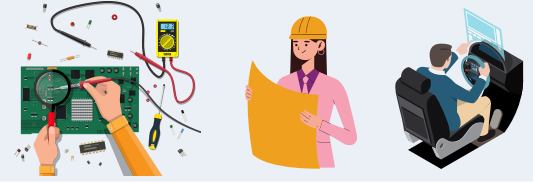# Occupational Profile

Electrical and Electronics Engineers

Electrical and Electronic Engineers design equipment and components powering modern technology. These technologies range from electrical motors, systems, and components in electric vehicles and airplanes aiding environmental sustainability, to navigation systems like GPS for driver assistance. Their skill set enables work in various industries, including power generation, design, consulting, and manufacturing. FOCAL projects strong demand for these engineers in the automotive sector, with 460 projected openings over the next decade.

Where do Electrical and Electronic Engineers work?
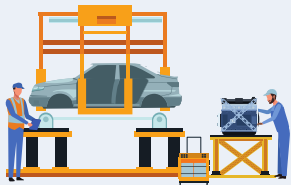
Vehicle Computer and Electrical Component Manufacturing

Architecturual and Engineering Services

Measuring and Control Instruments Manufacturing

Computer Systems Design and Related Services

Scientific Research and Development Services

What do Electrical and Electronics Engineers do?

A major component of work for Electrical and Electronics Engineers is research and development, and design and improvement of electronic and electric equipment and components. They also perform administrative tasks such as reporting and financial decision making. Below are common tasks that Electrical and Electrical Engineers perform:

- Conduct research into the feasibility, design, operation and performance of electrical generation and distribution networks, electrical machinery and components and electronic communications, instrumentation and control systems, equipment, and components.
- Conduct micro or nanodevices simulations, characterization, process modeling and integration in the development of new electronic devices and products.
- Prepare material cost and timing estimates, reports and design specifications.
- Supervise technicians, technologists, programmers, analysts and other engineers.

Career pathways & potential earnings of Electrical and Electronic Engineers

Engineers can progress to other roles and positions with adequate experience and skills:

Electrical or Electronic Engineer

Electrical or Electronic Engineers begin their careers earning about $29/hr, but with experience can scale their pay and apply their skills to managerial roles.

Engineering Managers

Engineering Managers can earn up to $87/hr. Talented managers with business knowledge may transition into senior management.

Senior Managers

Engineers that transition into senior management may find themselves in operations, product development and general management roles. Wages can go up to $160/hr.

Occupational Profile

Electrical and Electronic Engineers can also apply their skills and expertise in other occupations such as the following:

- Computer engineers (except software engineers and designers)
- Metallurgical and materials engineers

How do I become an Electrical and Electronic Engineer?

There are several requirements to become an Electrical and Electronics Engineer. Some requirements may vary by province or company. Below are the most commonly required qualifications to work as an Electrical and Electronics Engineer :

- **Minimum Education:** A bachelor's degree in electrical or electronics engineering or in an appropriate related engineering discipline is required. Some positions may require a post-graduate degree in related engineering disciplines.
- **Certification, Licensing, and Training:** Licensing by a provincial or territorial body of engineers is required to approve engineering drawings and reports, and to practice as a professional engineer (P. Eng.). Three to four of supervised work experience and the passing of an exam are required to obtain a license.

Education & Training

Important skills to have as an Electrical or Electronic Engineer?

As an engineering discipline, strong design, problem solving and collaborative skills are important factors of success. Technical knowledge is strongly developed by Electrical and Electronic Engineers through their education, and refined through training and experience. Key skills and knowledge that help Electrical and Electronic Engineers succeed in their field can be found below.

Technical Knowledge and Skills

- Computers and Electronics
- Computer-aided design and manufacturing software (CAD/CAM)
- Mathematics
- Operations Analysis
- System Evaluation and Analysis
- Engineering and Technology

Soft Skills

- Coordination
- Supervising
- Judgement and Decision Making
- Complex Problem Solving
- Problem Sensitivity
- Deductive and Inductive Reasoning

Electrical and Electronic Engineering jobs in Canada

In 2021, more than 44,000 Electrical and Electronics Engineers were employed across Canada's sectors and industries. FOCAL projects 460 job openings for this occupation in Canada's automotive manufacturing sector between 2021 and 2030. FOCAL also forecasts that during the same period, about 370 Electrical and Electronic Engineers are needed to fill recruitment gaps in the sector, especially as the sector trends towards increasing electrification of vehicles.

Jobs and Recruitment

Learn more about the job market for electrical and electronic engineers, as well as about many other developments and new technologies in Canada's automotive manufacturing by visiting our website futureautolabourforce.ca.
You can also check our social media by following these links:

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