



Date: February 14, 2020

To: John Stalvey, Interim Provost

From: Kenrick Mock, Interim Dean, College of Engineering

Cc: Joey Yang, Professor & Department Chair, Program Committee Chair
Tom Ravens, Professor

Re: AY20 Expedited Program Review Findings

Program/s in this review: Civil Engineering (MS)

Specialized accrediting agency: N/A

Campuses where the program is delivered: UAA

Members of the program review committee:

- Joey Yang, Professor & Department Chair, Program Committee Chair, UAA
- Tom Ravens, Professor, UAA

Centrality of Program Mission and Supporting Role

The program is of high importance to the infrastructure needs of the state. As described in the report, ASCE policy calls for a BS + MS or 30 graduate credits for professional civil engineers in recognition of the increasing sophistication needed for civil engineering practice. The MSCE program is a primary option for engineers in the state, the majority of which reside in the Anchorage area. Research conducted under the MS program serves critical state needs in core CE emphasis areas of transportation, geotechnical, structural, environmental, water, and Arctic engineering.

Program Demand (including service to other programs), Efficiency, and Productivity

Enrollment has been steady at approximately 33 majors with an increase in the number of awards the past two years. Part of the increase is due to the revision of MS programs offered by the department during Program Prioritization. Some graduate programs were deleted, and others collapsed into the

MSCE degree. AEST/CE course pass rates are a little low for a graduate program; this may be an area the program investigates in further detail as part of its assessment.

It does make sense to consider the BSCE and MSCE programs together since the two are highly inter-related and share many stacked courses. This would improve many of the metrics, for example, average class size will be much higher when considering stacked courses together. While I agree with the program review committee that the MSCE program is a high-value extension of the BSCE program, it is not low-cost, at least relative to other CoEng programs from an instructional perspective. For 2019, the combined BS+MS programs would have an average cost around \$520/SCH but the combined tuition revenue would only increase to approximately \$300/SCH. The excess instructional capacity has allowed faculty to focus more time on research activities. In this capacity, faculty have been largely successful winning funded research projects that have involved MSCE students that in turn have contributed to state needs.

Program Quality, Improvement and Student Success

ABET does accredit MS engineering programs but it is not common. A search on the ABET website returns only 3 accredited MS programs in Civil Engineering. Nevertheless, the program does have a well-established assessment plan, has undergone regular revision, and recently added a Fast Track option to help students earn their BS and MS degrees more quickly that has already enrolled about 10 students. As another indicator of the program's quality, UAA graduate students have excelled in many areas, including continuation to PhD programs, publication in peer-reviewed journals, patents, and serving the engineering community.

Program Duplication / Distinctiveness

UAF has the only other MSCE program in the state. However, the programs do have unique distinctions. For example, UAF has capacity and expertise in environmental engineering that is currently underrepresented at UAA, while UAA has expertise in structural engineering that is underrepresented at UAF. In graduate programs in particular, the expertise of individual faculty members strongly influences the experiences and opportunities available to students. The UAA program also offers its courses via distance delivery. Both programs also collaborate to share courses and expertise which can make the strength of one campus's program available to the other.

Commendations and Recommendations

The faculty are commended for delivering a high-value program that is critical to the needs of Alaska. The program should continue to seek items for continuous improvement, collaborate with UAF to best utilize our respective expertise, and operate in a cost-effective manner. Research is highly valued. The College will be having workload discussions to determine how to continue and enhance research in our situation of fiscal pressure.

The program should also examine the MSCE curriculum to see if the actions from Program Prioritization still make sense. For example, courses in the environmental emphasis area have not been taught for several years due to the loss of faculty. One potential strategy to maintain the emphasis is to supplement instruction with delivery from UAF.

Decision: Continuation