ACADEMIC ITEM APPROVAL MEMORANDUM

Compiled here are academic items approved since the September 2023 Board of Regents Meeting. This memorandum from September and October 2023 contains items for which approval authority has been designated by the Board of Regents to the individual institutions or the Commissioner of Higher Education. The items before you have been approved and are now being shared with you for your notification.

- October 2023 Academic Item Memorandum

LEVEL I MEMORANDUM

DATE: October 23, 2023

TO: Chief Academic Officers, Montana University System

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

RE: September, October 2023 Level I and II Academic Items

Contained within this memorandum are Level I and Level II proposals submitted by the institutions of the Montana University System in September and October 2023. These proposals include items for which approval authority has been designated by the Board of Regents to the individual institutions or the Commissioner of Higher Education. These Level I items are being sent to you for your review. 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 Level I Chief Academic Officer's conference call on Wednesday, October 25th. Issues not resolved at that meeting should be submitted in writing to OCHE by noon on Friday, October 27th. You will be notified of approved proposals by Monday, October 31st. The Board of Regents will be notified of the approved proposals at the November 2023 meeting of the Board.

Level I:

Montana State University Bozeman:

- Request for authorization to establish a Certificate of Technical Studies in CNC Robotic Tending and Integration
  Item #2004-LI0923

Great Falls College Montana State University:

- Request for authorization to Terminate the Industrial Technician CAS
  Item #2901-LI0923
- Request for authorization to Termine the Industrial Technician AAS
  Item #2902-LI0923
- Request for authorization to Terminate the Renewable Energy Technician AAS
  Item #2903-LI0923

Level II:

Montana State University Bozeman:

- Request for permanent authorization of a Certificate of Applied Science in Carpentry
  Item #2005-LII0923
- Request for permanent authorization of an AAS degree in Aviation Electronics Technology
  Item #2006-LII0923
- Request for permanent authorization of an AAS degree in IT Network Technology
  Item #2007-LII0923

University of Montana Missoula:

- Request for authorization to establish a Center for Cybersecurity Workforce & Rural Policy
  Item #1001-LII1023

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

September 2023

ITEM 2004-LI0923

ITEM TITLE Request for Authorization to Establish a Certificate of Technical Studies in CNC Robotic Tending and Integration

Institution: **Gallatin College Montana State University** CIP Code: **15.0405**

Program/Center/Institute Title: **Gallatin College MSU Workforce Programs**

Includes (please specify below): Face-to-face Offering: X Online Offering: _____ Blended Offering: _____

Options: _____

Proposal Summary [360 words maximum]

What: Request to establish a Certificate of Technical Studies in Computer Numerically Controlled (CNC) Robotic Tending and Integration. This 12-credit program consists of four courses and is intended for students completing the CNC Machining CTS program as well as students who have no CNC Machining experience but desire to gain relevant industry knowledge in robotics tending. The credential could also be attractive to students from MSU's Agriculture Technology Education or Mechanical and Industrial Engineering programs, as well as manufacturing industry professionals.

Why: This certificate is in direct response to a significant increase in the application of machine-tending robots in manufacturing. For over a decade, the manufacturing workforce has not maintained pace with growing manufacturing demands in southwest Montana. In response, industry has increased the use of robotic machine tending and automation to increase capacity and concentrate employees on higher value tasks. The Gallatin valley currently has the highest quantity of Universal Robotics Collaborative Robots per capita in the U.S. It also has a high volume of other traditional and collaborative industrial robots. While robotics has alleviated worker shortages, the manufacturing sector now has an increasing need for robotic integration skills and robotics tending. Several graduates of the existing CNC Machining certificate program have requested instruction in robotic integration as some of their employer's robots sit idle due to a lack of in-house integration skills. The scale and complexity of providing the necessary industry support are beyond the scope of a single class and the existing CNC Machining CAS program.

We anticipate enrollment of 8-15 students in the first three years, potentially expanding to 20 thereafter. The initial forecast is based on interviews with existing CNC Machining students and alumni and industry leaders who have requested continuing education in robotic machine tending and automation. The expected expansion is based on the projected growth in the CNC machining program with 50% of CNC Machining students continuing into the Robotic Tending and Integration Certificate program.

Resources: This program will require the hiring of an additional .3 FTE NTT faculty and the purchase of a collaborative robot with supporting hardware. Both will be funded by a Gallatin County ARPA Grant.

ATTACHMENTS

Attachments- none

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

Please mark the appropriate type of request and submit with any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit http://mus.edu/che/arsa/academicproposals.asp.

X A. Level I:

Campus Approvals

_____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

_____ **1b. Withdrawing a postsecondary educational program from moratorium**

X **2. Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

_____ **3. Establishing a B.A.S./A.A./A.S. area of study**

_____ **4. Offering an existing postsecondary educational program via distance or online delivery**

OCHE Approvals

_____ **5. Re-titling an existing postsecondary educational program**

_____ **6. Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

_____ **7. Consolidating existing postsecondary educational programs** (Curriculum Proposal Form)

_____ **8. Establishing a new minor where there is a major or an option in a major** (Curriculum Proposal Form)

_____ **9. Revising a postsecondary educational program** (Curriculum Proposal Form)

_____ **10. Establishing a temporary C.A.S. or A.A.S. degree program** *Approval limited to 2 years*

_____ B. Level II:

_____ **1. Establishing a new postsecondary educational program** (Curriculum Proposal and Completed Request to Plan Form)

_____ **2. Permanent authorization for a temporary C.A.S. or A.A.S degree program** (Curriculum Proposal and Completed Request to Plan Form)

_____ **3. Exceeding the 120-credit maximum for baccalaureate degrees** *Exception to policy 301.11*

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

4. **Forming, eliminating or consolidating an academic, administrative, or research unit** (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

5. **Re-titling an academic, administrative, or research unit**

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

SEPT/2023

ITEM L12901-0923

Request authorization to terminate Industrial Technician Certificate of Applied Science

Institution: **Great Falls College Montana State University** CIP Code: **15.0612**

Program/Center/Institute Title: **Industrial Technician CAS**

Includes (please specify below): Face-to-face Offering: X Online Offering: _____ Blended Offering: _____

Options: _____

Proposal Summary [360 words maximum]

What: Terminate the Industrial Technician CAS program

Why: This decision was based on continued low enrollments and meeting the goals of the strategic plan. In Fall 2019, the Internal Academic Program Review Committee recommended discontinuing the AAS in Industrial Technician due to low enrollments. The AAS was placed into moratorium in February 2020. The CAS was not placed into moratorium at that time due to a potential pathway to the Renewable Energy Technician AAS.

Strategies to make the Industrial Technician and Renewable Energy programs more appealing and marketable such as revising the curriculum, recruiting at high schools, and implementing and incorporating advisory board recommendations did not result in increased enrollments. The Renewable Energy AAS was placed into moratorium in February 2021.

GFC requests authorization to terminate the Industrial Technician CAS program.

Resources: The contract of the Industrial Technician Program Director was not renewed.

ATTACHMENTS

Attachments

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_____ **A. Level I:**

Campus Approvals

_____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

_____ **1b. Withdrawing a postsecondary educational program from moratorium**

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

2. **Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

3. **Establishing a B.A.S./A.A./A.S. area of study**

4. **Offering an existing postsecondary educational program via distance or online delivery**

OCHE Approvals

5. **Re-titling an existing postsecondary educational program**

X 6. **Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

7. **Consolidating existing postsecondary educational programs** (Curriculum Proposal Form)

8. **Establishing a new minor where there is a major or an option in a major** (Curriculum Proposal Form)

9. **Revising a postsecondary educational program** (Curriculum Proposal Form)

10. **Establishing a temporary C.A.S. or A.A.S. degree program** *Approval limited to 2 years*

B. Level II:

1. **Establishing a new postsecondary educational program** (Curriculum Proposal and Completed Request to Plan Form)

2. **Permanent authorization for a temporary C.A.S. or A.A.S degree program** (Curriculum Proposal and Completed Request to Plan Form)

3. **Exceeding the 120-credit maximum for baccalaureate degrees** *Exception to policy 301.11*

4. **Forming, eliminating or consolidating an academic, administrative, or research unit** (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

5. **Re-titling an academic, administrative, or research unit**

Montana University System

PROGRAM TERMINATION/MORATORIUM FORM

Please complete the following questionnaire prior to submission of a program for termination or placement into moratorium. Please add additional comments beneath each question where applicable.

Program Title: **Industrial Technician Certificate of Applied Science**

Program is being ____ **Placed into moratorium** **x** **Terminated**

1. **Are there currently students enrolled in the program? (If yes, please answer questions a - c below.)** **Y:** ____ **N:** **x**

   a.) **Have all students currently enrolled in the program been met with and informed of the impending termination/moratorium?** **Y:** ____ **N:** ____

   b.) **What is the expected graduation date of all students from the program?**

   c.) **Have course offerings been planned to allow for students in the program to complete the degree in a reasonable fashion?** **Y:** ____ **N:** ____

2. **Will any faculty layoffs or changes in working conditions occur because of the termination/moratorium? (If yes, please answer questions a - b below.)** **Y:** **X** **N:** ____

   a.) **Have the faculty affected by the program termination/moratorium been notified?** **Y:** **X** **N:** ____

Montana University System
PROGRAM TERMINATION/MORATORIUM FORM

b.) Please describe any layoffs that will occur including the date expected?

The contract for the Program Director was not renewed.

