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PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR/MINOR)

SUBMITTED BY:

Department	Mining and Geological Engineering	College/School	CEM
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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.)	M.S.

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

We propose to formalize the deficiency course requirements for MS applicants without a BS in geological engineering and to add the GRE as an application requirement. We also propose to eliminate "focus groups", to eliminate courses that are to be removed from the catalog, and instead list courses that are regularly taught by the GE program or that are highly relevant to the GE discipline.

B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

Graduate Program -- M.S. Degree

1. Complete a comprehensive entrance exam.
2. Complete the general university requirements.
3. Complete the master's degree requirements.
4. Complete the thesis or non-thesis requirements:
Thesis
 1. Complete 12 credits from the following with a maximum of 6 credits from the selected research focus group:
Geotechnical Engineering Focus Area:
GE F440--Slope Stability--3 credits
GE F665--Advanced Geological Materials Engineering--3 credits
GE F666--Advanced Engineering Geology--3 credits
GE F668--Tunneling Geotechniques--3 credits
GE F671--Engineering Application of Digital Image Processing--3 credits
Geoenvironmental Engineering Focus Area:
GE F610--Subsurface Hydrology--3 credits
GE F620--Advanced Groundwater Hydrology--3 credits
GE F622--Unsaturated Soil Geoengineering--3 credits
GE F649--Hazardous and Toxic Waste Management--3 credits
Georesource Engineering Focus Area
GE F631--Electron Microprobe Methods--3 credits
GE F630--Advanced Applied Mining Geology--3 credits
GE F633--Fluid Inclusion Methods in Mineral and Petroleum Exploration--3 credits
GE F635--Advanced Geostatistical Applications--3 credits

- MIN F621--Advanced Mineral Economics--3 credits
- 2. Geological engineering courses* and technical electives--11 credits
- 3. Complete the following:
 - GE F692--Graduate Seminar--1 credit
 - GE F699--Thesis--6 credits
- 4. Minimum credits required--30 credits

* NOTE: Geological engineering courses may be taken from any focus group that is approved by the graduate advisory committee.

Non-Thesis

1. Complete 12 credits from the following with a maximum of 6 credits from the selected research focus group:
 - Geotechnical Engineering Focus Area:
 - GE F440--Slope Stability--3 credits
 - GE F665--Advanced Geological Materials Engineering--3 credits
 - GE F666--Advanced Engineering Geology--3 credits
 - GE F668--Tunneling Geotechniques--3 credits
 - GE F671--Engineering Application of Digital Image Processing--3 credits
 - Geoenvironmental Engineering Focus Area:
 - GE F610--Subsurface Hydrology--3 credits
 - GE F620--Advanced Groundwater Hydrology--3 credits
 - GE F622--Unsaturated Soil Geoengineering--3 credits
 - GE F649--Hazardous and Toxic Waste Management--3 credits
 - Georesource Engineering Focus Area
 - GE F631--Electron Microprobe Methods--3 credits
 - GE F630--Advanced Applied Mining Geology--3 credits
 - GE F633--Fluid Inclusion Methods in Mineral and Petroleum Exploration--3 credits
 - GE F635--Advanced Geostatistical Applications--3 credits
 - MIN F621--Advanced Mineral Economics--3 credits
2. Geological engineering courses* and technical electives--14 credits
 - GE F692--Graduate Seminar--1 credit
 - GE F698--Research/Project--6 credits
3. Minimum credits required--33 credits

* NOTE: Geological engineering courses may be taken from any focus group that is approved by the graduate advisory committee.

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)

Graduate Program -- M.S. Degree

1. Complete the following: a comprehensive entrance exam
 - a. Complete one of the following admission requirements:
 - i. Complete a bachelor's degree in geological engineering; OR
 - ii. Complete a bachelor's degree in engineering and complete the following courses: GEOS F262 and GEOS F332, or GEOS F322 and GEOS F314; GE F365 or MIN F370; GE F405, and GE F420; OR
 - iii. Complete a bachelor's degree in geology and complete the following courses: ES F208, ES F331, ES F341; GE F365 or MIN F370; GE F405, GE F420, and MIN F408; OR

- iv. Complete a bachelor's degree in the natural sciences and complete the following courses: ES F208, ES F331, ES F341; GEOS F262 and GEOS F332, or GEOS F322 and GEOS F314; GE F365 or MIN F370; GE F405, GE F420, and MIN F408.
- b. Submit GRE scores.
2. Complete the general university requirements.
3. Complete the master's degree requirements.
4. Complete the thesis or non-thesis requirements:

Thesis

 - a. Complete 12 credits from the following with a maximum of 6 credits from the selected research focus group:

Geotechnical Engineering Focus Area:

~~GE F440—Slope Stability—3 credits~~

~~GE F665—Advanced Geological Materials Engineering—3 credits~~

~~GE F666—Advanced Engineering Geology—3 credits~~

~~GE F668—Tunneling Geotechniques—3 credits~~

~~GE F671—Engineering Application of Digital Image Processing—3 credits~~

Geoenvironmental Engineering Focus Area:

~~GE F610—Subsurface Hydrology—3 credits~~

~~GE F620—Advanced Groundwater Hydrology—3 credits~~

~~GE F622—Unsaturated Soil Geoengineering—3 credits~~

~~GE F649—Hazardous and Toxic Waste Management—3 credits~~

Georesource Engineering Focus Area

~~GE F631—Electron Microprobe Methods—3 credits~~

~~GE F630—Advanced Applied Mining Geology—3 credits~~

~~GE F633—Fluid Inclusion Methods in Mineral and Petroleum Exploration—3 credits~~

