

**COMMITTEE RECOMMENDATION FOR
College of Engineering and Mines
Mechanical Engineering Department**

STRENGTHS:

- Production of highly marketable and quickly recruited graduates by local and statewide employers, and a 90% job placement for BS students at the time of senior year exit interviews.
- Largest undergraduate program compared to other engineering programs.
- Hands-on lab based experience in BS program and sub-arctic and arctic focus in upper-level courses offers something unique and translates to high job placement.
- Over a 4 year period, 80% passing rate of NCEES Fundamentals of Engineering prior to graduation, which is consistent with national averages and translates to competitiveness at national scale.
- Shared courses between UAA and UAF equates to a more robust program offering for undergraduates.
- Recent modifications to MS program requirements have reduced faculty teaching demands while maintaining a robust program, increased the range of course and research areas, and broadened interest and eligibility of students to the program.

WEAKNESSES:

- Fairbanks' job market, industry, and limited internship opportunities.
- Size of faculty due to budget constraints which limits areas of student interest in the field and results in a lack of breadth and comprehensiveness of the program.
- Competitiveness for undergrads in extracurricular engineering competitions (participation and travel are costly).
- In the context of small UAF undergraduate population size, it is still a small program compared to national programs.
- Lacks financial resources/donations from local industry.
- Expenses of instructional lab equipment and accompanying challenges of budgetary support for such equipment.

OPPORTUNITIES:

- Increased interest from local industry to sponsor more senior capstone design projects and independent research projects.
- Implementation of elective course requirements provides opportunity to increase course sharing and improve efficiency with faculty teaching resources across the college.

THREATS:

- Reduction in number of full-time faculty since the last ABET accreditation review in 2017 with limiting funding to replace those faculty (poses potential risk to accreditation).
- Reduced funding from the state and bad PR for the university.

- Misalignment between UAA and UAF course schedules is an impediment to more course sharing.
- Competition with UAA ME program with more Anchorage opportunities for part-time students already employed.
- Increasing competition with completely online programs nationwide that are ABET-accredited.

CENTRALITY TO MISSION:

- Central to UAF's core themes to educate, research, and prepare.
- Alaska's career, technical, and professional workforce contributions.

INDICATORS OF QUALITY:

- Rate of job placement of graduates.
- Dean's support for the program.
- Success of fast-track BS/MS pathway.

COST-EFFECTIVENESS:

SCH

Metric	Detail	FY16	FY17	FY18	FY19	FY20
SCH	ME - Upper	1517	2020	1730	1197	1058
SCH	ME - Grad	186	206	172	171	168
SCH	ME - External	59	9	24	15	12

Majors

Metric	Detail	FY16	FY17	FY18	FY19	FY20
Majors	BS Mechanical Engineering	269	280	257	201	169
Majors	MS Mechanical Engineering	12	14	14	12	15

Degrees

Metric	Detail	FY16	FY17	FY18	FY19	FY20
Degrees	BS Mechanical Engineering	29	36	48	32	23
Degrees	MS Mechanical Engineering	5	1	4	2	3

FTEs

Metric	Detail	FY16	FY17	FY18	FY19	FY20
FTEs	Faculty FTEs	4.9	4.3	4.9	4.3	5.2
FTEs	Staff FTEs	0.9	1	0.6	0.6	0.3
FTEs	Student FTEs	0	0	0	0	0.1

Expenditures

Metric	Program	Detail	FY20
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Instructional Expenditures	CEM Mechanical Engineering	Restricted	684
Instructional Expenditures	CEM Mechanical Engineering	Unrestricted	892302.1
Salaries and Benefits	CEM Mechanical Engineering	Restricted	684
Salaries and Benefits	CEM Mechanical Engineering	Unrestricted	851799.8

While the overall vote is continuation, the committee recommends making efforts to address steep enrollment declines in the BS program, specifically. The loss of faculty poses a threat to their upcoming accreditation review and the department is currently undergoing SEP, so additional recommendations should be determined once that process has concluded.

Mechanical Engineering BS

RECOMMENDATION:	ADDITIONAL COMMENTS:	DATE FOR FOLLOW-UP:
Continuation: 5 votes		
Continuation w/ improvement plan: 3 votes		

Mechanical Engineering MS

RECOMMENDATION:	ADDITIONAL COMMENTS:	DATE FOR FOLLOW-UP:
Continuation: 7 votes		
Continuation w/ improvement plan: 1 vote		