3. The following parties, where applicable, have been notified of the impending program termination/moratorium.

a.) Internal Curriculum Committees **X**

b.) Faculty Senate **X**

c.) Program Public Advisory Committee **N/A**

d.) Articulation Partners **N/A**

4. Has there been any negative feedback received from students, faculty, or other constituents regarding the impending termination/moratorium? (If yes, please explain below.) **Y:** ____ **N:** **X**

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

SEPT/2023

ITEM 2902-L10923

Request authorization to terminate Industrial Technician Associate of Applied Science

Institution: **Great Falls College Montana State University** CIP Code: **15.0612**

Program/Center/Institute Title: **Industrial Technician AAS**

Includes (please specify below): Face-to-face Offering: X Online Offering: _____ Blended Offering: _____

Options: _____

Proposal Summary [360 words maximum]

What: Terminate the Industrial Technician AAS program

Why: This decision was based on continued low enrollments and meeting the goals of the strategic plan. In Fall 2019, the Internal Academic Program Review Committee recommended discontinuing the Industrial Technician AAS due to low enrollments. The AAS was placed into moratorium in February 2020. The CAS was not placed into moratorium at that time due to a potential pathway to the Renewable Energy AAS.

Strategies to make the Industrial Technician AAS more appealing and marketable such as revising the curriculum, recruiting at high schools, and implementing and incorporating advisory board recommendations did not result in increased enrollments.

With no increased enrollments, GFC requests authorization to terminate the Industrial Technician AAS program.

Resources: The contract of the Industrial Technician Program Director was not renewed.

ATTACHMENTS

Attachments

Please mark the appropriate type of request and submit with any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit http://mus.edu/che/arsa/academicproposals.asp.

_____ **A. Level I:**

Campus Approvals

_____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

_____ **1b. Withdrawing a postsecondary educational program from moratorium**

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

2. **Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

3. **Establishing a B.A.S./A.A./A.S. area of study**

4. **Offering an existing postsecondary educational program via distance or online delivery**

OCHE Approvals

5. **Re-titling an existing postsecondary educational program**

X 6. **Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

7. **Consolidating existing postsecondary educational programs** (Curriculum Proposal Form)

8. **Establishing a new minor where there is a major or an option in a major** (Curriculum Proposal Form)

9. **Revising a postsecondary educational program** (Curriculum Proposal Form)

10. **Establishing a temporary C.A.S. or A.A.S. degree program** *Approval limited to 2 years*

B. Level II:

1. **Establishing a new postsecondary educational program** (Curriculum Proposal and Completed Request to Plan Form)

2. **Permanent authorization for a temporary C.A.S. or A.A.S degree program** (Curriculum Proposal and Completed Request to Plan Form)

3. **Exceeding the 120-credit maximum for baccalaureate degrees** *Exception to policy 301.11*

4. **Forming, eliminating or consolidating an academic, administrative, or research unit** (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

5. **Re-titling an academic, administrative, or research unit**

Montana University System

PROGRAM TERMINATION/MORATORIUM FORM

Please complete the following questionnaire prior to submission of a program for termination or placement into moratorium. Please add additional comments beneath each question where applicable.

Program Title: **Industrial Technician AAS**

Program is being ____ **Placed into moratorium** **x** **Terminated**

1. **Are there currently students enrolled in the program? (If yes, please answer questions a - c below.)** **Y:** ____ **N:** **x**

   a.) **Have all students currently enrolled in the program been met with and informed of the impending termination/moratorium?** **Y:** ____ **N:** ____

   b.) **What is the expected graduation date of all students from the program?**

   c.) **Have course offerings been planned to allow for students in the program to complete the degree in a reasonable fashion?** **Y:** ____ **N:** ____

2. **Will any faculty layoffs or changes in working conditions occur because of the termination/moratorium? (If yes, please answer questions a - b below.)** **Y:** **X** **N:** ____

   a.) **Have the faculty affected by the program termination/moratorium been notified?** **Y:** **X** **N:** ____

Montana University System
PROGRAM TERMINATION/MORATORIUM FORM

b.) Please describe any layoffs that will occur including the date expected?

The contract for the Program Director was not renewed.

3. The following parties, where applicable, have been notified of the impending program termination/moratorium. (Please mark X for completed, NA for not applicable):

a.) Internal Curriculum Committees **X**

b.) Faculty Senate **X**

c.) Program Public Advisory Committee **N/A**

d.) Articulation Partners **N/A**

4. Has there been any negative feedback received from students, faculty, or other constituents regarding the impending termination/moratorium? (If yes, please explain below.) **Y:** ____ **N:** **X**

Montana Board of Regents
ACADEMIC PROPOSAL REQUEST FORM

SEPT/2023

ITEM L12903-L10923

Request authorization to terminate Renewable Energy Technician Associate of Applied Science

Institution: **Great Falls College Montana State University** CIP Code: **15.1701**

Program/Center/Institute Title: **Renewable Energy Technician AAS**

Includes (please specify below): Face-to-face Offering: X Online Offering: _____ Blended Offering: _____

Options: _____

Proposal Summary [360 words maximum]

What: Terminate the Renewable Energy Technician AAS

Why: This decision was based on continued low enrollments and meeting the goals of the strategic plan. Due to low enrollments, the Renewable Energy Technician program was placed into moratorium in February 2021. Strategies to make the program more appealing and marketable did not result in increased enrollments.

Great Falls College requests authorization to terminate the Renewable Energy Technician AAS program.

Resources: The contract of the Program Director was not renewed.

ATTACHMENTS

Attachments

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_____ **A. Level I:**

Campus Approvals

_____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

_____ **1b. Withdrawing a postsecondary educational program from moratorium**

_____ **2. Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

_____ **3. Establishing a B.A.S./A.A./A.S. area of study**

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

4. Offering an existing postsecondary educational program via distance or online delivery

OCHE Approvals

5. Re-titling an existing postsecondary educational program

X **6. Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

7. Consolidating existing postsecondary educational programs (Curriculum Proposal Form)

8. Establishing a new minor where there is a major or an option in a major (Curriculum Proposal Form)

9. Revising a postsecondary educational program (Curriculum Proposal Form)

10. Establishing a temporary C.A.S. or A.A.S. degree program *Approval limited to 2 years*

B. Level II:

1. Establishing a new postsecondary educational program (Curriculum Proposal and Completed Request to Plan Form)

2. Permanent authorization for a temporary C.A.S. or A.A.S degree program (Curriculum Proposal and Completed Request to Plan Form)

3. Exceeding the 120-credit maximum for baccalaureate degrees *Exception to policy 301.11*

4. Forming, eliminating or consolidating an academic, administrative, or research unit (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

5. Re-titling an academic, administrative, or research unit

Montana University System

PROGRAM TERMINATION/MORATORIUM FORM

Please complete the following questionnaire prior to submission of a program for termination or placement into moratorium. Please add additional comments beneath each question where applicable.

Program Title: **Renewable Energy Technician AAS**

Program is being ____ **Placed into moratorium** **x** **Terminated**

1. **Are there currently students enrolled in the program? (If yes, please answer questions a - c below.)** **Y:** ____ **N:** **x**

   a.) **Have all students currently enrolled in the program been met with and informed of the impending termination/moratorium?** **Y:** ____ **N:** ____

   b.) **What is the expected graduation date of all students from the program?**

   c.) **Have course offerings been planned to allow for students in the program to complete the degree in a reasonable fashion?** **Y:** ____ **N:** ____

2. **Will any faculty layoffs or changes in working conditions occur because of the termination/moratorium? (If yes, please answer questions a - b below.)** **Y:** **X** **N:** ____

   a.) **Have the faculty affected by the program termination/moratorium been notified?** **Y:** **X** **N:** ____

Montana University System
PROGRAM TERMINATION/MORATORIUM FORM

b.) Please describe any layoffs that will occur including the date expected?

The contract for the Program Director was not renewed.

3. The following parties, where applicable, have been notified of the impending program termination/moratorium.

a.) Internal Curriculum Committees **X**

b.) Faculty Senate **X**

c.) Program Public Advisory Committee **N/A**

d.) Articulation Partners **N/A**

4. Has there been any negative feedback received from students, faculty, or other constituents regarding the impending termination/moratorium? (If yes, please explain below.) **Y:** ____ **N:** **X**

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

September 2023

ITEM 2005-R1123

ITEM TITLE: Request for permanent authorization of a Certificate of Applied Science in Carpentry

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Institution: **Gallatin College Montana State University** CIP Code: **46.0201**

Program/Center/Institute Title: **Certificate of Applied Science in Carpentry Gallatin College**

Includes (please specify below): Face-to-face Offering: X Online Offering: _____ Blended Offering: _____

Options: Temporary authorization granted in November 2021

Proposal Summary [360 words maximum]

What: Request to establish a Certificate of Applied Science in Carpentry. This one-year 35-credit program teaches students the theoretical and technical applications of carpentry within the construction trades industry. Through a combination of classroom instruction and hands-on training, students learn fundamental and advanced skills in carpentry, including job safety, rough framing, blueprint reading, and finishing. This program began as a temporary offering in Fall 2022 to respond to industry demand for program graduates. It filled in its first semester and continues to be widely supported by our community and industry partners.

Why: Bozeman, Montana has been rated as one of fastest growing micropolitan areas in the state. The COVID-19 pandemic and an influx of new residents further accelerated recent population growth, making housing and infrastructure development even more critical. With this increased demand for building development comes a significant demand for skilled carpenters.

Local building industry professionals as well as state-wide data affirm this demand. The Montana Department of Labor and Industry projected 342 annual carpenter job openings as well as 107 annual cabinetmaker/bench carpenter job openings just in Southwest Montana through 2031. Carpentry is listed as the construction trades occupation with the highest annual openings, and 10th out of all occupations with the highest job openings in Southwest Montana. ("Montana Job Projections." MT Department of Labor and Industry, https://erd.dli.mt.gov/labor-standards/state-prevailing-wage-rates/data-dashboards/mt-job-projections.)

Providing this program not only supports the regional and state-wide demand for a steady supply of skilled carpenters, but it also provides local students with strong wage opportunities and the ability to continue living and working in our area. Building the carpentry trades workforce positively impacts our students, local housing availability and affordability, and the economy of southwest Montana.

