

Mechanical Engineers

A guide for newcomers to British Columbia



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1. Working as a Mechanical Engineer [NOC 2021: 21301/ NOC 2016: 2132]

Job Description

Mechanical engineers design, create, test, and conduct research into machines and mechanical systems of all kinds.

Working as a **Mechanical Engineer** you may perform the following duties:

- Meet with managers and other engineers to discuss the expectations for the new machine
- Design machines and products using computer-aided design (CAD) software
- Conduct research into the feasibility, design, 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
- Oversee the manufacture, operation, and maintenance of the machines
- Test and repair machines when necessary
- Supervise technicians, technologists, and other engineers and review and approve designs, calculations, and cost estimates.

Source: WorkBC, Career Profiles <https://www.workbc.ca/career-profiles/mechanical-engineers>

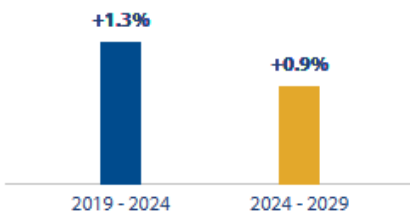
Industry Overview

Approximately 5,200 people are employed as mechanical engineers in British Columbia. The majority of these jobs are in the Mainland/Southwest region. Industry analysts anticipate there will be 1,850 new jobs over the next 10 years.

Job Outlook in BC

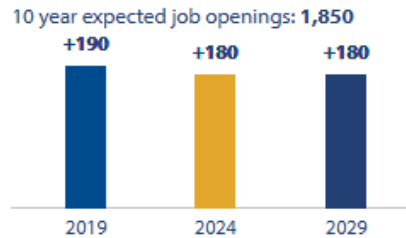
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Forecasted average employment growth rate



Source: B.C. Labour Market Outlook

Job openings



Source: B.C. Labour Market Outlook

Composition of job openings



Source: B.C. Labour Market Outlook

Chart from WorkBC

WorkBC provides job openings in BC regions from 2019-2029:

Region	Employment in 2019	Average Annual Employment Growth	Expected Number of Job Openings 2019-2029
Vancouver Island	700	0.4%	150
Lower Mainland / Southwest	4660	1.3%	1,500
Thompson-Okanagan	330	1.4%	120
Kootenay	240	0.4%	50
Cariboo	160	0.0%	20
North Coast & Nechako	60	0.1%	10

You can learn more about the working as a mechanical engineer from:

- **Work BC, Career Profiles**
<https://www.workbc.ca/career-profiles/mechanical-engineers>
- **Career Cruising** database [profile for Mechanical Engineer]
Available from the VPL Digital Library | Explore our Digital Library page
<https://www.vpl.ca/digital-library/career-cruising/>

Types of Employers

Mechanical engineers work for:

- consulting engineering companies
- manufacturing companies
- architectural companies
- government agencies

You may also consider jobs as technical equipment representatives or managers in an industrial company.

Salary

In BC, the median annual salary for mechanical engineers is \$75,207. Your salary depends on education, experience, industry and employer. You generally earn more if you have master's degree or PhD.

If you work full-time you often receive benefits such as dental coverage, paid sick & vacation days and pension plans. Exact benefits vary by employer.

Sources: WorkBC & *Career Cruising*

Job Bank Canada provides hourly wages for **Mechanical Engineers**

Community/Area	Wages (\$/hour)		
	Low	Median	High
British Columbia	26.54	37.50	57.52
Lower Mainland–Southwest Region	26.54	36.00	51.44
Vancouver Island and Coast Region	26.54	37.50	57.52

Source: Job Bank, Wage Report <https://www.jobbank.gc.ca/trend-analysis/search-wages>

Working Hours

You usually work long hours, 8 to 9 hours a day or 45 to 50 hours a week. Longer hours and weekends may be required when deadlines are approaching, or if an important piece of machinery has broken down.

You may work especially long shifts if you are just starting out in the industry.

