledge and understanding of material handling.
- Use drawings, diagrams, schematics, and specifications.
- Organize tasks and work areas.
- Apply quality workmanship practices.
- Demonstrate critical thinking skills.
- Demonstrate numeracy skills.
- Demonstrate literacy skills.
- Demonstrate digital literacy skills.
- Demonstrate communication skills.
- Demonstrate mentorship skills.

Core Competence 2: Tools, Equipment, and Instruments

Core Competence Statement:



Demonstrate knowledge, understanding and proficiency regarding the selection, use and maintenance of tools, equipment, and instruments.

Competences:

- Select, use, and maintain hand tools.
- Select, use, and maintain power tools.
- Select, use, and maintain speciality tools.
- Select, use, and maintain measurement instruments.
- Select, use, and maintain testing equipment.
- Select, use, and maintain diagnostic equipment.

Core Competence 3: Codes and Standards

Core Competence Statement:



Demonstrate knowledge, understanding and proficiency when interpreting and applying codes and/or standards.

Competences:

- Interpret and apply the CE Code.
- Interpret and apply the electrical STANDATA.
- Interpret and apply jurisdictional bylaws, standards, and codes.

Core Competence 4: Electrical Theory, Circuit Fundamentals and Electronics

Core Competence Statement:



Demonstrate knowledge, understanding, and application of electrical theory, circuit fundamentals and electronics.

Competences:

- Connect and analyze resistive circuits.
- Connect and analyze single-phase alternating current (AC) circuits.
- Connect and analyze three-phase alternating current (AC) circuits.
- Connect and analyze electronics.

Core Competence 5: Electrical Systems

Core Competence Statement:

Demonstrate knowledge, understanding and proficiency regarding the identification, installation, inspection, verification, testing, analysis, troubleshooting, altering, repair, commissioning, maintaining, operating, and energizing of electrical systems.

Competences:

- Identify electrical systems.
- Install electrical systems.
- Inspect electrical systems.
- Verify electrical systems.
- Test electrical systems.
- Analyze electrical systems.
- Troubleshoot electrical systems.
- Alter electrical systems.
- Repair electrical systems.
- Commission electrical systems.
- Maintain electrical systems.
- Operate electrical systems.
- Energize electrical systems.

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