Resources: In 2021, Gallatin College received American Rescue Plan Act grant funding from Gallatin County to strengthen the economy and workforce. $200,000 of this funding was dedicated to the development of the Carpentry program and will continue to cover the cost of curriculum development, faculty wages, staff support, equipment, and leased classroom/lab space needs through 2024.

ATTACHMENTS

Attachments

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

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____ A. Level I:

Campus Approvals

____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

____ **1b. Withdrawing a postsecondary educational program from moratorium**

____ **2. Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

____ **3. Establishing a B.A.S./A.A./A.S. area of study**

____ **4. Offering an existing postsecondary educational program via distance or online delivery**

OCHE Approvals

____ **5. Re-titling an existing postsecondary educational program**

____ **6. Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

____ **7. Consolidating existing postsecondary educational programs** (Curriculum Proposal Form)

____ **8. Establishing a new minor where there is a major or an option in a major** (Curriculum Proposal Form)

____ **9. Revising a postsecondary educational program** (Curriculum Proposal Form)

____ **10. Establishing a temporary C.A.S. or A.A.S. degree program** *Approval limited to 2 years*

X B. Level II:

____ **1. Establishing a new postsecondary educational program** (Curriculum Proposal and Completed Request to Plan Form)

X **2. Permanent authorization for a temporary C.A.S. or A.A.S degree program** (Curriculum Proposal and Completed Request to Plan Form)

____ **3. Exceeding the 120-credit maximum for baccalaureate degrees** *Exception to policy 301.11*

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

4. **Forming, eliminating or consolidating an academic, administrative, or research unit** (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

5. **Re-titling an academic, administrative, or research unit**

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

1. **Overview of the request and resulting changes.** Provide a one-paragraph description of the program. Is this program related or tied to other programs on campus? *[100 words]*

   Gallatin College would like to permanently establish a certificate of applied science in carpentry. This one-year program instructs students in the theoretical and technical applications of carpentry within the construction trades industry. Through a combination of classroom instruction and hands-on training, students will learn fundamentals and advanced skills in carpentry, including job safety, rough framing, blueprint reading, and finishing. This program filled in its first year of being offered in AY23 and is supported by our community and industry partners. At writing there is a full cohort waiting to be enrolled into the carpentry program and Gallatin College may also have a waitlist for this program in its second year. This program compliments and utilizes some course content from Gallatin College's HVAC-R and Drafting/CAD Technology programs.

2. **Relation to institutional strategic goals.** Describe the nature and purpose of the program in the context of the institution's mission and core themes. *[200 words]*

   Gallatin College's mission is to "provide a comprehensive, accessible, responsive, student-centered learning environment that supports the achievement of individuals' professional and personal goals and enhances Montana's communities and economy." The one-year Carpentry program is offered at an affordable $ 1,826 per semester or $3,652 for the total program for in-state students. Upon starting their career, skilled program graduates from diverse socioeconomic backgrounds will be able to earn the strong wages necessary to remain in our area. With afternoon and evening classes, this program is also accessible to adult learners who may be working but desire to increase their skill set and earning potential in a highly relevant Montana industry.

   Through coursework, hands-on learning, and regional construction industry partnerships, this degree reflects MSU's mission of "integrat[ing] education, creation of knowledge…and service to communities". Gallatin College students typically come from the surrounding area and stay in the region to support the local community and economy. As students complete their certificate, direct interaction with industry leaders occurs through on-site classroom and lab instruction. This mutually beneficial partnership provides students with immediate job opportunities while giving Montana companies the recruitment advantage and ability to better serve our state's expanding building and carpentry needs.

3. **Process leading to submission.** Briefly detail the planning, development, approval, and early implementation process of the program at the institution. *[200 words]*

   Gallatin College was approached by numerous building trades industry members to develop this program. Economic research further clarified the statewide and regional need for this program. Upon receiving program development funding intended to mitigate effects of local population growth due to COVID program development began. Development included a comparison of carpentry/construction program curricula across the state and contributions from top industry members and potential employers in the Southwest Montana region. After receiving temporary program approval, the program was implemented in Fall 2022 with a starting cohort of 12 students.

4. **Program description.** Please include a complete listing of the program's curriculum in Appendix A of this document.

   See Appendix A

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

a. List the program requirements using the following table.

	Credits
Credits in required courses offered by the department offering the program	25
Credits in required courses offered by other departments	4
Credits in institutional general education curriculum	6
Credits of free electives	0
Total credits required to complete the program	35

b. List the learning outcomes for the program. Use learner-centered statements that indicate what students will know, be able to do, and/or value or appreciate as a result of completing the program.

1) Explain the relevance of carpentry within the construction trades. Summarize the technical and non-technical skills necessary for working in the industry.

2) Summarize safety rules and regulations in accordance with construction industry standards; demonstrate knowledge in hands-on environments.

3) Perform basic math as required for carpentry.

4) Translate construction technology theory as it applies to site preparation, foundations and rough framing.

5) Interpret and explain blueprint plans, including symbols, abbreviations and legends found within construction documents. Utilize documents to estimate construction costs.

6) Identify and paraphrase the applications of common building materials, fasteners and adhesives.

7) Recognize terminology, definitions and vocabulary regularly used in Construction Trades.

8) Describe and demonstrate proper use of hand and power tools.

9) Describe and construct a wooden floor assembly, interior and exterior wall assembly and basic roof system.

10) Explain and analyze techniques used for proper placement and curing of concrete.

5. **Need for the program.** To what specific student, regional, and statewide needs is the institution responding with the program? How does the program meet those needs? Has demand for the program met the institution's expectations? Consider workforce, student, economic, societal, and transfer needs in your response as appropriate. *[250 words]*

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Bozeman is one of fastest growing micropolitan areas in the state. 2020 census data confirmed a 33% increase in population in Gallatin County over the past decade, making it the second largest county in Montana. An influx of new residents since the COVID-19 pandemic further accelerated population growth, creating a critical demand for housing/infrastructure development and thus skilled carpenters.

Local building industry professionals and state-wide data affirms this demand. The Montana Department of Labor and Industry (MTDOLI) projected 911 annual carpenter/cabinetmaker/bench carpenter job openings statewide through 2031. 449 of these carpenter/cabinetmaker/bench carpenter openings are located just within southwest Montana.

This one-year program at Gallatin College supports the regional and state-wide demand for a steady supply of skilled carpenters while also providing local students with strong wage opportunities and the ability to continue living and working in our area. MTDOLI projects an average wage of $48,940 for southwest Montana carpenters. An aggregate of ten local carpenter wages found on Indeed.com and Glassdoor.com indicates graduates from the program can expect to earn entry-level salaries around $52,000, and $70,720 after three to five years of experience.

Carpentry students enrolled at Gallatin College can increase their confidence through developing essential skills and connecting directly with reputable businesses seeking future employees. Building the carpentry trades workforce has a positive impact on our students, housing availability and affordability, and the economy of southwest Montana. Gallatin College enrolled a full cohort of 12 students in the program's first. Given current Fall 2023 applications, we expect to continually reach capacity.

6. **Similar programs.** Use the table below to identify and describe the relationship between any similar programs within the Montana University System.

Institution Name	Degree	Program Title
City College	CAS	Construction Technology, Carpentry
City College	AAS	Construction Management
Highlands College	AAS	Construction Technology, Carpentry
Missoula College	CAS	Carpentry
Missoula College	CTS	Construction Helper
Missoula College	CAS	Construction Management

a. Describe any efforts that were made to collaborate with similar programs at other institutions. If no efforts were made, please explain why. *[200 words]*

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In the initial program development stages, Building Trades Division Director Frank Harriman connected with Missoula College to explore existing offerings. Simultaneously, he worked with local Southwest Montana construction trades industry leaders to determine the specific needs, best practices, and workplace expectations for our region. Using this information, the program courses and curriculum were established to best meet our local need. Given the high industry demand for Carpentry program graduates, it was determined that the program would be established as a one-year certificate.

7. **Implementation of the program.** When was the program be first offered? Describe the process of implementation *[100 words]*

The program was first offered in Fall 2022. Implementation included course planning and development utilizing industry expert knowledge and advising. It also included collaboration with our college's HVAC-R and Drafting and CAD Technology program directors. With the generosity of local industry partners, we used external lab spaces for student experiential training.

a. Complete the following table indicating the actual and projected enrollments in and graduates from the program since the program was first offered.

Fall Headcount Enrollment					Graduates				
AY 2022	AY 2023	AY 2024	AY 2025	AY 2026	AY 2022	AY 2023	AY 2024	AY 2025	AY 2026
0	12	12	12	15	0	9	11	11	13

b. Describe the methodology and sources for determining the enrollment and graduation projections above. *[200 words]*

Enrollment projections are based on a current estimation of student interest and applications, historical program enrollment numbers, and existing space restrictions the program is experiencing.

8. **Program assessment.** How is success of the program determined? What action would result if this definition of success is not met? *[150 words]*

Program success will be determined by enrollment numbers, student completion rates, graduate job placement rates, and industry response. Each of these areas will be tracked by Gallatin College staff and the Building Trades Division Director. If success is not met in any of these areas, the college will work with involved parties to determine potential barriers and possible solutions to strengthen the program and success markers.

a. Describe the assessment process used to evaluate how well students are achieving the intended learning outcomes of the program. When do assessment activities occur and at what frequency? *[150 words]*

The Gallatin College Building Trades Division Director will oversee annual student learning program outcomes assessment. Each year the faculty teaching relevant classes will provide artifacts from coursework and externship performance representing 15% of the student enrollment that will be assessed by faculty within Gallatin College. Student assessments are measured in points and then

categorized as 'Strongly Present', 'Developing', or 'Not Observed'. We expect that at least 70% of students in each category should have either Strongly Present or Developing skills in each area assessed.

b. What direct and indirect measures are used to assess student learning? *[100 words]*

Direct measures will include tests, quizzes, and lab project participation/completion. Indirect measures will include the level and quality of participation in discussions and lab assignments.

c. How are assessment findings employed to ensure the quality of the program? *[100 words]*

Successful student competition of the coursework and lab activities will be assessed at 70% or above. Negative results of the above-mentioned would indicate gaps or a need to reevaluate the course materials and/or concepts.

d. Where appropriate, describe applicable specialized accreditation and explain why you have or have not sought accreditation. *[100 words]*

Through the required OSHA 10 Safety Training for Construction Trades course, students can earn their 10-hour OSHA card to begin working on construction sites. Additional safety protocol is taught throughout all other program courses. Industry members agreed that additional certifications or specialized accreditation is not necessary now.

