B.S., GEOLOGICAL ENGINEERING

Minimum Requirements for Degree: 133 credits
Students must earn a C grade or better in each course.

General University Requirements
Complete the general university requirements. (http://catalog.uaf.edu/bachelors)

General Education Requirements
Complete the general education requirements. (http://catalog.uaf.edu/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. (http://catalog.uaf.edu/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

Program Requirements
- ES F208 Mechanics 4
- ES F331 Mechanics of Materials 3
- ES F341 Fluid Mechanics 4
- ES F346 Basic 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 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
- MIN F370 Rock Mechanics 3
- MIN F408 Mineral Valuation and Economics 3

Technical Electives
- CE F341 Environmental Engineering
- CE F344 Water Resources Engineering
- CE F422 Foundation Engineering
- CE F424 Introduction to 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
- 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.

Total Credits 81

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 his or her advisor and approved by the department.