From *Career Cruising* database (Profile for Mechanical Engineer)

2. Skills, Education and Experience

Skills

- Critical thinking and problem solving
- Analytical and detail oriented
- Decision making
- Project management and team work
- Proposal writing and presentations
- Financial management
- Committee work - industry ethics

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Education and Experience

To work as an Industrial and Mechanical Engineer you require:

- a Bachelor's degree in industrial engineering or in a related engineering discipline
- Master's degree or doctorate in a related engineering discipline **may be** required
- licensing by Engineers and Geoscientists British Columbia in order to practise as a *Professional Engineer (P.Eng)* or *Professional Licensee (P.L. Eng)*

Qualifications

This occupation is regulated in British Columbia.

This means that if you are working as an engineer you must either:

- be registered as a Professional Engineer in BC

OR

- work under the direct supervision of someone who is registered as a Professional Engineer in BC

Licensing Requirements for Mechanical Engineers

You must be licensed by **Engineers & Geoscientists British Columbia** to use the title "Engineer." This allows you to approve engineering drawings and reports and to practise as a **professional engineer (P.Eng.)**.

Registration requires:

- graduation from an accredited educational program
- four years of supervised work experience in engineering
- successfully passing the professional practice examination
- completion of the law and ethics seminar

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If you do not meet the minimum academic requirements for P.Eng, you may register as **Professional Licensee (P.L.Eng)**, which requires:

- academic qualifications other than an engineering degree from a recognized university
- several years of experience in a defined area of engineering practice

For more information:

- **Engineers & Geoscientists British Columbia – Professional Membership & Licence**

<https://www.egbc.ca/Registration/Individual-Registrants/How-to-Apply/Professional-Membership-and-Licence>

- **Bridging Pilot Program:** Program to assist Professional Licensee Engineers (P.L.Eng) apply to bridge to Professional Engineer (P.Eng)

<https://www.egbc.ca/Registration/Individual-Registrants/How-to-Apply/Bridging-Pilot-Program>

- **Engineers & Geoscientists British Columbia Self-Assessment Tool**

Online self-assessment tool to assist *internationally trained professionals* enter the profession of engineering in BC.

<https://www.egbc.ca/Registration/Programs-Resources/Self-Assessment-Tool>

- **Engineer Here – Becoming a Licensed Engineer in Canada**

<https://engineerhere.ca/>

- **International agreements** between professional engineering associations

<https://engineerscanada.ca/become-an-engineer/agreements-on-international-mobility>

3. Finding Jobs

You'll find job advertisements in local newspapers, trade journals, and electronic sources, as well as through professional associations' publications.

Local Newspapers

You can look at the *Vancouver Sun* & *The Province* at Vancouver Public Library for free. Check the job postings daily, the careers section in the *Vancouver Sun* on Wednesdays and Saturdays and in *The Province* on Sundays.

Online Job Postings

- **TechJobs.ca**
<https://www.techjobs.ca/en>
- **Engineering Central Canada**
<https://engcen.com/>
- **Engineer Jobs.com**
<https://www.engineerjobs.com/jobs/canada/british-columbia/>
- **Talent.com**
<https://ca.talent.com/>
- **Indeed.com**
https://ca.indeed.com/advanced_search
Find jobs posted on a multitude of company career sites and job boards

Professional Associations' Career Resources

- **Association of Consulting Engineering Companies British Columbia (ACEC-BC)**
<https://acec-bc.ca/resources/>
- **Engineers & Geoscientists British Columbia Employment Centre**
<https://www.egbc.ca/Careers/Career-Listings>
- **Engineering Institute of Canada**
<https://www.engineeringcareers.ca/>
- **Engineering Central Canada**
<https://engcen.com/career-resources>

Identifying the Right Position

When you browse job ads, you'll find a range of different job titles that are relevant.

For mechanical engineers, look for these related job titles (from NOC):

- Acoustics Engineer
- Design Engineer – Mechanical
- Energy Conservation Engineer
- Engineer, Power Generation

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- Heating, Ventilation, and Air Conditioning (HVAC) Engineer
- Nuclear Engineer
- Robotics Engineer
- Aeronautics Engineer

Creating a List of Potential Employers

You can use directories to produce lists of employers in Vancouver or the Lower Mainland. Contact them directly to find out if they're hiring.

