Program/Center/Institute Title: **PhD in Mechanical Engineering**

Campus, School/Department: **MSU, Mechanical and Industrial Engineering**

Expected Submission Date: **July, 2019**

Contact Name/Info: **Daniel Miller, Department Head, danmiller@montana.edu**

Montana University System

**INTENT TO PLAN FORM**

To increase communication, collaboration, and problem-solving opportunities throughout the MUS in the program/center/institute development process, please complete this form not more than 18 months in advance of the anticipated date of submission of the proposed program/center/institute to the Board of Regents for approval. The completed form should not be more than 2-3 pages. For more information regarding the Intent to Plan process, please visit [http://mus.edu/che/arsa/academicproposals.asp](http://mus.edu/che/arsa/academicproposals.asp).

1) **Provide a description of the program/center/institute.**

MSU requests authorization to offer a separately named PhD program in Mechanical Engineering. Currently, there is a Mechanical Engineering option within the overarching PhD in Engineering. A Mechanical Engineering PhD was offered in the past but has not existed in Montana since 1996. At that time, the MSU College of Engineering consolidated its doctoral programs into a single PhD in Engineering. This proposal requests re-establishment of the standalone PhD in Mechanical Engineering. The requested change is to reflect the growth of the doctoral program in Mechanical Engineering and to assign to the program’s doctoral graduates the academic title and credential most appropriate for professional practice in this field. There would be no duplication of existing programs in the MUS. There would be no direct cost attributable to this change. There would be no changes in reporting lines, program mission, faculty assignments, or duplication of administrative activities.

2) **Describe the need for the program/center/institute. Specifically, how the program/center/institute meets current student and workforce demands. (Please cite sources).**

Considering continuing and incoming students, 24 PhD in Engineering, Mechanical Engineering Option students are expected to be enrolled in the fall 2019 semester. With steady and continued enrollment growth, the program is ready to once again be a stand-alone major with more appropriate credentialing. The PhD program offered by the faculty of the Department of Mechanical and Industrial Engineering educates graduate students to be key contributors in mechanical engineering topics through advanced research and development. Program graduates are well equipped and will typically work in either an academic or commercial/governmental setting. Individuals who earn a PhD in Mechanical Engineering are particularly suited for advanced research and development in many Montana-relevant disciplines including: aerospace including dynamics, controls and structures; materials and structures including composites, ceramics and micro-electro-mechanical systems (MEMS); energy systems including fuel cells, renewables and heating ventilation air conditioning (HVAC); biomedical and biomechanics; measurement systems including magnetic resonance and fluid systems; computational fluid dynamics; snow and ice mechanics.

3) **Describe how the program/center/institute fits with the institutional mission, strategic plan, and existing institutional program array.**

Montana State University is an R-1 doctoral granting institution and increasing the number and rate of doctoral graduates is a key focus of MSU’s new strategic plan Choosing Promise. Under **Goal 1.3 Expand high-quality**
Montana University System
INTENT TO PLAN FORM

graduate education, one of the Metrics and Actions defines the goal to increase the number of research doctoral degrees awarded annually to 90 from a current level of 66. PhD program growth has resulted, in part, from the ongoing institutional focus on growing doctoral programs that has been embraced by departmental faculty. Re-establishing the separately named PhD program in Mechanical Engineering will allow increased recruitment of prospective doctoral students who are best served by a "PhD in Mechanical Engineering," which is the academic title and credential most appropriate for professional practice in this field.

4) Describe how the program/center/institute overlaps, complements, or duplicates existing efforts in the MUS. Describe efforts that will be made to collaborate with similar programs at other institutions. If no efforts will be made, please explain why.

There are no other PhD programs in Mechanical Engineering within the Montana University System. To our knowledge, there are no other institutions within Montana equipped and prepared to offer the same or a similar degree. The current Mechanical Engineering Option within the Engineering PhD has admitted students with a wide range of backgrounds and undergraduate degrees. The openness to a wide range of undergraduate degrees will not change with the re-establishment of a PhD in Mechanical Engineering.

Signature/Date
College/School Dean: 6/20/19
Chief Academic Officer: 7/9/19
Chief Executive Officer:
Flagship Provost*: 7/9/19
Flagship President*: July 16, 2019
*Not applicable to the Community Colleges

Date of Final Review:

When submitting the proposal to the BOR, include this signed form with the Level II request.