

Electrical and Electronics Engineers

Description

Electrical and electronics engineers design, plan, research, evaluate and test electrical and electronic equipment and systems. They may specialize in a number of areas including electrical design for residential, commercial or industrial installations, electrical power generation and transmission, and instrumentation and control systems. They are employed by electrical utilities, communications companies, manufacturers of electrical and electronic equipment, consulting firms, and by a wide range of manufacturing, processing and transportation industries and government.

Duties:

- 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
- Prepare material cost and timing estimates, reports and design specifications for electrical and electronic systems and equipment
- Design electrical and electronic circuits, components, systems and equipment
- Conduct micro or nanodevices simulations, characterization, process modeling and integration in the development of new electronic devices and products
- Supervise and inspect the installation, modification, testing and operation of electrical and electronic systems and equipment
- Develop maintenance and operating standards for electrical and electronic systems and equipment
- Investigate electrical or electronic failures
- Prepare contract documents and evaluate tenders for construction or maintenance
- Supervise technicians, technologists, programmers, analysts and other engineers.

Other titles:

- roadway lighting design engineer
- electrical design engineer
- control systems engineer
- television systems engineer
- electronics test engineer
- electrical network engineer
- instrumentation and control engineer
- electrical distribution planning engineer
- electrical process control engineer
- electrical systems planning engineer
- avionics engineer

(Government of Canada National Occupation Classification)

Skills

Interpersonal skills	Innovative thinking	Technical knowledge	Attention to detail	Problem solving	Mathematics
		Organization	Time management		

Education/Training Requirements

Ontario Secondary School Diploma (OSSD)

- Most university programs in Ontario require an OSSD or Mature Student Status

Post-secondary diploma/degree

- A bachelor's degree in electrical or electronics engineering or in an appropriate related engineering discipline is required.
- A master's or doctoral degree in a related engineering discipline may be required.

Certification

- Licensing by a Professional Engineers Ontario is required to practice as a Professional Engineer
- Engineers are eligible for registration after graduating from an accredited educational program, and after three or four years of supervised work experience in engineering and passing a professional practice examination.
- Leadership in Energy and Environmental Design (LEED) certification is offered by the Canada Green Building Council and may be required by some employers.

Potential Earnings in Durham Region

The average and median wages and salaries for individuals employed in NOC Group 231 as civil, mechanical, electrical and chemical engineers are as follows. Place of Residence (POR) is defined as individuals who reside within the Durham Region. Place of Work (POW) is defined as individuals who are employed within the Durham Region.

Median Wages and Salaries (POR)	Average Wages and Salaries (POR)	Median Wages and Salaries (POW)	Average Wages and Salaries (POW)
\$87,876	\$95,004	\$99,491	\$101,030

Employment Prospects

Industry (NAICS)	Jobs in Durham Region (POW)	Durham Region Residents Employed (POR)
2211 Electric power generation, transmission and distribution	555	440
5413 Architectural, engineering and related services	105	125

(Ministry of Advanced Education and Skills Development 2016 data in Durham Workforce Authority's 2017 Sector Report)

Additional Resources

- Professional Engineers Ontario: <http://www.peo.on.ca/>