

Geologists, Geological Engineers, & Geotechnical Engineers: Alternative Careers

A guide for newcomers to British Columbia



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1. Geologists, Geoscientists, Geological Engineers, & Geotechnical Engineers: Alternative Careers

Geologists & geoscientists explore and research the structure, composition and processes of the earth. **Geological engineers** carry out geological and geotechnical studies to assess suitability of locations for civil engineering, mining and oil & gas projects. **Geotechnical engineers** apply the science of soil mechanics, engineering geology and other related disciplines to engineering and environmental projects.

You may find that your international training and experience are not immediately accepted in B.C. to work in these professions. However, the professional skills you have acquired (detailed observation skills, excellent communication, interpersonal and analytical skills, strong curiosity about the earth and environment) can be used in these alternative careers:

- geological and mineral technologists and technicians
- technical sales specialist
- supervisor, mining and quarrying
- contractors and supervisors, oil & gas drilling and services
- careers in surface & subsurface mining and oil & gas drilling

Alternative Careers

Geological and Mineral Technologists and Technicians

[NOC 2021: 22101 / NOC 2016: 2212]

Also look for these job titles:

- metallurgical control analyst
- mud man/mud woman - petroleum drilling
- geophysical equipment operator
- observer, seismic exploration/prospecting
- survey technician or technologist
- geological prospecting technologist

You provide technical support and services in:

- oil & gas exploration and production
- geophysics
- petroleum engineering
- mining and mining engineering
- metallurgical engineering
- environmental protection

You are employed by petroleum and mining companies, consulting geology and engineering firms, governments, educational institutions, and a variety of manufacturing, construction and utilities companies.

Duties for *geological technologists* include:

- conduct or direct geological or geophysical surveys and prospecting field trips
- operate and maintain geophysical survey and well logging instruments and equipment
- prepare, transcribe or analyze seismic, gravimetric, well log or other geophysical and survey data
- assist engineers and geologists in the evaluation and analysis of petroleum and mineral reservoirs
- prepare or supervise the preparation of rock, mineral or metal samples and perform physical and chemical laboratory tests
- assist in environmental audits and the development of environmental protection

procedures

- supervise oil & gas well drilling activity, well completions and work-overs
- may conduct or supervise studies and programs related to mine development and mining methods

Duties for *geological technicians* include:

- participate in geological or geophysical surveys, prospecting field trips and environmental audits
- operate and maintain geophysical survey and well logging instruments and equipment
- prepare notes, sketches, geological maps and cross sections
- assist in preparing, transcribing or analyzing geophysical and survey data
- assist in preparing rock, mineral or metal samples and in conducting physical and chemical laboratory tests

Requirements:

- ***geological technologists*** are usually required to complete a two to three-year college program in geological technology or a related discipline
- ***geological technicians*** are usually required to complete a one to two-year college program in a similar discipline
- Certification: *see the Applied Science Technologists & Technicians of British Columbia ASTTBC (<https://asttbc.org/>)* for possible certification as a Geological or Geotechnical Applied Science Technologist (AScT) **or** Certified Technician (CTech).
 - if you are a graduate of an accredited diploma program or equivalent and have completed two or more years of progressive experience in an area of work directly related to your program, you may be eligible for professional recognition as an *Applied Science Technologist*
 - if you are a graduate of a one-year accredited certificate program or equivalent and have completed two or more years of progressive experience in an area of work directly related to your program, you may be eligible for registration as a *Certified Technician, CTech*

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- How to apply:
<https://asttbc.org/applicants/application-process/>
- ASTTBC Internationally Trained Professionals:
<https://asttbc.org/applicants/internationally-trained-professionals/>
- **Note:** some employers may accept certification as a geological technologist or technician for positions posted as gas or petroleum technologist or technician.

Skills:

- ability to communicate technical information clearly
- interest in hands-on, methodical work in a laboratory setting
- strong analytical and observational skills
- problem-solving skills

Wages:

- median hourly wage: \$32.97
<https://www.workbc.ca/plan-career/explore-careers>

Technical Sales Specialist [NOC 2021: 62100 / NOC 2016: 6221]

Also look for these job titles:

- sales support specialist
- technical service sales consultant
- engineering equipment sales representative
- wholesale sales broker
- topographical equipment representative
- construction sales representative

You sell a range of technical goods and services, such as scientific and industrial products, to governments and to commercial and industrial establishments in local and international locations.