9. Physical resources.

a. Describe the existing facilities, equipment, space, laboratory instruments, computer(s), or other physical equipment that support the program. What has been the impact on existing programs of increased use of existing physical resources by the program? How has the increased use been accommodated? *[200 words]*

Due to ARPA Grant funding, lab equipment and leased space costs have not impacted other programs. Essential tools and equipment have been purchased for the program given current lab space. Additional resources will be purchased as a larger lab space becomes available.

Carpentry students take one course each alongside Drafting and CAD Technology students and HVAC students. Both are lecture courses which do not require a significant increase in resources.

b. What new facilities, equipment, space, laboratory instruments, etc., have been obtained or will be obtained to support the proposed program. (Enter the costs of those physical resources into the budget sheet.) How has or will the need for these additional resources be met? *[150 words]*

If additional classroom/lab space becomes available to Gallatin College in the future, the Carpentry program will expand and serve more students. At that time, funding from the Gallatin County ARPA grant and/or program revenue will be utilized to obtain additional equipment. This is not expected to occur until a new Gallatin College building is approved and constructed.

10. Personnel resources.

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a. Describe the existing instructional, support, and administrative resources that support the program. What has been the impact on existing programs of increased use of existing personnel resources by the proposed program? How has the quality and productivity of existing programs been maintained? *[200 words]*

Since the program's inception, two part-time faculty members have been hired to provide program instruction. This program shares the Building Trades Division Director with the HVAC-R program. An overall increase of .30 FTE (Full Time Equivalent) on the administrative side was needed to support the instructional, student success, and administrative team with this 1-year program. This is reflected in the Fiscal analysis form.

b. Identify new personnel that have been or will be hired to support the program. (Enter the costs of those personnel resources into the budget sheet.) How have you secured the qualified faculty and staff needed? *[150 words]*

Necessary non tenure track faculty have been secured through industry partner connections and general college instructor recruitment. The cost of these faculty has been included in the program fiscal worksheet.

11. Other resources.

a. Are the available library and information resources adequate for the program? If not, how will adequate resources be obtained moving forward? *[100 words]*

Library resources are not currently utilized for the program. Information resources are instead provided by course textbooks and relevant industry content obtained by course instructors.

b. What impacts has the program had on student services? What are the implications of the new program on services for the rest of the student body? *[150 words]*

Gallatin College provides internal student services for workforce programs. One student success advisor on average, works with 300 students. Currently Gallatin College is meeting this ratio of student body to student success advisors. The program's impacts on student services are minimal as the Carpentry student advisor can serve the current cohort.

Because Gallatin College is a college within Montana State University, Carpentry students also have access to MSU student services, including, but not limited to, financial aid, Veterans services, disability services and counselling and psychological services. Because of the current and projected headcount for Carpentry, these services can support the program.

12. Revenues and expenditures. Describe the implications of the program on the financial situation of the institution. *[100 words]*

Financial implications for the institution have been mitigated by an ARPA grant provided by Gallatin County. Please see included program fiscal worksheet.

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

a. Describe expenses associated with the implementation of the program. How have these expenses been met? *[200 words]*

Expenses thus far have been met through the Gallatin County ARPA grant. The funding model that Gallatin College is following utilizes either grant, private sector, or Mill Levy funding for the first 3 years of startup. As enrollment and revenue grow the Dean may request general fund support through the MSU strategic investment process. The Carpentry program will be fully funded with the enrollment of 15 students.

i. If funding came from the reallocation of existing state appropriated funds, please indicate the sources of the reallocation. What impact has the reallocation of funds in support of the program had on other programs? *[150 words]*

n/a

ii. If an increase in base funding was required to fund the program, indicate the amount of additional base funding and the fiscal year when the institution included the base funding in the department's budget.

Base funding for this program has been requested for AY 24 through the MSU strategic investment process. If enrollment is at 15 tuition covers all costs.

iii. If funding has or will come from one-time sources such as a donation, indicate the sources of other funding. What are the institution's plans for sustaining the program when that funding ends? *[150 words]*

A three year ARPA grant was provided by Gallatin County. Once funding is no longer available, we anticipate that the program will be self-sustainable from continued student enrollment. A base funding increase was requested for AY 24 to support this program which captures this enrollment revenue.

iv. Describe the federal grant, other grant(s), special fee arrangements, or contract(s) that are or will be valid to fund the program. What does the institution propose to do with the program upon termination of those funds? *[150 words]*

In November 2021, Gallatin College received a $2 million ARPA grant to fund the Carpentry program and creation and expansion of three additional innovative programs. Once grant funding is no longer available Dec. 2025, we plan to continue offering the program if industry and student demand continues as anticipated.

13. Student fees. If the proposed program has or intends to impose new course, class, lab, or program fees, please list the type and amount of the fee.

Yes, the program will require $100 of student fees to cover the costs of supplies and materials used during the program.

14. Complete the fiscal analysis form, starting from the inception of the program and noting which fiscal years show actual program data and which are projected.

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Please see attached Fiscal Analysis Form.

Signature/Date

College or School Dean: DocuSigned by: Stephanie Kraay 846EB00FC0D245E... 9/12/2023 | 12:03 PM MDT

Chief Academic Officer: DocuSigned by: Robert Mokwa 212A28411AC04BD... 9/12/2023 | 12:03 PM MDT

Chief Executive Officer: DocuSigned by: Waded Cruzado 7D6A4CE96C3F415... 9/12/2023 | 12:03 PM MDT

Flagship Provost*: DocuSigned by: Robert Mokwa 212A28411AC04BD... 9/12/2023 | 12:03 PM MDT

Flagship President*: DocuSigned by: Waded Cruzado 7D6A4CE96C3F415... 9/12/2023 | 12:03 PM MDT

*Not applicable to the Community Colleges.

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Appendix A – Proposed New Curriculum

Year 1	Credits	
	FALL	SPRING
CSTN 100 Fundamentals of Construction Technology	3	
CSTN 105 Introduction to Woodworking	3	
CSTN 120 Carpentry Basics and Rough-In Framing	4	
CSTN 122 Beginning Carpentry Lab	4	
OSH 110 - OSHA 10 Safety Training for Construction Trades	1	
M 111 - Technical Mathematics	3	
CSTN 145 Exterior Finish, Stair, and Metal Stud Framing		4
CSTN 148 - Blueprints, Codes, and Estimating		3
CSTN 160 Construction Concepts and Building Lab		3
CSTN 101 Introduction to Concrete		1
CSTN 171 Site Prep, Foundations, and Concrete Installation		3
COMX 106 - Communicating in a Dynamic Workplace		3
Year Total:	18	17
Total Program Credits:	**35**	

Academic Degree Program Proposal - Fiscal Analysis Form

CAMPUS:	Gallatin College Montana State University
AWARD LEVEL:	Certificate of Applied Science
PROGRAM NAME:	Carpentry
PROGRAM CODE:	CARP-CAS

ENROLLMENT PROJECTIONS	FY2023 Actual	FY2024	FY2025	FY2026	FY2027
Headcount					
annual unduplicated headcount of students with declared major or minor within the program	12	17	18	18	18
Credit Hours					
annual avg. credits hours earned per student in program related curriculum	35	35	35	35	35
Student FTE					
Undergrad: (Headcount x CH)/30	14	19.83333333	21	21	21
Completions					
Annual number of program completers	3	10	15	16	16

REVENUE					
Tuition Revenue (net of waivers)	$66,411	$95,964	$103,641	$105,713	$107,828
Institutional Support (Mill Levy, State Funds)					
Other Outside Funds (grants, gifts, etc.) Yr 1, 2, & 3, ARPA.	$58,000	$58,000	$58,000		
Program Tuition/Course Fees	$18,240	$25,840	$27,360	$27,360	$27,360
Total Revenue	**$142,651**	**$179,804**	**$189,001**	**$133,073**	**$135,188**
Total Revenue per Student FTE	**$10,189**	**$9,066**	**$9,000**	**$6,337**	**$6,438**

EXPENDITURES						
Tenure Track Faculty	FTE	0.0	0.0	0.0	0.0	0.0
	Salary + Benefits	$0	$0	$0	$0	$0
Non-tenure Track Faculty *Includes Adjunct Instructors	FTE (30-31cr. = 1.0 FTE)	1.5	1.5	1.5	1.5	1.5
	Salary + Benefits	$75,126	$75,126	$75,126	$75,126	$75,126
Graduate Teaching Assistants	FTE	0.0	0.0	0.0	0.0	0.0
	Salary + Benefits	$0	$0	$0	$0	$0
Staff & Dept. Head	FTE	0.2	0.2	0.2	0.2	0.2
	Salary + Benefits	$11,180	$11,180	$11,180	$11,180	$11,180
Total Faculty & Staff	FTE	1.7	1.7	1.7	1.7	1.7
	Salary + Benefits	**$86,307**	**$86,307**	**$86,307**	**$86,307**	**$86,307**
Operations (supplies, maintenance, etc)		$2,000	$2,000	$2,000	$2,000	$2,000
Start-up Expenses (OTO)		$20,000	$10,000	$10,000	$0	$0
Total Expenses		**$108,307**	**$98,307**	**$98,307**	**$88,307**	**$88,307**

Student FTE to Faculty (TT + NTT) Ratio	**9.3**	**13.2**	**14.0**	**14.0**	**14.0**
Net Income/Deficit (Revenue - Expenses)	**$34,344**	**$81,497**	**$90,694**	**$44,767**	**$46,881**

The signature of the campus Chief Financial Officer signifies that he/she has reviewed and assessed the fiscal soundness of the proposal and provided his/her recommendations to the Chief Academic Officer as necessary.