- **BC Tech, Technology Guide** (special issue of BC Tech magazine)
Includes biggest BC tech companies and the top 100 tech companies in BC.
Available at the Central Library, 380 EL3CBh or online at
<https://biv.com/magazine/bc-tech-2021>
- **Business in Vancouver Book of Lists.** Biggest Engineering Firms in BC.
Available at the Central Library, 338.9711 B97b B97b or online at
<https://www.biv.com/lists>
- **BC Construction Association – Regional Associations' Membership Directories**
<https://bccasn.com/about-bcca/regional-associations/>
- **Association of Consulting Engineering Companies British (ACEC-BC),**
https://www.acec.ca/business_search.html
- **Engineers & Geoscientists British Columbia – Directory of Firms**
<https://www.egbc.ca/Registrant-Directory>
- **Reference Canada**
<https://www.vpl.ca/digital-library/reference-canada>
Click on "Start Search" beside Canadian Businesses, then select the "Advanced Search" button. Select both "Keyword/SIC/NAICS" under Business Type and "City" under Geography. In the top search box enter "mechanical engineering" and click SEARCH. Select the appropriate headings. Lower down, select the Province, choose the cities, and click the "View Results" button.

NOTE: You can access this database from a Library computer. If you are using a computer from outside the Library, you will need a Vancouver Public Library card to login to this database. After clicking on the database name, you will be asked to enter your library card number and PIN (usually last four digits of your telephone number).

4. Applying for a Job

In Canada, employers usually expect to receive a resume or curriculum vitae and a cover letter that identifies the position you are applying for and summarizes your relevant experience.

Use the library catalogue, <https://vpl.bibliocommons.com/> to find books on writing resumes and cover letters specific to your industry.

To learn about applying for jobs in Canada, use the following guides which are available in print at the Central Library or online at <https://www.vpl.ca/siic>.

- **Writing Resumes and Cover Letters**
<https://www.vpl.ca/siic/guide/job-search-resources/writing-resumes-and-cover-letters>
- **Getting Canadian Work Experience**
<https://www.vpl.ca/siic/guide/job-search-resources/getting-canadian-work-experience>
- **Networking for Employment**
<https://www.vpl.ca/siic/guide/job-search-resources/networking-for-employment>
- **Learn More About Working in BC and Canada**
<https://www.vpl.ca/siic/guide/job-search-resources/learn-more-about-working-in-bc-and-canada>

5. Getting Help from Industry Sources

Industry Associations

Associations for professional and mechanical engineers in BC and Canada provide assistance to individuals. Registration and fees are required for membership.

- **Canadian Society for Mechanical Engineering**
<http://www.csme-scgm.ca/>
- **Association of Consulting Engineers Companies of British Columbia**
<https://acec-bc.ca/>
- **Engineers and Geoscientists British Columbia**
<https://www.egbc.ca/>

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○ **Mentoring Programs:**

<https://www.egbc.ca/Registration/Programs-Resources/Mentoring-Program>

- **Engineering Institute of Canada (EIC)**
<https://eic-ici.ca/>
- **Engineers Canada, Canadian Council of Professional Engineers (CCPE)**
<https://engineerscanada.ca/>
- **Society of Punjabi Engineers and Technologists of British Columbia**
<https://speatbc.org/>
- **Association of Chinese Canadian Engineering Professionals and Technologists (ACCEPT) BC**
<https://www.acceptbc.ca/>

Industry Journals

Search the Vancouver Public Library catalogue for journals related to your profession, for example:

- **Canadian Consulting Engineer** / Association of Consulting Engineers
Available at the Central Library 620.5 C212 or online at:
<https://www.canadianconsultingengineer.com/>
- **Innovation** / Engineers & Geoscientists British Columbia
Available at the Central Library 620.5 B86 or online at:
<https://www.egbc.ca/Resources/News-and-Publications/Innovation-Magazine/Innovation-Past-Issues>
- **HPAC Engineering** (Heating/Plumbing/Air Conditioning)
Available online at: <https://www.hpacmag.com/>

Questions? Please ask the Information Staff in the Central Library, Vancouver Public Library or telephone 604-331-3603.

Please note that the information in this guide is also available online through the Skilled Immigrant InfoCentre website at <https://www.vpl.ca/siic>