Duties include:

- promote sales to existing clients; identify and solicit potential clients
- assess clients' needs and resources and recommend the appropriate goods or services

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- provide input into product design where goods or services are tailored to suit clients' needs
- estimate costs of installing and maintaining equipment or service
- prepare sales contracts

Requirements:

- usually four-year college or university program in a relevant field

Skills:

- track trends and changes in geology, geotechnical engineering
- listen well and be able to explain and/or sell your product
- be accountable, attentive to detail, professional and punctual

Wages:

- median hourly wage: \$27.00

<https://www.workbc.ca/plan-career/explore-careers>

Supervisor Careers in Mining and Oil & Gas

Supervisors, mining and quarrying [NOC 2021: 62100 / NOC 2016: 8221]

You supervise and co-ordinate activities of workers in mining operations and quarries. You are employed by coal, metal and non-metallic mineral mines and quarries.

Duties:

- supervise, coordinate and schedule the activity of workers
- resolve work problems, analyse, recommend solutions and improvements
- request materials and supplies
- train workers in job duties, safety procedures and company policies
- prepare reports on production and other activities

Requirements:

- Completion of secondary school and several years of experience in the occupations you supervise

Other training and requirements may include:

- a college or university program in mining technology or mining engineering
- provincial certification for supervisor or shift boss positions

Skills:

- excellent communication and interpersonal skills
- problem solving and decision making abilities
- attention to detail and project management experience

Wages:

- median hourly wage: \$46.00
<https://www.workbc.ca/plan-career/explore-careers>

Contractors and Supervisors, oil & gas drilling and services

[NOC 2021: 82021 / NOC 2016: 8222]

You supervise and co-ordinate the activities of workers in the oil and gas drilling and service industry. You are employed by drilling and well service contracting companies and by petroleum producing companies. You may also work as an oilfield consultant and be self-employed.

Duties:

- supervise, coordinate and schedule the activity of workers
- train workers in job duties, safety procedures and company policies
- resolve work problems, analyse, recommend solutions and improvements
- request materials and supplies; prepare production and other reports

Requirements:

- completion of secondary school
- two-year college diploma in petroleum engineering technology
- certificates in first aid, blowout prevention and well control, waste hazardous materials information system, transportation of dangerous goods or other safety and technical subjects, which are mandatory

- considerable experience in all of the junior positions leading up to this position

More information on certification:

- Energy Safety Canada <https://www.energysafetycanada.com/Training>

Skills:

- excellent communication and interpersonal skills
- strong leadership and organizational skills; the ability to plan and direct the work of others
- quick-thinking, observant and responsible
- physically fit; knowledge of safety procedures

Wages:

- median hourly wage: \$43.50
<https://www.workbc.ca/plan-career/explore-careers>

Careers in mining and oil & gas drilling

You may wish to consider working in the mining and oil & gas industries due to the forecasted demand for skilled workers. *These jobs will primarily be located in North and Northeastern BC.*

British Columbia has one of the largest **mining** sectors in Canada and mining is one of the highest paying industrial sectors nationwide. *Northern BC* may also need to attract a number of workers in BC's **oil and gas** industry to fulfill construction and operations requirements.

For detailed information on the mining and oil & gas industries in BC, see

- **British Columbia Sector Profile: Mining, Oil and Gas. Job Bank Canada**
<https://www.jobbank.gc.ca/trend-analysis/job-market-reports/britishcolumbia/sectoral-profile-mining-oil-gas>
- **Industry Profile: Mining and Industry Profile: Oil & Gas**
<https://www.vpl.ca/siic/guides/industry-profiles>

Consider the following alternative careers:

- Drillers and blasters – surface mining, quarrying and construction
- Oil & gas well drillers, servicers, testers and related workers
- Oil & gas well drilling and related workers and services operators
- Oil & gas drilling, servicing and related labourers