DS

DocuSigned by:
5302B65C2C4746C...

Campus Chief Financial Officer Signature

Chief Financial Officer Comments

NOTE:
Completion of the fiscal form does not guarantee funding for described expenses. The request for additional funding should be included in standard campus processes for investments in new programs if internal funding, within unit, cannot be reallocated.
Student fees are about $760 per semester to support consumable supplies. Estimates student mix in the program is 70% resident and 30% non-resident based on current student enrollment. .2 FTE accounts for increased admin duties, including advising and college staff.

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

September 2023

ITEM 2006-R1123

ITEM TITLE: Request for permanent authorization of an AAS degree in Aviation Electronics Technology

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Institution: **Gallatin College Montana State University** CIP Code: **47.0609**

Program/Center/Institute Title: **AAS in Aviation Electronics Technology**

Includes (please specify below): Face-to-face Offering: X Online Offering: _____ Blended Offering: _____

Options: _____

Proposal Summary [360 words maximum]

What: Request to establish a permanent Associate of Applied Science in Aviation Electronics Technology. This 62-credit program teaches students the theoretical and technical applications of aviation electronics (avionics) within the aviation/aerospace industry. Through hands-on training with aircraft electronics, students test, troubleshoot, and repair components for communication, navigation, instruments, and control systems. Successful program graduates will be prepared to earn industry recognized certifications and work as entry level technicians in the aircraft electronics maintenance and repair field or similar electronics-system industries. This program began as a temporary offering in Fall 2022 in order to immediately answer industry demand for program graduates. It has proven to be a very successful program with eight students participating in the first cohort.

Why: Bozeman Yellowstone International Airport is Montana's busiest airport, setting passenger records for the past decade. With continued population and tourism growth, development and support of the commercial and private aviation/aerospace industry is critical to the success of Gallatin County and Montana economies.

The US Bureau of Labor Statistics projects eight percent job growth for avionic technicians through 2030. Locally, Bridger Aerospace of Belgrade anticipates even higher growth in the immediate future. Despite having five internal avionic technicians, the lack of prospective local technicians has delayed critical services and made them dependent on overwhelmed out-of-town avionic shops.

The company also plans to address the statewide shortage of avionic technicians. As capacity allows, they service other client planes, but in 2022, had a waitlist of around 100 planes. Desiring to hire 15 more avionic technicians immediately, Bridger Aerospace committed startup funding for Gallatin College's AAS program as well as classroom and lab space at their facility. Additional technicians will allow the company to quickly repair their own fleet and serve numerous local aviation clients who outsource work to Billings, Kalispell or Idaho and face 6-12 month waitlists.

Resources: Bridger Aerospace committed $100,000 to Gallatin College to develop an avionics technician training program. This gift covers anticipated resources including program marketing, classroom/lab materials, and instructor wages. They have also provided on-site classroom space and training equipment including aircraft, test equipment, and tools. A fund agreement was established with MSU Foundation and continues to be utilized for program start-up and continuing instructional costs.

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ACADEMIC PROPOSAL REQUEST FORM

ATTACHMENTS

Attachments

Please mark the appropriate type of request and submit with any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit http://mus.edu/che/arsa/academicproposals.asp.

____ A. Level I:

Campus Approvals

____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

____ **1b. Withdrawing a postsecondary educational program from moratorium**

____ **2. Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

____ **3. Establishing a B.A.S./A.A./A.S. area of study**

____ **4. Offering an existing postsecondary educational program via distance or online delivery**

OCHE Approvals

____ **5. Re-titling an existing postsecondary educational program**

____ **6. Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

____ **7. Consolidating existing postsecondary educational programs** (Curriculum Proposal Form)

____ **8. Establishing a new minor where there is a major or an option in a major** (Curriculum Proposal Form)

____ **9. Revising a postsecondary educational program** (Curriculum Proposal Form)

____ **10. Establishing a temporary C.A.S. or A.A.S. degree program** *Approval limited to 2 years*

X B. Level II:

____ **1. Establishing a new postsecondary educational program** (Curriculum Proposal and Completed Request to Plan Form)

X **2. Permanent authorization for a temporary C.A.S. or A.A.S degree program** (Curriculum Proposal and Completed Request to Plan Form)

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

3. **Exceeding the 120-credit maximum for baccalaureate degrees** *Exception to policy 301.11*

4. **Forming, eliminating or consolidating an academic, administrative, or research unit** (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

5. **Re-titling an academic, administrative, or research unit**

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

1. **Overview of the request and resulting changes.** Provide a one-paragraph description of the program. Is this program related or tied to other programs on campus? *[100 words]*

   The Aviation Electronic Technology (Avionics) program is a two-year associate of applied science degree program that teaches students the theoretical and technical applications of avionics within the aviation industry. Through hands-on training with aircraft electronics and associated electrical equipment, students learn to test, troubleshoot, and repair components for communication, navigation, instrument, and control systems. Successful program graduates will be prepared to earn industry recognized certifications and work as entry level technicians in the aircraft electronics maintenance and repair field. This program compliments and utilizes some course content from Gallatin College's Photonics/Laser Technology programs.

2. **Relation to institutional strategic goals.** Describe the nature and purpose of the program in the context of the institution's mission and core themes. *[200 words]*

   Gallatin College's mission is to "provide a comprehensive, accessible, responsive, student-centered learning environment that supports the achievement of individuals' professional and personal goals, and enhances Montana's communities and economy." The two-year Aviation Electrical Technology program is offered at an affordable $ 1,826 per semester or $7,304 for the total program for in-state students. Upon starting their career, skilled program graduates from diverse socioeconomic backgrounds will be able to earn the strong wages necessary to remain in our area. With afternoon and evening classes, this program is also accessible to adult learners who may be working but desire to increase their skill set and earning potential in a highly relevant Montana industry.

   Through coursework, hands-on learning, and local aviation industry partnerships, this degree reflects MSU's mission of "integrat[ing] education, creation of knowledge…and service to communities". Gallatin College students typically come from the surrounding area and stay in the region to support the local community and economy. As students work toward degree completion, direct interaction with industry leaders will occur through on-site classroom and lab instruction. This mutually beneficial partnership provides students with immediate job opportunities while giving Montana companies the recruitment advantage and ability to better serve our state's expanding aviation and electronic technology needs.

3. **Process leading to submission.** Briefly detail the planning, development, approval and early implementation process of the program at the institution. *[200 words]*

   Gallatin College was approached by Bridger Aerospace with funding to develop this AAS program. Research and industry feedback further clarified the statewide and regional need for the program. The program was developed by an industry professional and an advising partner who previously assisted in the creation of a prospering Avionics program at Guilford Technical Community in North Carolina. Development included a comparison of Avionics program curricula across the nation and contributions from top industry members and potential employers across the state. It was also reviewed internally by Gallatin College's Aviation, CNC Machine Technology, and Photonics and Laser Technology program directors. After receiving temporary program approval, the program was implemented in Fall 2022 with a starting cohort of 8 students.

4. **Program description.** Please include a complete listing of the program's curriculum in Appendix A of this document.

   See Appendix A

   a. List the program requirements using the following table.

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

	Credits
Credits in required courses offered by the department offering the program	36
Credits in required courses offered by other departments	19
Credits in institutional general education curriculum	9
Credits of free electives	0
Total credits required to complete the program	64

b. List the learning outcomes for the program. Use learner-centered statements that indicate what students will know, be able to do, and/or value or appreciate as a result of completing the program.

1. Demonstrate proficiency in math computation for electrical circuits, aviation electronics and principles of flight.

2. Express technical ideas, procedures, and results in professional written, verbal, and visual formats.

3. Demonstrate an understanding of electrical and electronic components for aircraft communication, navigation, instrument, and control systems as applicable to current and emerging aviation industry practices.

4. Describe avionic inspection and maintenance procedures as required by the Federal Aviation Administration (FAA).

5. Defend the necessity for professional and ethical work within the aviation industry.

6. Explain and provide examples of appropriate applications of avionics technology as it relates to aeronautical principles, design characteristics, and system operation for a variety of aircraft.

7. Analyze complex avionics systems and correctly recommend advanced component troubleshooting. Effectively operate computers and aviation related technology.

8. Demonstrate knowledge of current flight line test equipment for communication, navigation, and various air data test set systems.

9. Use precision tools and test equipment to ensure repairs have been completed within prescribed industry safety limits. Properly record repairs.

10. Prepare for industry-related exams including the Federal Communications Commission (FCC) Radio Operator certification exam.

5. **Need for the program.** To what specific student, regional, and statewide needs is the institution responding with the program? How does the program meet those needs? Has demand for the program met the institution's expectations? Consider workforce, student, economic, societal, and transfer needs in your response as appropriate. *[250 words]*

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Bozeman, Montana is a steadily growing micropolitan area with Bozeman Yellowstone International Airport being Montana's busiest airport and setting passenger records for the past decade. With continued population and tourism growth, development and support of the commercial and private aviation/aerospace industry is critical to the success of Gallatin County and Montana economies.

The US Bureau of Labor Statistics projects eight percent job growth for avionics technicians through 2030. Locally, Bridger Aerospace of Belgrade anticipates even higher growth in the immediate future. Despite having five internal avionic technicians, the lack of prospective local technicians has delayed critical services and made them dependent on overwhelmed out-of-town avionic shops. In addition to their own needs, the company hopes to address the shortage of avionic technicians across the state. As capacity allows, they service individual client planes, but have a waitlist for around 100 planes. Hoping to hire 15 more avionic technicians in the coming year, Bridger Aerospace committed $100,000 in startup funding for Gallatin College's AAS program as well as classroom and lab space at their facility near the airport.

