

COMPETENCY PROFILE:

ELECTRONICS TECHNICIAN

ROLE OVERVIEW

Electronics technicians work in various employment settings in businesses and industries that use electronics engineering, including large and small organizations. They provide technical support and services in designing, developing, maintaining, producing, and operating electronic equipment and systems. Electronics engineering technicians assist in designing, building, repairing, adjusting, and modifying electronic components, circuitry, controls, and machinery for subsequent evaluation and use by senior engineering staff in making engineering decisions.

They work in various industries, including engineering services, electronic component manufacturing, communications companies, consulting firms, and government. While the specifics of their roles may vary depending on the industry, the size of their employer, and their level of seniority, their core responsibilities will remain consistent. These core responsibilities include installing, repairing, and maintaining electronic equipment.

To be successful in their role, electronics engineering technicians need a combination of technical, personal and professional skills. Effective communication is crucial, as they often collaborate with engineers and other team members on different projects. Having problem-solving skills is vital when it comes to identifying and resolving issues promptly and effectively. Attention to detail is critical to ensure precision in their work. Teamwork is valuable as they may encounter complex electrical systems and equipment configurations and require a team of people to understand and work through any issues.

These technicians have technical expertise, problem-solving abilities, communication skills, and a commitment to safety, making them vital contributors to their team and organization.

ALSO KNOWN AS:

- Electronics Engineering Technician
- Electronics Manufacturing Technician
- Production Support Technician – Electronics Manufacturing

NATIONAL OCCUPATIONAL CLASSIFICATION:

- 22310 – Electrical and electronics engineering technologists and technicians

EDUCATION AND EXPERIENCE

- To become an electrical or electronics engineering technician, a two—or three-year college program in electrical or electronics engineering technology is typically required.
- Certification in electrical or electronics engineering technology or a related field may be necessary for certain positions. It is available through provincial associations of engineering and applied science technologists and technicians.
- Approximately two years of supervised work experience are needed before obtaining certification, which provides vital hands-on experience to apply theoretical knowledge in real-world scenarios and develop skills for professional certification.

TECHNICAL



Engineering Design

Collaborates with the technical aspects of the planning and design of engineering project[s] to ensure the project is constructed safely, efficiently, and effectively.

- Proposes technical design or process changes to improve the efficiency, quality, or performance of electronic equipment, components, and systems.
- Uses computer-aided design and prepares blueprints of printed circuit board (PCB) layouts according to specifications given in aid to the engineering team.
- Conducts statistical studies to analyze or compare production costs to ensure sustainable designs.
- Examines blueprints, design drawings, sketches, and related graphics to ensure their accuracy and completeness.

Engineering Review and Analysis

Reviews and analyzes relevant engineering information about technical designs and complex systems to develop appropriate solutions.

- Review electrical engineering plans to ensure adherence to design specifications and compliance with applicable electrical codes and standards.
- Analyzes engineering and manufacturing processes to reduce production losses and overall costs.
- Review existing electrical engineering criteria to identify necessary revisions, deletions, or amendments to outdated material to identify potential issues or errors before production.
- Assesses the functionality, replicability, costs, and other factors to be considered to develop appropriate technical solutions to engineering-related problems.

Prototype Development

Assists in designing prototypes of products or components of products by applying design and engineering principles to showcase future products and test potential innovations to enhance market competitiveness.

- Assists in developing an early model to test concepts and replicability of hardware or systems.

- Applies working or theoretical models throughout the design, testing, and modification process to test product prototypes.
 - Integrates feedback from superiors and clients and tests data to refine prototypes to improve end design.
 - Assists in the designing, developing, and testing of electronic components required to improve and create prototypes.
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Quality Assurance and Quality Control

Follows appropriate processes directed by engineering standards and industry best practices to ensure quality is maintained throughout operations.

- Assesses quality control and calibration data to determine if operations meet required standards.
 - Applies statistical techniques and calculations to monitor and track the acceptability of quality control results.
 - Tests a wide range of electronic equipment to find and establish routine maintenance schedules for safety and security.
 - Reports test results by organizational quality-assurance procedures and functional specifications.
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Equipment Maintenance

Performs routine and non-routine maintenance of equipment to maintain safe and efficient operations.

