

REQUEST TO PLAN MEMORANDUM

DATE: April 25, 2023

TO: Chief Academic Officers, Montana University System

FROM: Joe Thiel, Interim Deputy Commissioner for Academic, Research, and Student Affairs

RE: May 2023 Request to Plan Proposals

The campuses of the Montana University System have proposed new academic programs or changes under the Request to Plan process authorized by the Montana Board of Regents. The proposals are being sent to you for your review and approval. If you have concerns about a particular proposal, you should share those concerns with your colleagues at that institution and try to come to some understanding. If you cannot resolve your concerns, raise them at the Chief Academic Officer's conference call Wednesday April 26, 2023. Issues not resolved at that meeting should be submitted in writing to OCHE by noon on Friday, April 28, 2023. If no concerns are received, OCHE will assume that the proposals have your approval.

Requests to Plan

Montana State University Bozeman:

- Request to establish a Master of Engineering – Manufacturing Engineering Option
[Item #206-2002-R0523](#)
- Request to plan a Certificate of Applied Science in Public Safety Officer Basic Training
[Item #206-2003-R0523](#)

Montana State University Northern:

- Request to plan a Bachelor of Science in Automotive Service Management
[Item #206-2801-R0523](#)

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ITEM 206-2002-R0523

Meeting Date: May 2023

Item Name: Request authorization to establish a Master of Engineering – Manufacturing Engineering Option

Program/Center/Institute Title: **Department of Mechanical and Industrial Engineering**

Planned 6-digit CIP code: **14.3601**

Campus, School/Department: **Montana State University**

Expected Final Submission Date: **11/2023**

Contact Name/Info: **Dilpreet Bajwa, dilpreet.bajwa@montana.edu**

This form is meant to increase communication, collaboration, and problem-solving opportunities throughout the MUS in the program/center/institute development process. The completed form should not be more than 2-3 pages. For more information regarding the program/center/institute approval process, please visit <http://mus.edu/che/arsa/academicproposals.asp>.

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

A Master of Engineering option in Manufacturing Engineering is under consideration to prepare students from multiple disciplines to enter the workforce in an advanced manufacturing position. Additionally, it can provide training to professionals with a desire to build their skills in advanced manufacturing to advance in their professional careers. The program will focus on building advanced skills in the science of manufacturing processes across a wide spectrum of topics. Most notably, topics include automation, quality, efficiency, and management systems, thus enabling integration of complicated manufacturing systems. The recommendation is that the MUS pursue the addition of the Masters of Engineering in Manufacturing Engineering option into the M&IE Department at MSU.

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

Companies from across Montana, and the surrounding region, who recruit from MSU have been informally queried as to the need and potential impact of such a program. While certainly not exhaustive, the resulting answers indicate that MSU graduates with additional knowledge in manufacturing specific technologies would be strong candidates as for future employment. It was recognized by those employers with heavy manufacturing volume that MSU graduates are deficient in direct experience and knowledge related to the manufacturing environment. However, employers have still found those students to be successful and trainable for their needs. Employers recognize that additional training prior to employment, such as that in a Masters of Engineering in Manufacturing Engineering, would produce a more productive employee at the time of hire. More importantly, they would be willing to offer a higher starting salary to those students entering employment with the additional degree and training. Companies also recognize the potential in supporting current employees to return to MSU for additional education in the form of a Masters of Engineering.

The Montana Manufacturing Extension Center (MMEC) is an MSU organization within the Norm Asbjornson College of Engineering whose mission is to grow Montana's economy by helping manufacturers succeed. The MMEC is a statewide manufacturing outreach and assistance center staffed by full-time professionals with extensive experience in manufacturing and business in a variety of industries. A strong relationship between

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the Manufacturing Masters and MMEC can ensure the program meets state workforce demands in the manufacturing sector.

A specific example of potential employees is Los Alamos National Laboratory (LANL). LANL has targeted MSU for recruitment and has hired 53 MT graduates in the past 6 years (2016-2022). Additionally, LANL and MSU have begun formal conversations to solidify a long-term research collaboration and partnership, enabled by a significant support from Montana's congressional delegation. It is envisioned that the relationship will be tied to both LANL milestones and deliverables for national science and technology programs, and pipeline development for future workforce needs. LANL anticipates the need for manufacturing engineers to be in the hundreds over the next ten years.

3) Describe any significant new resources (financial, staff, facility, new curricula) needed to launch and sustain the program/center/institute.

The new resource for this curricular option is the development of additional courses and assignment of faculty to teach said courses. The program is heavily leveraged by existing courses within ME, MET, and IMSE; therefore, those courses are already supported by the institution. Additional or revision of existing facilities would be required to house manufacturing hardware and systems that would add to and complement the current undergraduate laboratories. The LANL partnership has identified multiple manufacturing systems to be implemented at MSU and the department will work with LANL and NACOE to identify appropriate location for new equipment. Additional courses could be taught by adjunct appointments from LANL staff, and staff members of the Montana Manufacturing Extension Center (MMEC). MMEC has shown support for this program and can be formally provided later. The Mechanical Engineering program and the Mechanical Engineering Technology program have both recently hired new faculty members which provide an opportunity to develop new courses to support and grow this program.

