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PROGRAM/DEGREE REQUIREMENT CHANGE (MAJOR)

SUBMITTED BY:

Department	Mechanical Engineering	College/School	CEM
Prepared by	Frances Bedel	Phone	x7136
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See <http://www.uaf.edu/uafgov/faculty-senate/curriculum/course-degree-procedures/> for a complete description of the rules governing curriculum & course changes.

PROGRAM IDENTIFICATION:

DEGREE PROGRAM	Mechanical 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)

Updating petroleum engineering emphasis.

B. CURRENT REQUIREMENTS AS IT APPEARS IN THE CATALOG:

Major -- BS 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 BS degree requirements. (As part of the BS degree requirements, complete MATH F201X, PHYS F211X and PHYS F212X.)
3. Complete the following 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 III--4 credits
 - MATH F302--Differential Equations--3 credits
 - ME F302--Dynamics of Machinery--4 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 Material 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 F486--Senior Design--1 credit
 - ME F487W,O--Design Project--3 credits
 - ME electives**--6 credits
 - Technical electives***--3 credits
4. Minimum credits required--130 credits

* Students must earn a C- grade or better in each of the program (major) requirements, with exception of ES F101.

** Mechanical engineering course at the F400 level or above.

*** Engineering course at the F400 level or above.

Note: Students electing to complete an emphasis in aerospace engineering must complete the sequence of aerospace courses (ME F450, F451, F452 and F453) as part of their program requirements and complete a senior design project that is related to aerospace engineering.

Note: Students electing to complete an emphasis in petroleum engineering must complete the sequence of petroleum-related courses (ME F409; ME F416; PETE F407; PETE F426) as part of their program requirements and complete a senior design project that is related to petroleum engineering.

Note: Students must plan their elective courses in consultation with their mechanical engineering faculty advisor, and obtain the advisor's approval for all elective courses.

**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 -- BS 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 BS degree requirements. (As part of the BS degree requirements, complete MATH F201X, PHYS F211X and PHYS F212X.)
3. Complete the following 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 III--4 credits
MATH F302--Differential Equations--3 credits
ME F302--Dynamics of Machinery--4 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 Material 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 F486--Senior Design--1 credit
ME F487W,O--Design Project--3 credits
ME electives**--6 credits
Technical electives***--3 credits
4. Minimum credits required--130 credits

* Students must earn a C- grade or better in each of the program (major) requirements, with exception of ES F101.

** Mechanical engineering course at the F400 level or above.

*** Engineering course at the F400 level or above.

Note: Students electing to complete an emphasis in aerospace engineering must complete the sequence of aerospace courses (ME F450, F451, F452 and F453) as part of their program requirements and complete a senior design project that is related to aerospace

engineering.

Note: Students electing to complete an emphasis in petroleum engineering must complete the sequence of petroleum-related courses (ME F409; ME F416; PETE F407; ME F464; PETE F426) as part of their program requirements and complete a senior design project that is related to petroleum engineering.

Note: Students must plan their elective courses in consultation with their mechanical engineering faculty advisor, and obtain the advisor's approval for all elective courses.

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)

None

F. IF MAJOR CHANGE - ASSESSMENT OF THE PROGRAM:

Description of the student learning outcomes assessment process.)


None

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.

The purpose of the petroleum concentration is to give students more exposure to this particular area through their electives. However, recent pre-requisite changes in PETE407 make this requirement too onerous for students to complete. An equivalently important exposure to corrosion issues also accomplishes the intent of this concentration, so ME464 is substituted for this course requirement. Students will have the required pre-requisites for this course through the regular major requirements.



APPROVALS: SIGNATURES MUST BE OBTAINED PRIOR TO SUBMISSION TO THE GOVERNANCE OFFICE

Dr. Rorik Peterson  Date 12/3/14
Signature, Chair, Program/Department of: Mechanical Engineering

Dr. Santanu Khataniar  Date 12/9/14
Signature, Chair, College/School Curriculum Council for: College of Engineering & Mines

Dr. Doug Goering  Date 12/15/14
Signature, Dean, College/School of: College of Engineering & Mines

CHAIR SIGNATURE OBTAINED FOLLOWING APPROVAL BY FACULTY SENATE COMMITTEE

 Date 
Signature, Chair, UAF Faculty Senate
Curriculum Review Committee
Graduate Academic and Advisory Committee

Dean's Office
College of Engineering & Mines