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PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR/MINOR)

SUBMITTED BY:

Department	Mining and Geological Engineering	College/School	CEM
Prepared by	Margaret Darrow	Phone	907.474.5339
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See <http://www.uaf.edu/uafgov/faculty/cd> for a complete description of the rules governing curriculum & course changes.

PROGRAM IDENTIFICATION:

DEGREE PROGRAM	Geological Engineering	
Degree Level: (i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)	B.S.	

A. CHANGE IN DEGREE REQUIREMENTS: (Brief statement of program/degree changes and objectives)

The changes in the program are being initiated post-ABET visit and based on feedback received from graduating students or recent alumni. The changes will benefit the program by enhancing the quality, introducing more engineering component to the program and provide options for technical electives.

B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

Major -- B.S. Degree

1. Complete the general university requirements.
2. Complete the B.S. degree requirements.
3. Complete the following program (major) requirements:*
 - CHEM F105X--General Chemistry**--4 credits
 - CHEM F106X--General Chemistry**--4 credits
 - ES F201--Computer Techniques--3 credits
 - ES F208--Mechanics--4 credits
 - ES F331--Mechanics of Materials--3 credits
 - ES F341--Fluid Mechanics--4 credits
 - GE F101--Introduction to Geological Engineering--1 credit
 - GE F261--General Geology for Engineers--3 credits
 - GE F365--Geological Materials Engineering--3 credits
 - GE F375--Principles of Engineering Geology and Terrain Analysis--3 credits
 - GE F381W--Field Methods and Applied Design I--2 credits
 - GE F382W--Field Methods and Applied Design II--4 credits
 - GE F405--Exploration Geophysics--3 credits
 - GE F420--Subsurface Hydrology--3 credits
 - GE F471--Remote Sensing for Engineering--3 credits
 - GE F480W--Senior Design--3 credits
 - GEOS F213--Mineralogy--4 credits
 - GEOS F214--Petrology and Petrography--4 credits
 - GEOS F322--Stratigraphy and Sedimentation--4 credits
 - GEOS F332--Ore Deposits and Structure--3 credits
 - MATH F200X--Calculus I**--4 credits

MATH F201X--Calculus II**--4 credits
 MATH F202X--Calculus III**--4 credits
 MATH F302--Differential Equations--3 credits
 MIN F202--Mine Surveying--3 credits
 MIN F370--Rock Mechanics--3 credits
 MIN F408O--Mineral Valuation and Economics--3 credits
 PHYS F211X--General Physics**--4 credits
 PHYS F212X--General Physics**--4 credits
 STAT F200X--Elementary Probability and Statistics--3 credits
 Technical electives***--6 credits

4. Minimum credits required--134 credits

* Students must earn a C grade (2.0) or better in each ES, GE, GEOS, MIN and technical elective courses.

** Satisfies core or B.S. degree requirements but not both.

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

Note: Candidates for the B.S. degree in geological engineering are required to take the state of Alaska Fundamentals of Engineering examination, which is a first step toward registration as professional engineers.

Note: Students may initiate their geological engineering program in Anchorage and transfer to Fairbanks upon completion of the freshman and sophomore years. Students intending to transfer to UAF should communicate with a faculty member of the UAF mining and geological engineering department.

C. PROPOSED REQUIREMENTS AS IT WILL APPEAR IN THE CATALOG WITH THESE CHANGES:
 (Underline new wording ~~strike through old wording~~ and use complete catalog format)

Major -- B.S. Degree

1. Complete the general university requirements. (As part of the core curriculum requirements, complete: MATH F200X*, CHEM F105X* and CHEM F106X*.)
2. Complete the B.S. degree requirements. (As part of the B.S. degree requirements, complete: MATH F201X*; PHYS F211X* and PHYS F212X*.)
3. Complete the following program (major) requirements:*
~~CHEM F105X--General Chemistry**--4 credits~~
~~CHEM F106X--General Chemistry**--4 credits~~
 ES F201--Computer Techniques--3 credits
 ES F208--Mechanics--4 credits
 ES F331--Mechanics of Materials--3 credits
 ES F341--Fluid Mechanics--4 credits
 GE F101--Introduction to Geological Engineering--1 credit
 GE F261--General Geology for Engineers--3 credits
 GE F365--Geological Materials Engineering--3 credits
GE F371--Remote Sensing for Engineering--3 credits
 GE F375--Principles of Engineering Geology and Terrain Analysis--3 credits
 GE F381W--Field Methods and Applied Design I--2 credits