- Monitors technical aspects and plans testing, calibration, and repairs of electronic equipment and systems to ensure safety, security, and efficiency.
 - Recommends potential updates and short-and long-term infrastructure and equipment requirements.
 - Resets equipment following repair or service to test equipment to ensure equipment functions as expected.
 - Installs and tests required electronic equipment or machinery to ensure efficient operations.
 - Conducts tests on equipment, interpret results, and debug as appropriate to ensure safety and efficiency.
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Documentation Management

Collates information from various sources to produce comprehensive documentation to ensure efficient reporting, operations, and knowledge transfer.

- Maintains system logs or manuals to document testing or operation of equipment to ensure efficient reporting.
- Prepares procedural documents related to electrical systems to enhance overall operational efficiency.
- Maintains current, clear, and accurate electronics engineering-related documents to ensure knowledge transfer.
- Records performance and functionality of electrical systems/components and document design or operational test results to ensure quality standards.



Communication

Positively directs outcomes by delivering communication that results in a better understanding of goals and objectives, captures interest, and gains support for immediate action.

- Actively listens to team members to address concerns and integrate ideas, values, and new information where appropriate.
- Interprets and presents data results to stakeholders and senior management to facilitate decision-making.
- Ask questions when assigned unfamiliar tasks to ensure understanding and accuracy.
- Uses non-technical language to communicate effectively with team members of all experience levels.
- Adapt communications depending on the environment, coworkers, or tasks to ensure all parties know their responsibilities.

Attention to Detail

Delivers a concentrated concern, including monitoring and checking information, organizing tasks and resources efficiently, or all areas involved towards completing an objective.

- Provides accurate, consistent information on all pieces of work to ensure reliable results.
- Provides information on a timely basis and delivered in an audience-appropriate language to communicate effectively.
- Monitors the quality of work done by team members by establishing procedures to ensure information is reviewed.
- Accurately completes documents and report logs to ensure safe and efficient operations.

Problem-Solving

Identifies problems, uses logic, judgment, and evidence to evaluate alternative scenarios, and recommends solutions to achieve the desired goal.

- Analyzes project metrics to understand trends and potential areas of concern to take appropriate actions where required.
- Simplifies complex ideas and technical concepts into accessible information to communicate with stakeholders, senior management, and team members.
- Identifies, evaluates, and generates solutions to concerns brought forth by team members to maintain a harmonious workflow.
- Seeks advice from senior decision-makers or subject matter experts when confronted with issues to ensure effective solutions.

Teamwork

Actively participates in working with and helping others to accomplish a common objective.

- Verbally conveys complex technical information accurately, clearly, and effectively to communicate technical operations.
- Presents information to decision-makers in a logical and structured manner to ensure understanding.
- Recommends improvements or solutions to supervisors to improve operational efficiency.
- Supports the decisions of senior employees and works to achieve the specified outcome.
- Participates in training activities and incorporates acquired skills and knowledge to improve operational performance.



Health and Safety Procedures

Abides by and advocates specific workplace safe operating procedures and occupational health and safety requirements within a defined jurisdiction to ensure the health and safety of others.

- Conducts safety inspections of shop environments to detect and correct hazardous conditions.
- Participates in safe workplace training as required to ensure an up-to-date understanding of health and safety best practices.
- Interprets and applies safety codes, policies and practices, and accident-prevention procedures.
- Uses protective equipment and clothing to ensure personal health and safety in the workplace.

Regulatory Compliance

Adheres to specific regulations, codes, and legislation within a defined jurisdiction to ensure the health and safety of others.

- Review electrical engineering plans to ensure adherence to design specifications and compliance with applicable electrical codes and standards.
- Complies with regulatory requirements to prevent using banned materials during operations for the safety of individuals and the environment.
- Complies with specific industry regulations within a defined jurisdiction to maintain a safe work environment.
- Stays current on changes to regulatory policies and legislative changes to ensure project[s] maintain compliance.

This profile is a living document. If you have any feedback or would like to help us improve the profile, please reach out to research@eco.ca.