



## Proposal Summary

The Department of Mechanical Engineering proposes a NEW integrated B.S./M.S. degree program for qualified undergraduate students to complete B.S. and M.S. degrees in a shorter time than traditional B.S. plus M.S. degrees.

## Background

The Department of Mechanical Engineering proposes a combined accelerated degree for Mechanical Engineering undergraduate students. This program is designed for students to complete both a Bachelor of Science and a Master of Science Degree in five years. The

basic rationales for the program are:

1. Better use of University resources
2. Leverage existing strong B.S. programs to increase graduate enrollment
3. A national trend in a highly demanding field
4. An attractive option for qualified undergraduate students

## Proposed Catalog Elements

1. Complete the following admission requirements:
  - a. ME major (junior preferred) or senior standing.
  - b. 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.
  - c. Submit three letters of references.
  - d. Submit GRE (general) scores.
  - e. Submit a study goal statement.
  - f. Submit a UAF graduate application for admission.
2. Complete the general university requirements.

ES F331-Mechanics of Materials 3  
ES F341-Fluid Mechanics 4  
ES F346-Basic Thermodynamics 3  
ESM F450W-Economic Analysis and Operations 3  
MATH F202X-Calculus 4  
MATH F302-Differential Equations 3  
ME F302-Dynamics of Machinery 4  
ME F308-Measurement and Instrumentation 3  
ME F313-Mechanical Engineering Thermodynamics 3

ME F334-Elements of Materials Science/Engineering 3

ME F402-Machine Design 3

ME F408-Mechanical Vibrations 3  
ME 415W-Thermal Systems Laboratory 3  
ME 441-Heat and Mass Transfer 3  
ME 487 W,O-Design Project 3

6. Complete the following M.S. program (major) requirements:

ME F631-Advanced Mechanics of Materials 3  
ME F634-Advanced Materials Engineering 3  
ME F641-Advanced Fluid Mechanics 3  
ME F642-Advanced Heat Transfer 3  
ME F608-Advanced Dynamics 3

7. Complete the thesis or non-thesis requirements:

**Thesis**

Complete the following:

ME F699-Thesis 6

Electives\* 9

for the fast track degree program, a ME B.S. will be awarded if: 1) completed in 10 years, and 2) meet ME B.S. requirements.

Taken separately, the degrees would require 161 credits (131 B.S. and 30 M.S.). The difference of 11 credits comes from the electives of the B.S. program.

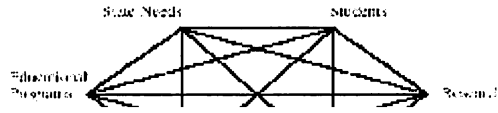
- a. Taking the B.S. degree and the M.S. degree separately, the student needs to take 11 elective credits (6 for ME electives, 3 for technical electives, and 2 for free electives) for the B.S. degree, another 9 or 12 graduate elective credits for the M.S. degree for the non-thesis and thesis option, respectively.

- b. Taking the B.S./M.S. degree, the student needs to take 9 or 12 elective credits (for thesis and non-thesis option, respectively) instead of both B.S. elective credits and M.S. elective credits.

The minimization of overlaps, maximizing the benefits of continuity, and taking graduate level courses in lieu of undergraduate ones justify the reduction.

**University of Alaska Board of Regents  
Program Approval Summary Form**

**MAII - University of Alaska Fairbanks**



**How does the program relate to the Education mission of the University of Alaska and the MAU?**

The proposed program aims to fulfill the education mission of the Department of Mechanical Engineering: To offer the highest quality, contemporary education at the