

Mechanical Engineers

Description

Mechanical engineers research, design and develop machinery and systems for heating, ventilating and air conditioning, power generation, transportation, processing and manufacturing. They also perform duties related to the evaluation, installation, operation and maintenance of mechanical systems. Mechanical engineers are employed by consulting firms, by power-generating utilities and in a wide range of manufacturing, processing and transportation industries, or they may be self-employed.

Duties:

- Conduct research into the feasibility, design, operation and performance of mechanisms, components and systems
- Plan and manage projects, and prepare material, cost and timing estimates, reports and design specifications for machinery and systems
- Design power plants, machines, components, tools, fixtures and equipment
- Analyze dynamics and vibrations of mechanical systems and structures
- Supervise and inspect the installation, modification and commissioning of mechanical systems at construction sites or in industrial facilities
- Develop maintenance standards, schedules and programs and provide guidance to industrial maintenance crews
- Investigate mechanical failures or unexpected maintenance problems
- Prepare contract documents and evaluate tenders for industrial construction or maintenance
- Supervise technicians, technologists and other engineers and review and approve designs, calculations and cost estimates.

Other titles:

- Acoustics Engineer
- Power Generation Engineer
- Design Engineer
- Mechanical Engineer
- Tool Engineer
- Piping Engineer
- Automotive Engineer
- Thermal Design Engineer

(Government of Canada National Occupation Classification)

Skills

| | | | | |
|-----------------------|----------------------------|---------------------------|---------------------|-------------------|
| Reading Comprehension | Engineering and Technology | Production and Processing | Attention to Detail | Critical Thinking |
|-----------------------|----------------------------|---------------------------|---------------------|-------------------|

Education/Training Requirements

Ontario Secondary School Diploma (OSSD)

- Secondary school education is required

Post-secondary diploma/degree

- A bachelor's degree in mechanical engineering or in a related engineering discipline is required
- A master's degree or doctorate in a related engineering discipline may be required

Certification

- Licensing by a provincial or territorial association of professional engineers is required to approve engineering drawings and reports and to practice as a Professional Engineer (P.Eng.)
 - Engineers are eligible for registration following graduation 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 as mechanical 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) |
|---------------------------------|----------------------------------|---------------------------------|----------------------------------|
| \$90,570 | \$91,018 | \$92,108 | \$93,295 |

Employment Prospects

| Industry (NAICS) | Jobs in Durham Region (POW) | Durham Region Residents Employed (POR) |
|---|-----------------------------|--|
| 2211 - Electric power generation, transmission and distribution | 640 | 360 |
| 3361 - Motor vehicle manufacturing | 190 | 135 |
| 5413 - Architectural, engineering and related services | 190 | 265 |

(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/index.php>
- Ontario Society of Professional Engineers: <https://www.ospe.on.ca/>