

Geological Engineer

Work out what the ground will do before anyone digs into it, and design the mine or tunnel around the answer.

TYPICAL PAY

\$106,220

a year, full time

PAY RANGE

\$67k to \$170k

starting to experienced

TIME TO QUALIFY

4 to 8 years

after high school

DEMAND

Limited

job outlook

LICENCE NEEDED

Yes

regulated job

WHERE YOU WORK

Mine sites, quarries, engineering offices, government agencies

How you get there

- 1 High school** Grades 11 and 12
Math through calculus if your school offers it, plus physics and chemistry. Earth science helps but is not required.
- 2 Bachelor's degree** 4 years
Geological engineering or mining engineering, accredited by ABET (the Accreditation Board for Engineering and Technology). Most programs include a summer field session.
- 3 Fundamentals of Engineering exam** Final year
A six-hour computer-based test, usually taken in your final year. Passing makes you an engineer in training.
- 4 Work under a licensed engineer** 4 years
Four years of documented experience is the standard requirement in most states.
- 5 Principles and Practice of Engineering exam** After 4 years
Sit the Mining and Mineral Processing paper, or a civil paper if your work went that way, then apply to your state board for the license.

Pros and cons

- + Strong pay from the first job, no graduate degree needed
- + Small field, so graduates get recruited hard
- + Real, physical work you can point at
- The job market rises and falls with metal prices
- Remote sites, rotations and time away from home
- Below-average growth: only a few hundred openings a year nationally

Optional boosts

Professional engineer license. Mine safety training. Blasting certification. Rock mechanics and ground control.

Good to know

It is one of the smallest engineering fields

About 7,000 mining and geological engineers work in the United States, and the federal projection is roughly 400 openings a year. Compare that with more than 300,000 civil engineers. Tiny field, and...

Your phone is a mining product

A single smartphone contains copper, aluminum, cobalt, lithium, gold, silver and a handful of rare earth elements. Every one of them came out of the ground somewhere, and someone had to plan how.

Where these numbers come from

My Next Move: Mining and Geological Engineers (17-2151.00)

O*NET OnLine: Mining and Geological Engineers, employment and outlook

NCEES: Fundamentals of Engineering exam

NCEES: Principles and Practice of Engineering exam

Numbers checked September 2026. Pay figures are typical full-time annual amounts in United States dollars, based on Bureau of Labor Statistics wage data and published pay scales. They vary by state, employer and experience. Tuition is for in-state students at public schools unless the card says otherwise. Sources, links and the click-through version: <https://career.help/us/careers/geological-engineer>



Scan for the full clicker