

Mining Engineering

School of Mineral Engineering
Department of Mining and Geological Engineering
(907) 474-7388
www.uaf.edu/sme/MinEng.html

B.S. Degree

Minimum Requirements for Degree: 132 credits

The mining engineering program emphasizes engineering as it applies to the exploration and development of mineral resources and upon the economics of the business of mining. The program offers specialization in exploration, mining or mineral beneficiation.

Students are prepared for job opportunities with mining and construction companies, consulting and research firms, equipment manufacturers, investment and commodity firms in the private sector, as well as with state and federal agencies.

Mining engineers may aspire to, and achieve, the highest positions in the industry: operating or engineering management, government agency director or entrepreneur. Starting salaries are among the highest in the engineering profession.

Students may initiate their mining engineering program in Anchorage and transfer to Fairbanks upon completion of their freshman or sophomore year. Anchorage students intending to transfer to Fairbanks should contact faculty of the UAF mining engineering department.

Candidates for the B.S. degree in mining engineering must take a comprehensive examination in their general field (completion of the state of Alaska Fundamentals of Engineering examination will satisfy this requirement). The state of Alaska Fundamentals of Engineering is a first step toward registration as a professional engineer.

Major—B.S. Degree

1. Complete the general university requirements (page 106. As part of the core curriculum requirements, complete: CHEM 105X, CHEM 106X, LS 101X and MATH 200X.)
 2. Complete the B.S. degree requirements (page 112. As part of the B.S. degree requirements, complete: MATH 201X, PHYS 211X and PHYS 212X.)
 3. Complete the following program (major) requirements:*
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| ES 201—Computer Techniques | 3 |
| ES 208—Mechanics..... | 4 |
| ES 307—Elements of Electrical Engineering | 3 |
| ES 331—Mechanics of Materials..... | 3 |
| ES 341—Fluid Mechanics | 4 |
| ES 346—Basic Thermodynamics..... | 3 |
| GE 261—General Geology for Engineers | 3 |
| GEOS 262—Rocks and Minerals | 3 |
| GEOS 332—Ore Deposits and Structure..... | 3 |
| MIN 103—Introduction to Mining Engineering..... | 1 |
| MIN 104—Mining Safety and Operations Lab..... | 1 |
| MIN 106—Mining Operations I..... | 1 |
| MIN 202—Mine Surveying | 3 |
| MIN 206—Mining Operations II | 1 |
| MIN 301—Mine Plant Design..... | 3 |
| MIN 302—Underground Mine Environmental Engineering | 3 |
| MIN 313—Introduction to Mineral Preparation..... | 3 |
| MIN 370—Rock Mechanics | 3 |
| MIN 407W—Mine Reclamation and Environmental Management | 2 |
| MIN 408O—Mineral Valuation and Economics | 3 |

MIN 409—Operations Research and Computer Applications in Mineral Industry	3
MIN 443—Principles and Applications of Industrial Explosives ...	3
MIN 454—Underground Mining Methods	3
MIN 484—Surface Mining Methods II.....	2
MIN 490W—Mining Design Project.....	3
MIN 485—Mining Engineering Exit Exam.....	0

4. Complete the following program (major) requirements:

MATH 202X—Calculus.....	4
MATH 302—Differential Equations	3
5. Complete 6 credits* from the following recommended technical electives:**

GE 440—Slope Stability	3
MIN 401—Mine Site Field Trip.....	2
MIN 447—Placer Mining.....	3
MIN 472—Ground Control	3
MIN 481—Computer Aided Mine Design I.....	3
MIN 482—Computer Aided Mine Design II.....	3
Approved technical electives	3-6
6. Minimum credits required132

* Student must earn a C grade or better in each course.

** Students must plan their elective courses in consultation with their mining engineering faculty advisor. Technical electives are selected from the list of the approved technical electives for mining engineering program and other programs course listing. All elective courses must be approved by the department head.

Note: Page numbers refer to the UAF 2004-2005 academic catalog, which can be viewed online at www.uaf.edu/catalog/.

General University Requirements

All degrees (e.g. B.A., B.S., etc.) require additional courses.
Refer to specific degree and program requirements.

COMMUNICATIONS (9)

Complete the following:

ENGL 111X (3) _____
ENGL 211X OR 213X (3) _____
COMM 131X OR 141X (3) _____

LIBRARY & INFORMATION SKILLS (0-1)

Complete the following:

LS 100X OR 101X (0-1) _____
OR Successful completion of library skills competency test.

PERSPECTIVES ON THE HUMAN CONDITION (18)

Complete either the following six courses:

ANTH 100X OR SOC 100X (3) _____
ECON/PS 100X (3) _____
HIST 100X (3) _____
ART/MUS/THR 200X, HUM 201X OR ANS 202X (3) _____
ENGL/FL 200X (3) _____
PHIL 322X, NRM 303X, COMM 300X,
PS 300X OR JUST 300X (3) _____

OR Complete 12 cr from the above list PLUS two semester-length courses in a single non-English or Alaska Native language at the university level OR three semester-length courses (9 cr) in American Sign Language.

MATHEMATICS (3-4)

Complete 3-4 credits from the following:

MATH 107X (3) _____
OR MATH 131X (except for BBA) (3) _____
OR MATH 161X (3) _____
MATH 200X (4) _____
MATH 201X (4) _____
MATH 202X (4) _____
MATH 262X (4) _____
MATH 272X (3) _____

NOTE: Additional 3 cr of math needed for degree requirements.

NATURAL SCIENCES (8)

Complete 8 credits from the following:

ATM 101X (4) _____
BIOL 103X OR 104X (4) _____
BIOL 105X-106X (8) _____
BIOL 111X-112X (8) _____
CHEM 100X (4) _____
CHEM 103X-104X (8) _____
CHEM 105X-106X (8) _____
GEOG 205X (4) _____
GEOS 100X OR 120X OR 125X (4) _____
GEOS 101X-112X (8) _____
MSL 111X (4) _____
PHYS 102X OR 175X (4) _____
PHYS 103X-104X (8) _____
PHYS 211X-212X (8) _____
PHYS 211X-213X (8) _____
PHYS 212X-213X (8) _____