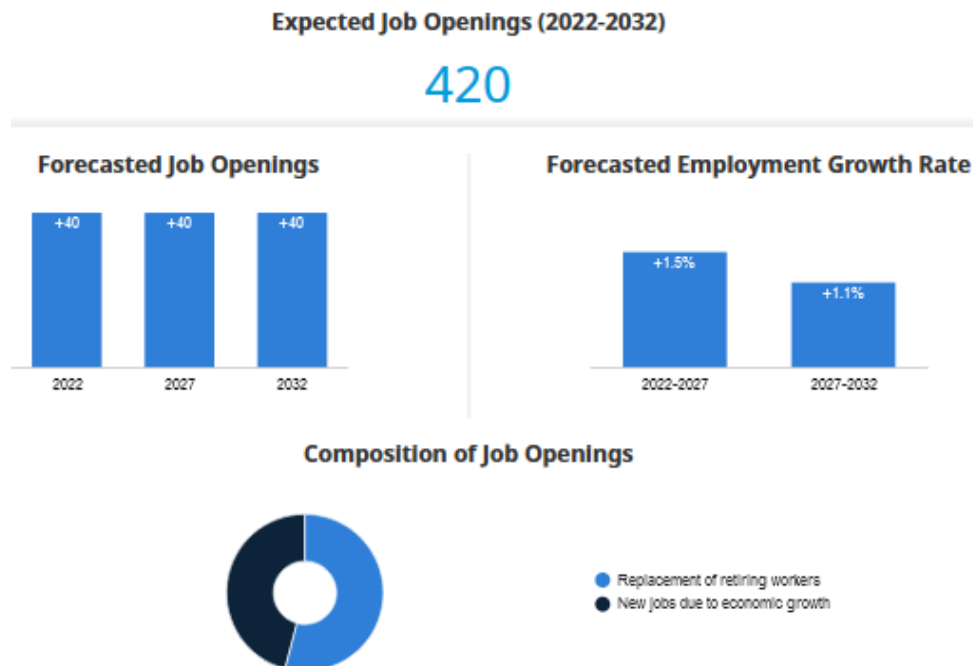
2. Employment Outlook

Geological and Mineral technologists and technicians

Employment growth is expected for geological and mineral technologists and technicians in the mining sector as a result of exploration and mining activity. British Columbia's oil & gas and mining industries have also seen growth in recent years, with increased production and exploration activities.

Geological and mineral technologists and technicians

Job Openings Outlook in BC

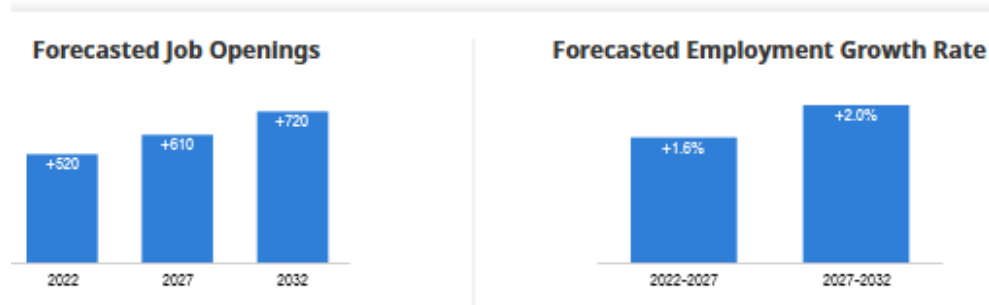


Source: WorkBC

Technical Sales Specialists Job Openings Outlook in BC

Expected Job Openings (2022-2032)

5,980



Composition of Job Openings

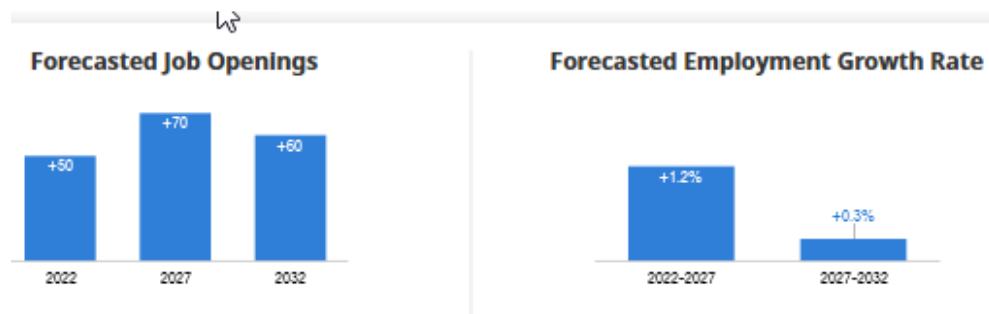


Source: WorkBC

Supervisors, mining and quarrying - Job Openings Outlook in BC

Expected Job Openings (2022-2032)