With a maximum capacity of 12 students per cohort, Gallatin College enrolled a strong starting cohort of 8 students in the first year fall semester of the Aviation Electronics Technology program. All 8 have persisted into the spring semester of their first year. Given the number of program applications already received for Fall 2023, we anticipate continued interest in the program in the coming years.

6. **Similar programs.** Use the table below to identify and describe the relationship between any similar programs within the Montana University System.

Institution Name	Degree	Program Title
Helena College of Technology	AAS	Aviation Maintenance Technology
Helena College of Technology	*CTS*	*Avionics (in development)*

a. Describe any efforts that were made to collaborate with similar programs at other institutions. If no efforts were made, please explain why. *[200 words]*

Helena College of Technology has also been developing an Avionics program. Through communication with college representatives, we understand that Helena's program is a 19-credit certificate that "stacks" onto their certificate or two-year aviation maintenance program offerings. Their program is formed around Airframe and Powerplant (A and P) instruction with a mechanical foundation, will typically run in the summer months, and primarily serve industry clients in the western portion of the state.

Gallatin College's Associate of Applied Science degree is a more in-depth two-year degree focused specifically on installing, repairing and maintaining the electrical systems of an aircraft; particularly navigation, communications, instruments and controls systems. This skillset will serve industry members across the state and beyond. Given the difference in credentials and the depth and applications of associated instruction, both college programs will serve different student interests and industry needs. Our research indicates a strong unfilled need for avionics training programs in the greater northwest US

region. Not only will both programs attract resident and non-resident students, but each institution can refer students to the most appropriate program for the student's interest.

Throughout course development, Gallatin College has utilized CCN course information to utilize relevant existing courses and avoid course duplication.

7. **Implementation of the program.** When was the program be first offered? Describe the process of implementation *[100 words]*

The program was first offered in Fall 2022. Implementation included course planning and development utilizing industry expert knowledge and advising. It also included collaboration with our college's Photonics and Laser Technology, Aviation, and CNC Machining program directors. With the support of Bridger Aerospace, we were able to utilize much of their existing lab spaces and equipment for student experiential training.

a. Complete the following table indicating the actual and projected enrollments in and graduates from the program since the program was first offered.

Fall Headcount Enrollment					Graduates				
AY 2023	AY 2024	AY 2025	AY 2026	AY 2027	AY 2023	AY 2024	AY 2025	AY 2026	AY 2027
8	16	18	20	24	0	5	8	10	10

b. Describe the methodology and sources for determining the enrollment and graduation projections above. *[200 words]*

Enrollment projections are based on a current estimation of student interest, historical enrollment numbers of other high-tech programs, existing space restrictions the Avionics program is experiencing, and instructor/student advisor capacity.

8. **Program assessment.** How is success of the program determined? What action would result if this definition of success is not met? *[150 words]*

Program success will be determined by enrollment numbers, student completion rates, graduate job placement rates, and industry response. Each of these areas will be tracked by Gallatin College staff and the advanced technology program director. If success is not met in any of these areas, the college will work with involved parties to determine potential barriers and possible solutions to strengthen the program and success markers.

a. Describe the assessment process used to evaluate how well students are achieving the intended learning outcomes of the program. When do assessment activities occur and at what frequency? *[150 words]*

The Gallatin College Advanced Technology Program Director will oversee annual student learning program outcomes assessment. Each year the faculty teaching relevant classes will provide artifacts from coursework performance representing 15% of the student enrollment that will be assessed by faculty within Gallatin College. Student assessments are measured in points and then categorized as 'Strongly Present', 'Developing', or 'Not Observed'. We expect that at least 70% of students in each category should have either Strongly Present or Developing skills in each area assessed

b. What direct and indirect measures are used to assess student learning? *[100 words]*

Direct measures will include tests, quizzes, and lab project participation/completion. Indirect measures will include the level and quality of participation in discussions and lab assignments.

c. How are assessment findings employed to ensure the quality of the program? *[100 words]*

Successful student competition of the coursework and lab activities will be assessed at 70% or above. Negative results of the above mentioned would indicate gaps or a need to reevaluate the course materials and/or concepts.

d. Where appropriate, describe applicable specialized accreditation and explain why you have or have not sought accreditation. *[100 words]*

Students will be prepared to take industry-related exams including the Federal Communications Commission Radio Operator certification exam. However, specialized program accreditation has not been recommended by industry advisory members. This will be reviewed as the program and industry standards continue to develop.

9. Physical resources.

a. Describe the existing facilities, equipment, space, laboratory instruments, computer(s), or other physical equipment that support the program. What has been the impact on existing programs of increased use of existing physical resources by the program? How has the increased use been accommodated? *[200 words]*

Due to in-kind and financial support from Bridger Aerospace, lab equipment and space costs have been mitigated and do not impact other programs. Lab stools and a wire connector repair kit were purchased for the delivery of the first year of the program. Additional equipment will be purchased as needed.

Avionics students complete electronic circuits classes alongside Photonics and Laser Technology students. Additional lab sections may need to be added as the class size increases with program growth.

b. What new facilities, equipment, space, laboratory instruments, etc., have been obtained or will be obtained to support the proposed program. (Enter the costs of those physical resources into the budget sheet.) How has or will the need for these additional resources be met? *[150 words]*

If additional classroom/lab space is available to Gallatin College in the future, the Avionics program may move some courses on campus. At that time, funding or donated equipment from Bridger Aerospace would be utilized to establish these learning spaces. This is not expected to occur until a new Gallatin College building is approved and constructed; likely a 3-5 year process.

Current anticipated equipment needs include 4 soldering irons (at $100 each), 4 heat guns (at $150 each), and a pair of environmental crimping tools ($400). These costs will be covered by funding from Bridger Aerospace.

10. Personnel resources.

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

a. Describe the existing instructional, support, and administrative resources that support the program. What has been the impact on existing programs of increased use of existing personnel resources by the proposed program? How has the quality and productivity of existing programs been maintained? *[200 words]*

Three part-time faculty members have been hired to provide program instruction. Additional instructors will need to be hired in Fall of 2023 to support an incoming second cohort or students. This program will share a Program Director with the Photonics program and utilize current student advisor, office personnel and administrative team. An overall increase of .30 FTE on the administrative side is needed to support the instructional, student success, and administrative team with this new 2-year program. this is reflected in the Fiscal analysis form.

b. Identify new personnel that have been or will be hired to support the program. (Enter the costs of those personnel resources into the budget sheet.) How have you secured the needed qualified faculty and staff? *[150 words]*

Necessary non tenure track faculty have been secured through industry partner connections and general college instructor recruitment. Cost of these faculty have been included in the program fiscal worksheet.

11. Other resources.

a. Are the available library and information resources adequate for the program? If not, how will adequate resources be obtained moving forward? *[100 words]*

Library resources are not currently utilized for the program. Information resources are instead provided by course textbooks and relevant industry content obtained by course instructors.

b. What impacts has the program had on student services? What are the implications of the new program on services for the rest of the student body? *[150 words]*

Gallatin College provides internal student services for workforce programs. One student success advisor on average, works with 300 students. Currently Gallatin College is meeting this ratio of student body to student success advisors. Impacts of the program on student services are minimal as the Avionics student advisor has adequate capacity to serve the current cohort.

Because Gallatin College is a college within Montana State University, Avionics students also have access to MSU student services, including, but not limited to, financial aid, Veterans services, disability services and counselling and psychological services. Because of the current and projected headcount for Avionics, these services can support the program.

12. Revenues and expenditures. Describe the implications of the program on the financial situation of the institution. *[100 words]*

Financial implications on the institution have been mitigated by a grant provided by Bridger Aerospace. Please see included program fiscal worksheet.

a. Describe expenses associated with the implementation of the program. How have these expenses been met? *[200 words]*

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Expenses thus far have been met through a $100,000 program start up gift provided by Bridger Aerospace. The funding model that Gallatin College is following utilizes either private sector or Mill Levy funding for the first 3 years of startup. As enrollment and revenue grow the Dean may request general fund support through the MSU strategic investment process. The Aviation Electronics program will be fully funded with 24 students.

i. If funding came from the reallocation of existing state appropriated funds, please indicate the sources of the reallocation. What impact has the reallocation of funds in support of the program had on other programs? *[150 words]*

n/a

ii. If an increase in base funding was required to fund the program, indicate the amount of additional base funding and the fiscal year when the institution included the base funding in the department's budget.

Base funding for this program was requested for AY 24 through the MSU strategic investment process.

iii. If funding has or will come from one-time sources such as a donation, indicate the sources of other funding. What are the institution's plans for sustaining the program when that funding ends? *[150 words]*

A one-time grant has been provided by Bridger Aerospace. Once funding is no longer available, we anticipate that the program will be self-sustainable from continued student enrollment. A base funding increase was requested for AY 24 to support this program.

iv. Describe the federal grant, other grant(s), special fee arrangements, or contract(s) that are or will be valid to fund the program. What does the institution propose to do with the program upon termination of those funds? *[150 words]*

$100,000 was provided by Bridger Aerospace. Once grant funding is no longer available, we plan to continue offering the program as long as industry and student demand continues as anticipated. Base funding will be utilized to support this program.

13. Student fees. If the proposed program has or intends to impose new course, class, lab, or program fees, please list the type and amount of the fee.

At this time, no course fees are proposed for this program. Gallatin College is working with Bridger Aerospace to determine if there are any additional consumables or tooling the students need to fund for second year courses. Within the first year of the program, we have been able to keep this need low and therefore have not requested course fees for students.

14. Complete the fiscal analysis form, starting from the inception of the program and noting which fiscal years show actual program data and which are projected.

Please see attached Fiscal Analysis Form.

