PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR/MINOR)

SUBMITTED BY:

<table>
<thead>
<tr>
<th>Department</th>
<th>Mechanical Engineering</th>
<th>College/School</th>
<th>College of Engineering &amp; Mines</th>
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<tbody>
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</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>Mechanical Engineering</th>
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<tbody>
<tr>
<td>Degree Level: (i.e., Certificate, A.A., A.A.S., B.A., B.S., M.A., M.S., Ph.D.)</td>
<td>B.S./M.S.</td>
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A. CHANGE IN DEGREE REQUIREMENTS: (Brief statement of program/degree changes and objectives)

Delete the requirement of ME F487W,O – Design Project (3 credits)
And:
Make ME F488W,O – Design Project (1 credit, fall) AND ME F489W,O – Design Project (2 credits, Spring) the new replacements

(Cont. on next page)
B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

Major -- B.S./M.S. Degree

1. Complete the following admission requirements:
   1. ME major (junior preferred) or senior standing.
   2. GPA 3.25 or above (based on minimum of 24 credits in ME major requirements). Students must maintain a cumulative GPA of 3.0 to remain in the program.
   4. Submit GRE (general) scores.
   5. Submit a study goal statement.
   6. Submit a UAF graduate application for admission.
2. Complete the general university requirements.
3. Complete the B.S. degree requirements. (As part of the B.S. degree requirements, complete: MATH F201X, PHYS F211X and PHYS F212X.)
4. Complete the master's degree requirements (page 205).
5. Complete the following B.S. program (major) requirements:
   ES F101--Introduction to Engineering--3 credits
   ES F201--Computer Techniques--3 credits
   ES F209--Statics--3 credits
   ES F210--Dynamics--3 credits
   ES F301--Engineering Analysis--3 credits
   ES F307--Elements of Electrical Engineering--3 credits
   ES F331--Mechanics of Materials--3 credits
   ES F341--Fluid Mechanics--4 credits
   ES F346--Basic Thermodynamics--3 credits
   ESM F450W--Economic Analysis and Operations--3 credits
   MATH F202X--Calculus--4 credits
   MATH F302--Differential Equations--3 credits
   ME F302--Dynamics of Machinery--3 credits
   ME F308--Measurement and Instrumentation--3 credits
   ME F313--Mechanical Engineering Thermodynamics--3 credits
   ME F321--Industiral Processes--3 credits
   ME F334--Elements of Materials Science/Engineering--3 credits
   ME F403--Machine Design--3 credits
   ME F408--Mechanical Vibrations--3 credits
   ME F415W--Thermal Systems Laboratory--3 credits
   ME F441--Heat and Mass Transfer--3 credits
   ME F487W/O--Design Project--3 credits
6. Complete the following M.S. program (major) requirements:
   ME F608--Advanced Dynamics--3 credits
   ME F631--Advanced Mechanics of Materials--3 credits
   ME F634--Advanced Materials Engineering--3 credits
   ME F641--Advanced Fluid Mechanics--3 credits
   ME F642--Advanced Heat Transfer--3 credits
7. Complete the thesis or non-thesis requirements:
   Thesis
   ME F699--Thesis--6 credits
   Electives--9 credits
   (Electives approved by student's advisory committee with at least 3 credits at the graduate level)
   Non-Thesis
   ME F698--Project--3 credits
   Electives--12 credits
   (Electives approved by student's advisory committee with at least 6 credits at the graduate level)
8. Minimum credits required for both degrees--151 credits
C. PROPOSED REQUIREMENTS AS IT WILL APPEAR IN THE CATALOG WITH THESE CHANGES:
(Un underline new wording strike-through-old-wording and use complete catalog format)

Major -- B.S./M.S. Degree

1. Complete the following admission requirements:
   1. ME major (junior preferred) or senior standing.
   2. GPA 3.25 or above (based on minimum of 24 credits in ME major requirements). Students must maintain a cumulative GPA of 3.0 to remain in the program.
   4. Submit GRE (general) scores.
   5. Submit a study goal statement.
   6. Submit a UA/graduate application for admission.

2. Complete the general university requirements.

3. Complete the B.S. degree requirements. (As part of the B.S. degree requirements, complete: MATH F201X, PHYS F211X and PHYS F212X.)

4. Complete the master’s degree requirements (page 205).

5. Complete the following B.S. program (major) requirements:
   ES F101--Introduction to Engineering--3 credits
   ES F201--Computer Techniques--3 credits
   ES F209--Statics--3 credits
   ES F210--Dynamics--3 credits
   ES F301--Engineering Analysis--3 credits
   ES F307--Elements of Electrical Engineering--3 credits
   ES F311--Mechanics of Materials--3 credits
   ES F411--Fluid Mechanics--4 credits
   ES F346--Basic Thermodynamics--3 credits
   ESM F450V--Economic Analysis and Operations--3 credits
   MATH F202X--Calculus--4 credits
   MATH F302--Differential Equations--3 credits
   ME F302--Dynamics of Machinery--3 credits
   ME F308--Measurement and Instrumentation--3 credits
   ME F313--Mechanical Engineering Thermodynamics--3 credits
   ME F321--Industrial Processes--3 credits
   ME F334--Elements of Materials Science/Engineering--3 credits
   ME F403--Machine Design--3 credits
   ME F408--Mechanical Vibrations--3 credits
   ME F415W--Thermal Systems Laboratory--3 credits
   ME F441--Heat and Mass Transfer--3 credits
   ME F487W/O--Design Project--3 credits
   ME F488W/O--Design Project--1 credits
   ME F489W/O--Design Project--2 credits

6. Complete the following M.S. program (major) requirements:
   ME F608--Advanced Dynamics--3 credits
   ME F631--Advanced Mechanics of Materials--3 credits
   ME F634--Advanced Materials Engineering--3 credits
   ME F641--Advanced Fluid Mechanics--3 credits
   ME F642--Advanced Heat Transfer--3 credits

7. Complete the thesis or non-thesis requirements:
   Thesis
   ME F699--Thesis--6 credits
   Electives--9 credits
   (Electives approved by student's advisory committee with at least 3 credits at the graduate level)
   Non-Thesis
   ME F698--Project--3 credits
   Electives--12 credits
   (Electives approved by student's advisory committee with at least 6 credits at the graduate level)

8. Minimum credits required for both degrees--151 credits
D. ESTIMATED IMPACT

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

No impact

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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 only positive impact is to students who will have more time to practice and complete their senior design project.

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F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:

Description of the student learning outcomes assessment process.

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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.

- For the capstone design course (senior design), the past experience shows that it needs longer time than one semester for many students to complete a comprehensive design process, which includes project definition, specification, concept design, development, fabrication and test.
- ME department once had a meeting in Nov. 2010 dedicated to discussing this issue, and a consensus was reached: this course needs to be dropped and two new courses (senior design I and II) should be formed to replace it, so as to allow students to have two semesters to conduct a comprehensive senior design.
- This proposal is for the dropping of current senior design course, so as to initiate and implement two new proposed courses.

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APPROVALS:

[Signatures and dates filled in]

Signature, Chair, Program/Department of:

[Signature, Chair, College/School Curriculum Council for:

[Signature, Dean, College/School of:

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

[Signature, Chair, UAF Faculty Senate Curriculum Review Committee]