630

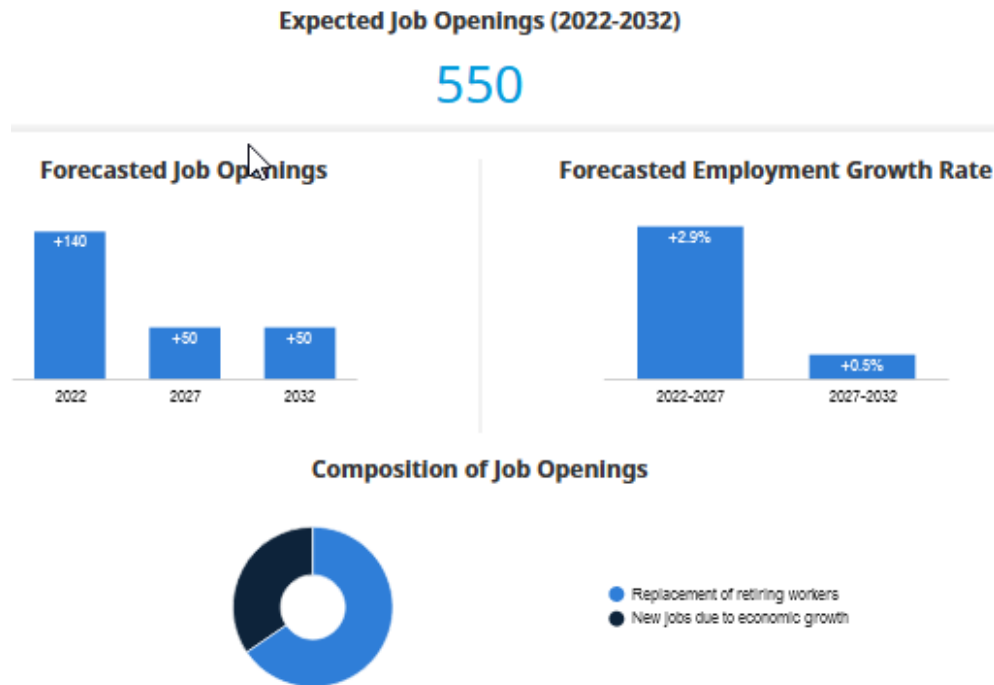


Composition of Job Openings



Source: WorkBC

Contractors and Supervisors, oil & gas drilling and services Job Openings Outlook in BC



Source: WorkBC

3. Retraining

You may want to consider upgrading your skills to increase your employment options in this field. The following courses may improve your current skill set:

Mineral Exploration and Mining Technology - BCIT

Full-time, Part-time or Online Diploma program in mineral exploration and the mining industry; courses offered online and in classroom. Courses range from 'Introduction to Prospecting & Exploring, Geology & Mineral Deposits' to 'Prospecting and Exploration Field School.'

<https://www.bcit.ca/programs/mineral-exploration-and-mining-technology-diploma-full-time-6640dipma/>

You may also wish to browse workshops and courses announced through:

- **Association for Mineral Exploration BC (AMEBC),**
<https://amebc.ca/events-news/calendar/>
- **Southern BC Geotechnical Society,** a section of the Canadian Geotechnical Society
https://cgs.ca/section_vancouver.php
See 'Calendar of Events'

4. Searching for Jobs

Association for Mineral Exploration in BC (AMEBC)

https://members.amebc.ca/networking/opening_search.asp

BC Government Job Postings

<https://bcpublicservice.hua.hrsmart.com/hr/ats/JobSearch/index>

CareerMine – Northern Miner

<https://www.careermine.com/>

Indeed.ca

<https://ca.indeed.com/>

Mining Association of BC Job Board

<https://www.mining.bc.ca/job-board>

TechJobs.ca

<https://www.techjobs.ca/en/>

5. Volunteering in the Field

Volunteering in work related to geology, geological or geotechnical engineering, oil & gas exploration or mining can help you to explore a new career and learn more about these industries in BC. You will meet new people and build a network of contacts that can lead to information on job openings and inside connections with potential employers.

BC Parks Volunteer Opportunities, BC Ministry of the Environment

<https://bcparks.ca/get-involved/volunteer/>

BC Parks, Volunteer Partners

<https://bcparks.ca/get-involved/volunteer/#page-section-11>

Links to volunteer organizations throughout BC who encourage community involvement in helping to conserve natural values

Kamloops Exploration Group (KEG)

<https://www.keg.bc.ca/>

Based in **Kamloops**, BC, approximately four hours from Vancouver. This volunteer-run, non-profit society promotes and supports the interests of mining and petroleum. KEG volunteers support educational activities including public lectures, `Ask a Geologist`, school visits, geo tours, etc.

Lower Mainland Green Team

<https://www.meetup.com/en-AU/The-Lower-Mainland-Green-Team/>

Links to municipal parks, environmental societies, naturalists, stream and river protection societies who are seeking volunteers

Nature Vancouver

<https://naturevancouver.ca/volunteers/>

Geology section provides field tours and self-guided tours rivers and landscapes in Metropolitan Vancouver and surrounding area

Volunteer BC

<https://volunteerbc.bc.ca/>

6. Helpful Resources

Careers in Mining, Mining Industry Human Resources Council

<https://mihr.ca/career-development/>

Canadian Geotechnical Society (including four sections in BC)

<https://cgs.ca/>

Geological Association of Canada

<https://gac.ca/>

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Geoscience BC

<https://www.geosciencebc.com/>

Mining Association of BC

<https://www.mining.bc.ca/>

Industry Profiles:

Mining

<https://www.vpl.ca/siic/guide/industry-profiles/mining>

Oil & Gas

<https://www.vpl.ca/siic/guide/industry-profiles/oil-and-gas>

Click on 'Job Search Resources' at <https://www.vpl.ca/siic> for help on:

- resumes & cover letters
- getting Canadian work experience
- networking for employment
- online social networks
- Canadian workplace culture

***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>.