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Signature/Date

College or School Dean: DocuSigned by: Stephanie Gray 846EB00FC0D245E... 9/13/2023 | 1:19 PM MD

Chief Academic Officer: DocuSigned by: Robert Mokwa 212A28411AC04BD... 9/13/2023 | 1:19 PM MD

Chief Executive Officer: DocuSigned by: Waded Cruzado 7D6A4CE96C3F415... 9/13/2023 | 1:19 PM

Flagship Provost*: DocuSigned by: Robert Mokwa 212A28411AC04BD... 9/13/2023 | 1:19 PM M

Flagship President*: DocuSigned by: Waded Cruzado 7D6A4CE96C3F415... 9/13/2023 | 1:19 PM M

*Not applicable to the Community Colleges.

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Appendix A – Proposed New Curriculum

Year 1	Credits	
	FALL	SPRING
Aviation Electronics Fundamentals	3	
AVMT 100 Introduction to Aviation Maintenance Mathematics and Physics	3	
ETEC 101 - AC/DC Electronics with Lab	4	
AVMT 175 Aircraft Electrical Systems	3	
WRIT 121 Intro to Technical Writing	3	
ETEC 106 - AC Circuit Analysis		3
ETEC 113 - Circuits Lab		1
Wire Harness and Connectors Lab		3
Instruments and Controls		3
PHSX 103IN - The Physics of How Things Work		3
COMX 222 - Professional Communication		3
Year Total:	16	16

Year 2	Credits	
	FALL	SPRING
ETEC 250 - Solid State Electronics I	4	
FAA Regulations	2	
Aviation Communication Systems	3	
Aviation Navigation Systems I	3	
CSCI 107 - Joy and Beauty of Computing	3	
ETEC 245 - Digital Electronics		4
Aviation System Interconnect		2
Flight Line Testing		2

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

FCC Regulations and Radio Theory		2
Aviation Navigation Systems II		3
Advanced Wiring and Troubleshooting		4
Year Total:	15	17
Total Program Credits:		**64**

Academic Degree Program Proposal - Fiscal Analysis Form

CAMPUS:	Gallatin College Montana State University
AWARD LEVEL:	Associates Applied Science Aviation Electronics Technology
PROGRAM NAME:	
PROGRAM CODE:	

	FY2023	FY2024	FY2025	FY2026	FY2027
ENROLLMENT PROJECTIONS					
	Actual				
Headcount					
annual unduplicated headcount of students with declared major or minor within the program	8	12	14	21	23
Credit Hours					
annual avg. credits hours earned per student in program related curriculum	32	32	32	32	32
Student FTE					
Undergrad: (Headcount x CH)/30	8.533333333	12.8	14.93333333	22.4	24.53333333
Completions					
Annual number of program completers		6	3	9	10
REVENUE					
Tuition Revenue (net of waivers)	$36,502	$55,847	$66,458	$101,681	$113,592
Institutional Support (Mill Levy, State Funds)					
Other Outside Funds (grants, gifts, etc.) Bridger Aerospace Yr 1 & Yr 2, Mil Levy in Year 3	$80,000	$20,000	$9,000		
Program Tuition/Course Fees				$2,100	$2,300
Total Revenue	**$116,502**	**$75,847**	**$75,458**	**$103,781**	**$115,892**
Total Revenue per Student FTE	**$13,653**	**$5,926**	**$5,053**	**$4,633**	**$4,724**
EXPENDITURES					
Tenure Track Faculty — FTE	0.0	0.0	0.0	0.0	0.0
Tenure Track Faculty — Salary + Benefits	$0	$0	$0	$0	$0
Non-tenure Track Faculty *Includes Adjunct Instructors — FTE (30-31cr. = 1.0 FTE)	1.0	1.8	1.8	2.0	2.0
Non-tenure Track Faculty *Includes Adjunct Instructors — Salary + Benefits	$54,300	$87,622	$87,622	$95,952	$95,952
Graduate Teaching Assistants — FTE	0.0	0.0	0.0	0.0	0.0
Graduate Teaching Assistants — Salary + Benefits	$0	$0	$0	$0	$0
Staff & Dept. Head — FTE	0.2	0.2	0.2	0.2	0.2
Staff & Dept. Head — Salary + Benefits	$11,180	$11,180	$11,180	$11,180	$11,180
Total Faculty & Staff — FTE	1.2	2.0	2.0	2.2	2.2
Total Faculty & Staff — Salary + Benefits	**$65,481**	**$98,802**	**$98,802**	**$107,133**	**$107,133**
Operations (supplies, maintenance, etc)	$0	$5,000	$7,000	$5,000	$5,000
Start-up Expenses (OTO)	$37,500				
Total Expenses	**$102,981**	**$103,802**	**$105,802**	**$112,133**	**$112,133**
Student FTE to Faculty (TT + NTT) Ratio	**8.5**	**7.1**	**8.3**	**11.2**	**12.3**
Net Income/Deficit (Revenue - Expenses)	**$13,521**	**-$27,955**	**-$30,344**	**-$8,351**	**$3,760**

The signature of the campus Chief Financial Officer signifies that he/she has reviewed and assessed the fiscal soundness of the proposal and provided his/her recommendations to the Chief Academic Officer as necessary.

DS

DocuSigned by:

5302B65C2C4746C...

Campus Chief Financial Officer Signature

Chief Financial Officer Comments

NOTE: Completion of the fiscal form does not guarantee funding for described expenses. The request for additional funding should be included in standard campus processes for investments in new programs if internal funding, within unit, cannot be reallocated.
Student capcity is only at 24 due to space restrictions, if additional space is found on campus could have up to 48 students (24 in each year).
.2 FTE accounts fo advising workload and administrative.

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

September 2023

ITEM 2007-R1123

ITEM TITLE Request for Permanent Authorization of a Temporary AAS Degree in IT Network Technology

Institution: **Gallatin College Montana State University** CIP Code: **11.0901**

Program/Center/Institute Title: **AAS in Information Technology (IT) Network Technology**

Includes (please specify below): Face-to-face Offering: **X** Online Offering: _____ Blended Offering: _____

Options: _____

Proposal Summary [360 words maximum]

What: Request for permanent authorization of a temporary Associate of Applied Science degree in Information Technology (IT) Network Technology. This program prepares students to plan, design, implement, troubleshoot and administer microcomputer-based networks. Topics include computer hardware, software and applications; local area and wide area networking; principles of information systems security; disk space and traffic load monitoring; data backup; resource allocation; and setup and takedown procedures. This program will also introduce the design, implementation, and management of linked systems of computers, and peripherals, to maximize efficiency and productivity, and prepare individuals to function as network generalist. A final goal of this program is to prepare students to sit for the following certifications: CompTIA Network+, CompTIA A+, CompTIA Linux+, CompTIA Security+, Cisco CCNA, and Microsoft 70-740. The program builds upon the existing Certificate of Applied Science in Network Technology, developed in fall 2017, which continues to be offered at Gallatin College.

Why: Gallatin College's IT program advisory council and industry partners have emphasized a high need for AAS-level network technology graduates in the local workforce. The MT Department of Labor and Industry projects 33 annual job openings for Computer Network Support Specialists and 217 annual openings for Computer User Support Specialists across the state. 76 of these combined positions are projected solely for Southwest Montana. These positions earn an average annual wage of $58,520 and $47,190 respectively, allowing program graduates to remain in our region and enter the workforce with strong wages. Advancement opportunities include careers as Information Security Analysts or Computer Network Architects, earning average annual wages of $77,910 and $99,140 respectively.

Resources: This associates degree builds upon an existing IT Network Technology CAS, thus minimal resources have been and will be necessary to launch and sustain it. Hiring of additional non-tenure-track instructors (equating to .5 FTE) is covered by Mill Levy funding. Additional student learning stations were funded by CFAC and Perkins Grant funding.

ATTACHMENTS

Attachments

Please mark the appropriate type of request and submit with any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit http://mus.edu/che/arsa/academicproposals.asp.

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

____ **A. Level I:**

Campus Approvals

____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

____ **1b. Withdrawing a postsecondary educational program from moratorium**

____ **2. Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

____ **3. Establishing a B.A.S./A.A./A.S. area of study**

____ **4. Offering an existing postsecondary educational program via distance or online delivery**

OCHE Approvals

____ **5. Re-titling an existing postsecondary educational program**

____ **6. Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

____ **7. Consolidating existing postsecondary educational programs** (Curriculum Proposal Form)

____ **8. Establishing a new minor where there is a major or an option in a major** (Curriculum Proposal Form)

____ **9. Revising a postsecondary educational program** (Curriculum Proposal Form)

____ **10. Establishing a temporary C.A.S. or A.A.S. degree program** *Approval limited to 2 years*

____ **B. Level II:**

____ **1. Establishing a new postsecondary educational program** (Curriculum Proposal and Completed Request to Plan Form)

X **2. Permanent authorization for a temporary C.A.S. or A.A.S degree program** (Curriculum Proposal and Completed Request to Plan Form)

____ **3. Exceeding the 120-credit maximum for baccalaureate degrees** *Exception to policy 301.11*

____ **4. Forming, eliminating or consolidating an academic, administrative, or research unit** (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

____ **5. Re-titling an academic, administrative, or research unit**

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

1. **Overview of the request and resulting changes.** Provide a one-paragraph description of the program. Is this program related or tied to other programs on campus? *[100 words]*

The Associate of Applied Science degree in Information Technology (IT) Network Technology builds upon an existing IT Network Technology Certificate of Applied Science. The program prepares students for computer hardware, software and applications; local area and wide area networking; principles of information systems security; disk space and traffic load monitoring; data backup; resource allocation; and setup and takedown procedures. The AAS degree also introduces the design, implementation, and management of linked systems of computers and peripherals to maximize efficiency and productivity and prepare individuals to function as network generalist. Students will prepare to earn the following certifications: CompTIA Network+, CompTIA A+, CompTIA Linux+, CompTIA Security+, Cisco CCNA, Project+, MS AZ-800: Administering Win Server Hybrid Core Infrastructure.

