

Chemical Engineers

Description

Chemical engineers research, design, and develop chemical processes and equipment, oversee the operation and maintenance of industrial chemical, plastics, pharmaceutical, resource, pulp and paper, and food processing plants. They also perform duties related to chemical quality control, environmental protection and biochemical or biotechnical engineering. Chemical engineers are employed in a wide range of manufacturing and processing industries, consulting firms, government, research and educational institutions.

Duties:

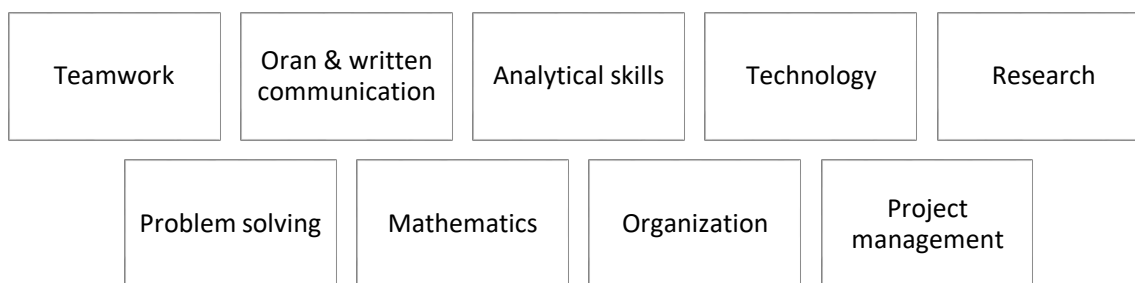
- Conduct economic and technical feasibility studies in areas related to chemical, petroleum, pulp and paper, food or other processing industries
- Conduct research into the development or improvement of chemical engineering processes, reactions and materials
- Evaluate chemical process technology and equipment and determine production specifications
- Design and test chemical processing and associated plants and equipment
- Oversee the construction, modification, operation and maintenance of pilot plants, processing units or processing plants
- Establish and conduct quality control programs, operating procedures and control strategies to ensure adherence to standards for raw materials, products and waste products or emissions
- Prepare contract documents and evaluate tenders for the process aspects of industrial construction
- Supervise technicians, technologists and other engineers
- May work in an administrative capacity, for example, in the development of guidelines and specifications for the handling of dangerous chemicals, environmental protection, or standards for foods, materials and consumer goods.

Other titles:

- adhesives engineer
- environmental chemical engineer
- chemical process engineer
- industrial hygiene engineer
- pulp and paper engineer
- industrial waste treatment engineer
- liquid fuels engineer
- petrochemical engineer
- refinery engineer
- waste treatment engineer
- biotechnical engineer
- polymer engineer
- chemical process control engineer
- chemical project engineer

(Government of Canada National Occupation Classification)

Skills



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.

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)
\$85,847	\$91,396	\$92,437	\$94,797

Employment Prospects

Industry (NAICS)	Jobs in Durham Region (POW)	Durham Region Residents Employed (POR)
5416 – Management, Scientific and Technical Consulting Services	50	60

(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/>