

GEOLOGICAL ENGINEER

Technical and scientific analysis on rock, soil, and groundwater, solve engineering problems and designs solutions that ensure safe and economical.

Job Description

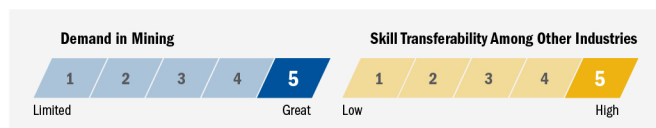
- Plan and coordinate geotechnical, geological, geophysical or geohydrological data acquisition, analysis and mapping
- Design and conduct feasibility studies in mining exploration, operation and evaluation
- Analyze and interpret geological and geophysical information from various sources including geological maps, survey data, well logs, bore holes, and radar images
- Design and recommend solutions to protect the environment from mining operations such as strategies for proper waste disposal, erosion control, and restoration of polluted sites
- Plan, organize and conduct field surveys and site investigations including analysis of rock, bedrock and near-surface deposits, environmental hazards, safety risk assessments and quality assurance of mining projects
- Conduct studies of groundwater flow and contamination and develop recommendations for site selection, treatment and construction
- Design open pit walls, mine waste dumps and earth-fill fluid-retaining dam structures and conduct detailed technical analyses on these designs including slope stability, seepage and hydraulic separation
- Apply scientific tools, computer technologies and instrumentation related to geology and engineering to collect, analyze and research data
- Prepare assessment reports, feasibility studies, recommendation reports and technical correspondence for internal stakeholders and regulatory authorities
- Work with Mining Engineers, Project Managers and inter-disciplinary teams

Compensation

\$87,590 **\$141,696**

(Source: Canadian Mine Salaries, Wages & Benefits: 2018 Survey Results InfoMine USA, 2018).

Job Prospects



Why are People Attracted to this Career?

Geological Engineers are interested in earth sciences and natural formations, applied mathematics and the basic laws of physics and chemistry. They are good with numbers, enjoy engineering challenges and traveling to various locations. Geological Engineers work with other Technologists, Scientists, and Engineers both in a lab and outdoor environment. They apply their knowledge of geology and engineering to build or improve designs that help mines operate in a safe and efficient manner while taking into consideration the laws and regulations on environmental sustainability and responsibility. They also research, analyzing data and creating technical reports.

What is it Like to Work as a Geological Engineer in Mining?

Geological Engineers work in an office, but are also required to visit sites for temporary or long stays. Working hours may be irregular when conducting fieldwork

and driving may be required on radio-controlled resource roads. Fieldwork can consist of travelling long distances to collect samples and conduct on-site assessments. Fieldwork is conducted in all types of environmental conditions, within bodies of water and toxic or dangerous substances and/or organisms may be present. Geological Engineers test samples for content and composition and then develop reports and recommendations.

Success Profile

- ✓ Acts with authority and makes independent decisions
- ✓ Critical thinker who sees projects through
- ✓ Work with and/or manage a multi-disciplinary team
- ✓ Respect and understanding of safety procedures, environmental legislation and regulations
- ✓ Strong communication, computer (scientific software databases, mapping and queries), organizational and analytical skills
- ✓ Strong interest in math, technology, and science
- ✓ Values safety, health and positive working environment

Job Entry Requirements

Note: The requirements listed below illustrate what it takes to start the career and do not take into account on-the-job training given to new employees.

Fixed Requirements

- Bachelor's degree in geological or environmental engineering or in an associated technical field such as mining engineering or civil engineering
- Eligible for Registration as Engineer in Training
- Up to 10 years of work experience in geology, mining engineering or operations experience with specific experience in environmental assessment projects in mining or similar industries such as oil and gas (pipeline and transmission lines) and power/utility sector and small/large hydroelectric projects
- Ability to plan and execute field programs with knowledge of proper sampling techniques
- Working knowledge of industry-specific statistical and analytical computer software
- Valid Class 5 driver's licence
- Ability and willingness to conduct fieldwork in all types of environmental conditions and harsh terrain as well as periodic overnight travel
- Physical stamina for fieldwork; must be able to pass medical and drug tests
- Willingness to work in a diverse environment
- Proficiency in language of operation

May be Required

- Master's degree in geological or environmental engineering or related field
- Professional Registration, PEng.

Assets

- Experience with geological assessment, feasibility surveys, subsurface investigation, contaminated site investigation and remediation
- Willingness to relocate
- Other languages