

B.S., GEOLOGICAL ENGINEERING

Program Requirements

Students must earn a C- grade or better in each course.

Minimum Requirements for Geological Engineering B.S.: 133 credits

Code	Title	Credits
General University Requirements		
Complete the general university requirements. (https://catalog.uaf.edu/archives/2020-2021/bachelors/)		
General Education Requirements		
Complete the general education requirements. (https://catalog.uaf.edu/archives/2020-2021/bachelors/general-education-requirements/)		
As part of the general education requirements, complete:		
CHEM F105X	General Chemistry I	
CHEM F106X	General Chemistry II	
MATH F251X	Calculus I	
B.S. Degree Requirements		
Complete the B.S. degree requirements. (https://catalog.uaf.edu/archives/2020-2021/bachelors/summary-of-bachelors-degree-reqs/#bachelorofsciencetext)		
As part of the B.S. degree requirements, complete:		
MATH F252X	Calculus II	
PHYS F211X	General Physics I	
PHYS F212X	General Physics II	
Geological Engineering Program Requirements		
ES F208	Mechanics	4
ES F331	Mechanics of Materials	3
ES F341	Fluid Mechanics	4
ES F346	Introduction to Thermodynamics	3
GE F101	Introduction to Geological Engineering	1
GE F261	General Geology for Engineers	3
GE F365	Geological Materials Engineering	3
GE F371	Remote Sensing for Engineering	3
GE F375	Principles of Engineering Geology and Terrain Analysis	3
GE F381	Field Methods and Applied Design I	2
GE F382	Field Methods and Applied Design II	4
GE F405	Exploration Geophysics	3
GE F420	Subsurface Hydrology	3
GE F480	Senior Design ¹	3
GEOS F213	Mineralogy	4
GEOS F214	Petrology and Petrography	4
GEOS F314	Structural Geology	4
GEOS F320	Sedimentology for Geological Engineers	3
MATH F253X	Calculus III	4
MATH F302	Differential Equations	3

MIN F202	Mine Surveying	3
MIN F225	Quantitative Methods in Mining Engineering	2-3
	or STAT F300	Statistics
MIN F370	Rock Mechanics	3
MIN F408	Mineral Valuation and Economics	3
Technical Electives ²		6
<i>Highly recommended technical electives:</i>		
CE F341	Environmental Engineering	
CE F344	Water Resources Engineering	
CE F422	Foundation Engineering	
CE F424	Permafrost Engineering	
CE F442	Environmental Engineering Design	
CE F603	Arctic Engineering	
ESM F422	Engineering Decisions	
GE F322	Erosion Mechanics and Conservation	
GE F376	GIS Applications in Geological and Environmental Engineering	
GE F384	Engineering Geology of Alaska	
GE F400	Geological Engineering Internship	
GE F422	Soil Physics	
GE F430	Geomechanical Instrumentation	
GE F435	Exploration Design	
GE F440	Slope Stability	
GE F441	Geohazard Analysis	
GE F445	Design of Earth Dams and Embankments	
GEOS F332	Ore Deposits and Structure	
MIN F443	Principles and Applications of Industrial Explosives	
MIN F482	Computer-aided Mine Design:VULCAN	
NRM F435	GIS Analysis	
PETE F302	Well Logging	
PETE F407	Petroleum Production Engineering	
PETE F426	Drilling Engineering	

Fundamentals of Engineering (FE) Examination

Complete the Fundamentals of Engineering (FE) examination administered by the State of Alaska.

¹ Fulfills the baccalaureate capstone requirement.

² Technical elective credits must contain engineering design and be selected by the student from the list of approved technical electives from the geological engineering program in conference with the advisor and approved by the department.