~~GE F635—Advanced Geostatistical Applications—3 credits~~

~~MIN F621—Advanced Mineral Economics—3 credits~~

GE F430--Geomechanical Instrumentation--3 credits

GE F440--Slope Stability--3 credits

GE F610--Subsurface Hydrology--3 credits

GE F620--Advanced Groundwater Hydrology--3 credits

GE F622--Unsaturated Soil Geoengineering--3 credits

GE F624—Stochastic Hydrology and Geohydrology—3credits

GE F626—Thermal Geotechniques—3 credits

GE F635--Advanced Geostatistical Applications--3 credits

GE F665--Advanced Geological Materials Engineering--3 credits

GE F666--Advanced Engineering Geology--3 credits

GE F668--Tunneling Geotechniques--3 credits

MIN F621--Advanced Mineral Economics--3 credits

MIN F673—Advanced Rock Mechanics—3 credits
 - b. Geological engineering courses* and technical electives--11 credits
 - c. Complete the following:

~~GE F692--Graduate Seminar--1 credit~~

~~GE F699--Thesis--6 credits~~
 - d. Minimum credits required--30 credits

* NOTE: Geological engineering courses may be taken from any focus group that is

approved by the graduate advisory committee.

Non-Thesis

- a. Complete ~~12~~ 15 credits from the following with a maximum of 6 credits from the selected research focus group:
- Geotechnical Engineering Focus Area:
GE F440--Slope Stability--3 credits
GE F665--Advanced Geological Materials Engineering--3 credits
GE F666--Advanced Engineering Geology--3 credits
GE F668--Tunneling Geotechniques--3 credits
GE F671--Engineering Application of Digital Image Processing--3 credits
- Geoenvironmental Engineering Focus Area:
GE F610--Subsurface Hydrology--3 credits
GE F620--Advanced Groundwater Hydrology--3 credits
GE F622--Unsaturated Soil Geoengineering--3 credits
GE F649--Hazardous and Toxic Waste Management--3 credits
- Georesource Engineering Focus Area
GE F631--Electron Microprobe Methods--3 credits
GE F630--Advanced Applied Mining Geology--3 credits
GE F633--Fluid Inclusion Methods in Mineral and Petroleum Exploration--3 credits
GE F635--Advanced Geostatistical Applications--3 credits
MIN F621--Advanced Mineral Economics--3 credits
GE F430--Geomechanical Instrumentation--3 credits
GE F440--Slope Stability--3 credits
GE F610--Subsurface Hydrology--3 credits
GE F620--Advanced Groundwater Hydrology--3 credits
GE F622--Unsaturated Soil Geoengineering--3 credits
GE F624--Stochastic Hydrology and Geohydrology--3 credits
GE F626--Thermal Geotechniques--3 credits
GE F635--Advanced Geostatistical Applications--3 credits
GE F665--Advanced Geological Materials Engineering--3 credits
GE F666--Advanced Engineering Geology--3 credits
GE F668--Tunneling Geotechniques--3 credits
MIN F621--Advanced Mineral Economics--3 credits
MIN F673--Advanced Rock Mechanics--3 credits
- b. Geological engineering courses* and technical electives--14 11 credits
- c. Complete the following:
GE F692--Graduate Seminar--1 credit
GE F698--Research/Project--6 credits
- d. Minimum credits required--33 credits

* NOTE: Geological engineering courses may be taken from any focus group that is approved by the graduate advisory committee.

D. ESTIMATED IMPACT

Modification to original submission via email on 2/28/2013. jh

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

~~None~~

"There will be no impact on budget, facilities, classroom schedules or faculty as the program is ongoing. The changes reflect elimination of focus areas and to make the program requirements broader. Also, courses that are not offered regularly have been removed from the requirement. This change essentially is for internal clarity of requirements and cleaning up of the current catalog description."

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 Geological Engineering MS students in the MIN F673 course, which was not previously officially accepted as a course option for the MS degree. This will benefit the Mining Engineering 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

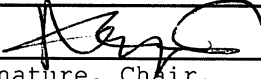
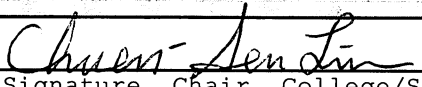
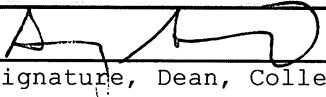
The purpose of the department and campus-wide curriculum committees is to scrutinize program/degree change applications to make sure that the quality of UAF education is not lowered as a result of the proposed change. Please address this in your response. This section needs to be self-explanatory. If 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. The changes in admission requirements address a long-standing need to formalize deficiency courses for some of the MS applicants. Adding the GRE requirement allows the GE faculty to better evaluate potential applicants. Both of these changes introduce more rigor into the application process.
2. a) For both the thesis and non-thesis options, we have eliminated GE courses that will be dropped from the catalog as they have not been taught in over five years. We have also added courses that are more regularly taught in geological engineering, and a mining engineering course that is relevant to GE studies.

b) We eliminated the three focus areas, and rearranged potential courses in numerical order.

These changes will create more opportunities for MS students by regularly offering quality instruction.
3. For the non-thesis option, we have changed the number of credits taken from the required list from 12 to 15, reducing the number of technical electives from 14 to 11. This ensures that students are receiving the majority of their graduate education from within our program.

APPROVALS:

	(RAJIVE GANGULI)	Date	1/26/12
Signature, Chair, Program/Department of:		MINING & GEOLOGICAL ENGG	
		Date	02/12/2012
Signature, Chair, College/School Curriculum Council for:			
		Date	2/15/12
Signature, Dean, College/School of:		CEM	