This program will not require an initial investment. EFAC and CFAC funds will be requested to acquire important equipment, computer and software required to teach the new courses. As the program and student numbers grow, M&IE department will request additional faculty support from the provost's office. First request for faculty support will be initiated when the graduate student number reaches 12 and additional request for faculty and equipment support will be submitted when the total student number reaches 24.

4) Describe any efforts or opportunities you have identified for collaboration either within the institution or between MUS institutions (i.e. articulation, course-sharing, research collaboration).

M&IE will be collaborating with other engineering departments within NACOE to share courses.

Opportunities exist for collaborations with Montana Tech - Mechanical Engineering for course-sharing and research collaboration, and MSU-Northern precision agriculture.

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5) Describe how the program/center/institute fits with the institutional mission, strategic plan, existing institutional program array, and academic priorities as described in the most recent Academic Priorities and Planning Statement.

The Manufacturing Engineering option strongly aligns with the University priorities identified in the Choosing Promise Strategic Plan. These priorities include Goal 1.2: Expand high-quality graduate education, Goal 2.1: Enhance the significance and impact of scholarship, and Goal 3.2: Grow mutually beneficial partnerships across Montana. Implementation of this program has the ability to improve local, state, and national prominence for both scholarship and educational outcomes.

Manufacturing engineering is a multidisciplinary program that is proposed to confer the degree of Master of Engineering and is designed to produce graduates capable of responding to the needs of both small and large manufacturing operations. These graduates should be able to design and operate manufacturing systems made up of people, materials, machinery and information systems.

Course work in the program will train students in traditional manufacturing engineering topics, such as materials and manufacturing processes, product and assembly engineering, manufacturing systems and operations, and manufacturing competitiveness. Additional courses will include modern technologies such as 3D printing and system-level concepts of integrated product and process design, applications of modern information technology to design and manufacturing, hands-on laboratories using advanced manufacturing equipment and commercial software, and innovation and entrepreneurship

Signature/Date

Chief Academic Officer:

Chief Research Officer*:

Chief Executive Officer:

Flagship Provost:**

Flagship President:**

*Center/Institute Proposal only

**Not applicable to the Community Colleges.

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ITEM 206-2003-R0523

Meeting May 2023

Item Name: Request authorization to establish a Certificate of Applied Science in Public Safety Officer Basic Training

Program/Center/Institute Title: **Gallatin College**

Planned 6-digit CIP code: **43.0107**

Campus, School/Department: **Montana State University**

Expected Final Submission Date: **11/2023**

Contact Name/Info: **Stephanie Gray, stephanie.gray2@montana.edu**

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

Gallatin College, in cooperation with the Montana Law Enforcement Academy (**MLEA**) and the Montana Public Safety Officer Standards and Training Council (**POST**) proposes the development of a Certificate of Applied Science in Public Safety Officer Basic Training. The degree would enable participants to immediately be hired by a public safety agency, enter field training officer programs, and go to work without having to attend the Montana Law Enforcement Academy's Law Enforcement Officer Basic Course in Helena, Montana. The program is designed to be completed in one semester, allowing graduates to enter employment while continuing their post-secondary education. The program would also decrease wait times to enter one of the MLEA's Law Enforcement Officer Basic program.

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

Currently, the sole mechanism in Montana for public safety officer certification is through attending the Montana Law Enforcement Academy (MLEA). Demand for student space at the MLEA currently outpaces capacity. The proposed CAS degree would help address the need for trained officers in Montana communities. The credits earned as part of the CAS apply to additional two and four-year degrees at higher education institutions in Montana. Legal authority has been reviewed and it has been determined as written in a memo from J. Stuart Segrest to Timothy Allred that "The graduate of a college course approved by MLEA and the Council would qualify for the exception under MCA § 7-32-303(8)(a) and thus only have to take the basic equivalency course after appointment. (from memo dated 10/14/2022). Montana POST reports that there is a 12% turnover in Montana law enforcement agencies which creates 305 openings per year across the state. There are 175 agencies across the state, with 2,546 active law enforcement officers in Montana. that hire for this occupation. The average pay range for this occupation is \$20.00- \$29.50 per hour, depending on location. The MLEA reports that they run 3 courses a year each with 60 students and they "always have wait lists, some as high as 50-60".

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3) Describe any significant new resources (financial, staff, facility, new curricula) needed to launch and sustain the program/center/institute.

Instructional faculty and administrative support for the proposed program would equal 1.8 FTE. Which is estimated to be \$110,000 annually. No additional classroom space would be required as existing space on the MSU campus would be utilized. Equipment for this program will need to be purchased and maintained. This proposal is budgeting \$10,000 for start up equipment expenses and \$5,000 annually for maintenance and replacement.