GE F382W--Field Methods and Applied Design II--4 credits
 GE F405--Exploration Geophysics--3 credits
 GE F420--Subsurface Hydrology--3 credits
~~GE F471--Remote Sensing for Engineering--3 credits~~
 GE F480W--Senior Design--3 credits
 GEOS F213--Mineralogy--4 credits
 GEOS F214--Petrology and Petrography--4 credits
 GEOS F322--Stratigraphy and Sedimentation--4 credits
 GEOS F332--Ore Deposits and Structure--3 credits
~~MATH F200X--Calculus I**--4 credits~~
~~MATH F201X--Calculus II**--4 credits~~
~~MATH F202X--Calculus III**--4 credits~~
MATH F202X--Calculus III--4 credits
 MATH F302--Differential Equations--3 credits
 MIN F202--Mine Surveying--3 credits
MIN F225--Quantitative Methods in Mining Engineering--2 credits
 MIN F370--Rock Mechanics--3 credits
 MIN F408O--Mineral Valuation and Economics--3 credits
~~PHYS F211X--General Physics**--4 credits~~
~~PHYS F212X--General Physics**--4 credits~~
~~STAT F200X--Elementary Probability and Statistics--3 credits~~
~~Technical electives***--6 credits~~
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~~* Students must earn a C grade (2.0) or better in each ES, GE, GEOS, MIN and technical elective courses.~~

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~~**Technical elective credits must contain engineering design and be selected by the student from the following list of approved technical electives from the geological engineering program in conference with his or her advisor and approved by the department.~~

Highly Recommended Technical Electives:

1. GE 322 - Erosion Mechanics and Conservation
2. GE 376 - GIS Applications in Geological and Environmental Engineering
3. GE 384 - Engineering Geology of Alaska
4. GE 400 - Geological Engineering Internship
5. GE 422 - Soil Physics
6. GE 430 - Geomechanical Instrumentation
7. GE 435 - Exploration Design
8. GE 440 - Slope Stability
9. GE 441 - Geohazard Analysis
10. GE 445 - Design of Earth Dams and Embankments

Possible Alternatives:

1. MIN 443 - Principles and Applications of Industrial Explosives
2. MIN 482 - Computer-Aided Mine Design - VULCAN
3. ESM422 - Engineering Decisions
4. NRM 435 - GIS Analysis
5. PETE 302 - Well Logging
6. PETE 407 - Petroleum Production Engineering
7. PETE 426 - Drilling Engineering
8. CE 341 - Environmental Engineering
9. CE 344 - Water Resources Engineering
10. CE 422 - Foundation Engineering
11. CE 424 - Introduction to Permafrost Engineering
12. CE 425 - Advanced Soil Mechanics
13. CE 442 - Environmental Engineering Design
14. CE 603 - Arctic Engineering

Note: Candidates for the B.S. degree in geological engineering are required to take the State of Alaska Fundamentals of Engineering examination, which is a first step toward registration as a professional engineer.

~~Note: Students may initiate their geological engineering program in Anchorage and transfer to Fairbanks upon completion of the freshman and sophomore years. Students intending to transfer to UAF should communicate with a faculty member of the UAF mining and geological engineering department.~~

D. ESTIMATED IMPACT

WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.

None.

E. IMPACTS ON PROGRAMS/DEPTS:

*What programs/departments will be affected by this proposed action?
Include information on the Programs/Departments contacted (e.g., email, memo)*

The Mining Engineering program will have the Geological Engineering students in the MIN 225 course that is going to replace the STAT 200. This is a benefit to the Mining Engineering program and the change has been discussed with the faculty members of the program.

F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:

Description of the student learning outcomes assessment process.)

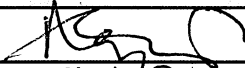
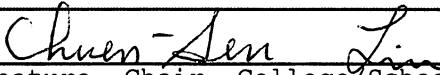
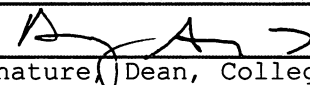
The assessment of the program will continue per the usual process as agreed upon by the faculty of the Geological Engineering program.

JUSTIFICATION FOR ACTION REQUESTED

The purpose of the department and campus-wide curriculum committees is to scrutinize program/degree change applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If you drop a course, is it because the material is covered elsewhere? Use as much space as needed to fully justify the proposed change and explain what has been done to ensure that the quality of the program is not compromised as a result.

1. STAT 200 is being replaced by MIN 225. The former introduced students with basic statistical theory; however, MIN 225 includes geospatial analysis in addition to basic statistics, which will be critical for the Geological Engineering (GE) students for resource assessment.
2. In the past, we did not provide students with a list of potential technical electives that could be approved for their graduation. We chose to include that list explicitly.

APPROVALS:

	Date	2/27/12
Signature, Chair, Program/Department of:	Mining & Geological Eng	
	Date	
Signature, Chair, College/School Curriculum Council for:		
	Date	3/27/11
Signature, Dean, College/School of:	CEM	

ALL SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

	Date	
Signature, Chair, UAF Faculty Senate Curriculum Review Committee		