Submit originals and one copy and electronic copy to Governance/Faculty Senate Office (email electronic copy to fysenat@uaf.edu)

PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR/MINOR)

SUBMITTED BY:

<table>
<thead>
<tr>
<th>Department</th>
<th>Mining and Geological Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prepared by</td>
<td>Dr. Debasmita Misra</td>
</tr>
<tr>
<td>Email Contact</td>
<td><a href="mailto:debu.misra@alaska.edu">debu.misra@alaska.edu</a></td>
</tr>
<tr>
<td>College/School</td>
<td></td>
</tr>
<tr>
<td>CEM</td>
<td></td>
</tr>
<tr>
<td>Phone</td>
<td>907-474-5339</td>
</tr>
<tr>
<td>Faculty Contact</td>
<td>Dr. Debasmita Misra</td>
</tr>
</tbody>
</table>

See [http://www.uaf.edu/uafgov/faculty/cd](http://www.uaf.edu/uafgov/faculty/cd) for a complete description of the rules governing curriculum & course changes.

PROGRAM IDENTIFICATION:

<table>
<thead>
<tr>
<th>DEGREE PROGRAM</th>
<th>Geological Engineering</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree Level:</td>
<td>M.S.</td>
</tr>
<tr>
<td>(i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)</td>
<td></td>
</tr>
</tbody>
</table>

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

We are proposing change in Graduate Program requirement for the GE core courses as furnished below.

B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

Minimum Requirements for Degree: 30 – 33 credits

Geological engineering deals with the application of geology. Geological engineers work with the environment in the true sense of the word. Properties of earth materials exploration activities, geophysical and geochemical prospecting, site investigations and engineering geology are all phases of geological engineering.

The graduate program prepares students for employment with industry, consulting companies and government agencies.

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**
   
   a. Complete 12 credits from the following six courses:
   GE F620—Advanced Groundwater Hydrology—3 credits
   GE F630—Advanced Applied Mining Geology—3 credits
   GE F635—Advanced Geostatistical Applications—3 credits
   GE F665—Advanced Geomaterial Engineering—3 credits
   GE F666—Advanced Engineering Geology—3 credits
   MIN F621—Advanced Mineral Economics—3 credits
   b. Geological engineering courses and technical electives—11 credits
   GE F692—Graduate Seminar—1 credit
   GE F699—Thesis—6 credits
c. Minimum credits required—30 credits

Non-Thesis

a. Complete 12 credits from the following six courses:
   GE F620—Advanced Groundwater Hydrology—3 credits
   GE F630—Advanced Applied Mining Geology—3 credits
   GE F635—Advanced Geostatistical Applications—3 credits
   GE F665—Advanced Geomaterial Engineering—3 credits
   GE F666—Advanced Engineering Geology—3 credits
   MIN F621—Advanced Mineral Economics—3 credits
b. Geological engineering courses and technical electives—14 credits
   GE F692—Graduate Seminar—1 credit
   GE F698—Research/Project—6 credits
c. Minimum credits required—33 credits

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)

Minimum Requirements for Degree: 30 – 33 credits

Geological engineering deals with the application of geology. Geological engineers work with the environment in the true sense of the word. Properties of earth materials exploration activities, geophysical and geochemical prospecting, site investigations and engineering geology are all phases of geological engineering.

The graduate program prepares students for employment with industry, consulting companies and government agencies.

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
  e. Complete 12 credits from the following six courses:
     GE F620—Advanced Groundwater Hydrology—3 credits
     GE F630—Advanced Applied Mining Geology—3 credits
     GE F635—Advanced Geostatistical Applications—3 credits
     GE F665—Advanced Geomaterial Engineering—3 credits
     GE F666—Advanced Engineering Geology—3 credits
     MIN F621—Advanced Mineral Economics—3 credits
d. Geological engineering courses and technical electives—11 credits
     GE F692—Graduate Seminar—1 credit
     GE F699—Thesis—6 credits
Non-Thesis

d. Complete 12 credits from the following six courses:
   GE F620—Advanced Groundwater Hydrology—3 credits
   GE F630—Advanced Applied Mining Geology—3 credits
   GE F635—Advanced Geostatistical Applications—3 credits
   GE F665—Advanced Geomaterial Engineering—3 credits
   GE F666—Advanced Engineering Geology—3 credits
   MIN F621—Advanced Mineral Economics—3 credits

e. Geological engineering courses and technical electives—14 credits
   GE F692—Graduate Seminar—1 credit
   GE F698—Research/Project—6 credits

f. Minimum credits required—33 credits

4. Complete the thesis or non-thesis requirements:

Thesis

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

(i) Geotechnical Engineering Focus Area

   GE F440—Slope Stability
   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

(ii) 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

(iii) Georesource Engineering Focus Area

   GE F631—Electron Microscope Methods
   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

b. Geological engineering courses* and technical electives—11 credits

*NOTE: Geological Engineering Courses may be taken from any focus group that is approved by the graduate advisory committee
GE F692—Graduate Seminar—1 credit
GE F699—Thesis—6 credits

c. Minimum credits required—30 credits

Non-Thesis

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

(iv) Geotechnical Engineering Focus Area

GE F440—Slope Stability

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

(v) 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

vi. Georesource Engineering Focus Area

GE F631—Electron Microprobe Methods

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**

e. Geological engineering courses* and technical electives—14 credits

*NOTE: Geological Engineering Courses may be taken from any focus group that is approved by the graduate advisory committee
GE F692—Graduate Seminar—1 credit
GE F698—Research/Project—6 credits

f. Minimum credits required—33 credits

<table>
<thead>
<tr>
<th><strong>D. ESTIMATED IMPACT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>WHAT IMPACT, IF ANY, WILL THIS HAVE ON BUDGET, FACILITIES/SPACE, FACULTY, ETC.</strong></td>
</tr>
<tr>
<td>None.</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>E. IMPACTS ON PROGRAMS/DEPTS:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What programs/departments will be affected by this proposed action?</strong></td>
</tr>
<tr>
<td><strong>Include information on the Programs/Departments contacted (e.g., email, memo)</strong></td>
</tr>
<tr>
<td>None</td>
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</table>

<table>
<thead>
<tr>
<th><strong>F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description of the student learning outcomes assessment process.</strong></td>
</tr>
</tbody>
</table>
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.

This modification is intended to facilitate graduate students to focus on curricular needs that are relevant and required for their specific area of research while providing them with a well-rounded knowledge of geological engineering as a career.

APPROVALS:

Signature, Chair, Program/Department of:  
MGE  
Date 10/28/09

Signature, Chair, College/School Curriculum Council for:  
CEM  
Date 10/31/09

Signature, Dean, College/School of:  
CEM  
Date 10/30/09

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

Signature, Chair, UAF Faculty Senate Curriculum Review Committee  
Date  