4) Describe any efforts or opportunities you have identified for collaboration either within the institution or between MUS institutions (i.e. articulation, course-sharing, research collaboration).

Collaboration between Gallatin College, the MT Public Safety Officer and Standards and Training Council, Montana Law Enforcement Academy, MSU Police Department, Bozeman Police and the Gallatin County Sheriff's Office led to the development of the proposal. If approved for development, collaborations with MSU will be explored to identify current undergraduate programs where students might benefit from adding the CAS to their undergraduate program of study.

5) Describe how the program/center/institute fits with the institutional mission, strategic plan, existing institutional program array, and academic priorities as described in the most recent Academic Priorities and Planning Statement.

As a land-grant institution, MSU develops and provides educational opportunities with the goal of improving the lives of individuals, families and communities in Montana. The proposed CAS degree would enhance training opportunities for Montana's law enforcement officers. Choosing Promise, Montana State's Strategic Plan, calls for increasing the number of 1- and 2-year degrees and certificates awarded (Goal 1.1.3). Goal 3.2.1 calls for MSU to build and maintain partnerships with state and local government, education and industry organizations and their mutually-intended outcomes. Goal 3.2.2 states MSU will plan and increase responsive partnerships with mutually-defined outcomes. Goal 3.2.4 calls on MSU to develop new workforce and academic degree programs tailored to meet demonstrated needs in the state and region.

Signature/Date

Chief Academic Officer:

Chief Research Officer*:

Chief Executive Officer:

Flagship Provost:**

Flagship President:**

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*Center/Institute Proposal only
**Not applicable to the Community Colleges.

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ITEM 206-2801-R0523

Meeting Date

Item Name

Program/Center/Institute Title: **B.S. Automotive Service Management**

Planned 6-digit CIP code: **47.06**

Campus, School/Department: **MSUN, COTS**

Expected Final Submission Date: **March 2023**

Contact Name/Info: **Dave Krueger** david.krueger@msun.edu

This form is meant to increase communication, collaboration, and problem-solving opportunities throughout the MUS in the program/center/institute development process. The completed form should not be more than 2-3 pages. For more information regarding the program/center/institute approval process, please visit <http://mus.edu/che/arsa/academicproposals.asp>.

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

The Automotive Technology program at Montana State University-Northern is a comprehensive 4-year Bachelor of Science program that is nationally accredited by the ASE Education Foundation and has strong partnerships with corporate Ford Motor Company and Subaru of America. The current degree program prepares students for entry level technician positions within the automotive industry. The industry partners on our Automotive Advisory Board note that with the vast changes occurring within the automotive field there is now demand for automotive technicians with broader skills including business, communication, and management.

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

With the vast changes happening within the automotive industry, there is now an academic responsibility to introduce a new bachelor's option – the Bachelor of Science in Automotive Service Management. This option has been discussed in the past with the Automotive Advisory Board, but due to structural changes within the industry, there is now a greater need for a skilled workforce with more preparation to fill higher-level roles in the automotive industry. At our last semi-annual Automotive Advisory Board meeting (spring 2022), we discussed this degree in detail, including course exchanges between our existing Business program as well as providing course descriptions for the classes we wish to include. The Automotive Advisory Board unanimously agreed that we need to move forward with addressing this emerging workforce need and develop this degree program.

3) Describe any significant new resources (financial, staff, facility, new curricula) needed to launch and sustain the program/center/institute.

A benefit to launching this new degree is that it does not require any additional faculty, staff, facilities, or curricula. What we are proposing is to combine already delivered coursework in automotive courses with business-focused courses within the B.S. Business Program. We have identified the courses necessary in the automotive, business, and

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general education areas that will further align our goal of providing our graduates with a better education that will sustain multiple programs and serve our industry partners.

4) Describe any efforts or opportunities you have identified for collaboration either within the institution or between MUS institutions (i.e. articulation, course-sharing, research collaboration).

This new degree option gives us an opportunity to collaborate with the Business Program within the College of Technical Sciences at MSU-Northern. Other than MSUN, City College, Helena College, Highlands College and Miles Community College have certificates and/or Associates in Automotive Technology programs. Students in these programs can currently transfer into the existing MSUN Automotive Technology Bachelors degree and could transfer into this proposed Bachelors degree.

5) Describe how the program/center/institute fits with the institutional mission, strategic plan, existing institutional program array, and academic priorities as described in the most recent Academic Priorities and Planning Statement.

This bachelor's option accurately follows MSUN's mission statement; "provide higher education to students for professional and technical careers through an institution dedicated to teaching and the pursuit of knowledge." As such, our strategic plan is to build upon our existing programs to better serve our industry and students alike. To sustain enrollment in this program, it is our academic priority and long-term plan to further retain and attract new students or transfer students from other 2-year universities.

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Signature/Date

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