2. **Relation to institutional strategic goals.** Describe the nature and purpose of the program in the context of the institution's mission and core themes. *[200 words]*

Gallatin College's mission is to "provide a comprehensive, accessible, responsive, student-centered learning environment that supports the achievement of individuals' professional and personal goals, and enhances Montana's communities and economy." The two-year IT Network Technology program is offered at an affordable $ 1,826 per semester or $7,304 for the total program for in-state students. Upon starting their career, skilled program graduates from diverse socioeconomic backgrounds will be able to earn the strong wages necessary to remain in our area. With afternoon and evening classes, this program is also accessible to adult learners who may be working but desire to increase their skill set and earning potential in a highly relevant Montana industry.

Through coursework, hands-on learning, and local IT industry partnerships, this degree reflects MSU's mission of "integrat[ing] education, creation of knowledge…and service to communities". Gallatin College students typically come from the surrounding area and stay in the region to support the local community and economy. As students work toward degree completion, direct interaction with industry leaders will occur through on-site classroom and lab instruction. This mutually beneficial partnership provides students with immediate job opportunities while giving Montana companies the recruitment advantage and ability to better serve our state's expanding IT needs.

3. **Process leading to submission.** Briefly detail the planning, development, approval and early implementation process of the program at the institution. *[200 words]*

This program was built upon the existing Certificate of Applied Science in IT Network Technology, developed in fall 2017, which will continue being offered at Gallatin College for students seeking a shorter professional workforce program.

With the new IT Network Technology AAS degree, students have been able to seamlessly move from the existing one-year Network Technology CAS program into two-year AAS degree courses. Upon graduation from the program, students will be equipped to begin strong careers within the information technology industry. If their studies have sparked an interested in advanced education pathways, graduates of the program will have transferable knowledge and credits that will provide a head start as they pursue a bachelor's degree with MSU's Computer Science department.

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Upon approval in 2022 as a temporary program, the AAS IT Network Technology program was implemented at Gallatin College through the addition of 24 student seats in the existing IT classroom/lab. Demand for the program was extremely high and the first cohort for the program filled to capacity.

4. **Program description.** Please include a complete listing of the program's curriculum in Appendix A of this document.

See Appendix A

a. List the program requirements using the following table.

	Credits
Credits in required courses offered by the department offering the program	48
Credits in required courses offered by other departments	3
Credits in institutional general education curriculum	12
Credits of free electives	0
Total credits required to complete the program	63

b. List the learning outcomes for the program. Use learner-centered statements that indicate what students will know, be able to do, and/or value or appreciate as a result of completing the program.

1) Set up, install, configure, and troubleshoot hardware and software for desktop computer systems.

2) Demonstrate effective verbal and written communication.

3) Demonstrate knowledge of computer and network terms and concepts.

4) Design secure computer and network infrastructures.

5) Develop teamwork and critical thinking skills related to problem solving.

6) Implement, configure, and troubleshoot network security software and hardware.

5. **Need for the program.** To what specific student, regional, and statewide needs is the institution responding with the program? How does the program meet those needs? Has demand for the program met the institution's expectations? Consider workforce, student, economic, societal, and transfer needs in your response as appropriate. *[250 words]*

A skilled information technology workforce is in high demand. Through 2031, the MT Department of Labor and Industry projects 33 annual job openings for Computer Network Support Specialists and 217 annual openings for Computer User Support Specialists across the state with 76 of these combined positions projected just for Southwest Montana ("Montana Job Projections." MT Department of Labor and Industry, https://erd.dli.mt.gov/labor-standards/state-prevailing-wage-rates/data-dashboards/mt-job-projections). These positions earn an average annual wage of $58,520 and $47,190 respectively, which will allow our

program graduates to remain in our region and enter the workforce at a strong starting wage. Potential advancement opportunities for these graduates include careers as Information Security Analysts or Computer Network Architects, earning average annual wages of $77,910 and $99,140 respectively.

In addition to receiving requests from previous and current students for an AAS program option, Gallatin College's IT program director met with local industry partners, all of whom emphasized the need for AAS level cyber security graduates in the local workforce. These partners include Gallatin College IT Advisory Board, Granite Technology Solutions, Fisher's Technology, SAV Digital Environments, Lands' End, TechLink, Livingston Health Care, MSU University IT, Right Networks, and MSU Billings IT. Given the number of program applications received for Fall 2023, we project high program interest in the coming years.

6. **Similar programs.** Use the table below to identify and describe the relationship between any similar programs within the Montana University System.

Institution Name	Degree	Program Title
City College	AAS	Computer Systems Technology
Flathead Valley Community College	AAS	Information Technology and Security
Great Falls College	AAS	Computer Information Technology: Information Systems Support
Highlands College	AAS	Computer Networks and Cyber Security
Miles Community College	AAS	Information Technology Networking & PC Maintenance

a. Describe any efforts that were made to collaborate with similar programs at other institutions. If no efforts were made, please explain why. *[200 words]*

This program was approved temporarily by OCHE to meet the Gallatin County Workforce demands. Collaborations with the MSU Gianforte School of Computing were established and a letter from the Director John Paxton was provided to show their support for this program within Gallatin College.

Throughout course development, Gallatin College has utilized CCN course information to utilize relevant existing courses and avoid course duplication.

7. **Implementation of the program.** When was the program be first offered? Describe the process of implementation *[100 words]*

This AAS program was first offered in Fall 2022. Implementation included course planning and development utilizing industry expert knowledge and advising. We were able to utilize the existing IT lab space and equipment for student experiential learning.

a. Complete the following table indicating the actual and projected enrollments in and graduates from the program since the program was first offered.

Fall Headcount Enrollment	Graduates

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

AY 2022	AY 2023	AY 2024	AY 2025	AY 2026	AY 2022	AY 2023	AY 2024	AY 2025	AY 2026
4	10	12	14	16	3	9	11	13	15

b. Describe the methodology and sources for determining the enrollment and graduation projections above. *[200 words]*

Enrollment projections are based on a current estimation of student interest, historical enrollment numbers of the AAS and CAS IT Network Technology programs, space restrictions the program is experiencing, and instructor/student advisor capacity.

8. Program assessment. How is success of the program determined? What action would result if this definition of success is not met? *[150 words]*

Program success will be determined by enrollment numbers, student completion rates, graduate job placement rates, and industry response. Each of these areas will be tracked by Gallatin College staff and the Information Technology program director. If success is not met in any of these areas, the college will work with involved parties to determine potential barriers and possible solutions to strengthen the program and success markers.

a. Describe the assessment process used to evaluate how well students are achieving the intended learning outcomes of the program. When do assessment activities occur and at what frequency? *[150 words]*

The Gallatin College Information Technology Program Director will oversee annual student learning program outcomes assessment. Each year the faculty teaching relevant classes will provide artifacts from coursework performance representing 15% of the student enrollment that will be assessed by faculty within Gallatin College. Student assessments are measured in points and then categorized as 'Strongly Present', 'Developing', or 'Not Observed'. We expect that at least 70% of students in each category should have either Strongly Present or Developing skills in each area assessed

b. What direct and indirect measures are used to assess student learning? *[100 words]*

Direct measures will include tests, quizzes, and lab project participation/completion. Indirect measures will include the level and quality of participation in discussions and lab assignments.

c. How are assessment findings employed to ensure the quality of the program? *[100 words]*

Successful student completion of the coursework and lab activities will be assessed at 70% or above. Negative results of the above mentioned would indicate gaps or a need to reevaluate the course materials and/or concepts.

d. Where appropriate, describe applicable specialized accreditation and explain why you have or have not sought accreditation. *[100 words]*

Students will be prepared to sit for the following industry recognized certifications: CompTIA Network+, CompTIA A+, CompTIA Linux+, CompTIA Security+, Cisco CCNA, Microsoft

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

9. Physical resources.

a. Describe the existing facilities, equipment, space, laboratory instruments, computer(s), or other physical equipment that support the program. What has been the impact on existing programs of increased use of existing physical resources by the program? How has the increased use been accommodated? *[200 words]*

Gallatin College currently has one computer lab with 24 seats available for IT courses. The lab's software and hardware are managed by the IT Director Ronda Black each semester. The computer labs are not on the MSU network due to the type of labs students perform within the Networking and Cybersecurity programs.

b. What new facilities, equipment, space, laboratory instruments, etc., have been obtained or will be obtained to support the proposed program. (Enter the costs of those physical resources into the budget sheet.) How has or will the need for these additional resources be met? *[150 words]*

20 computers and 20 Dual Port PCIe SATA III cards were purchased in AY 2022-2023 with CFAC funding provided by MSU ($42,600) and Perkins funding ($7,060). Additional classroom tables and chairs were added to the existing IT lab using 2014 Mill Levy and general Gallatin College academic operations funding.

In the Fall of 2023, Gallatin College will have two (24 seat) computer labs and one classroom available to offer all required IT courses for this program. Student work spaces and the building lease will be funded with the same Mill Levy and operations funding. Two 75" Z series UC ready boards at a total cost of around $16,000 were requested via a MSU CFAC proposal.

10. Personnel resources.

a. Describe the existing instructional, support, and administrative resources that support the program. What has been the impact on existing programs of increased use of existing personnel resources by the proposed program? How has the quality and productivity of existing programs been maintained? *[200 words]*

This program is overseen by the current IT Program Director and supported by an IT student advisor, office personnel and administrative team. Quality and productivity of Gallatin College IT programs has been maintained by these support systems and through student support systems provided by MSU. Additionally, with increased Fall 2022 IT program enrollment numbers, Gallatin College proactively doubled the IT classroom/lab spaces for the coming fall semester and hired additional instructors to continue to maintain quality.

b. Identify new personnel that have been or will be hired to support the program. (Enter the costs of those personnel resources into the budget sheet.) How have you secured the needed qualified faculty and staff? *[150 words]*

Three part-time NTT faculty members were hired in Fall 2022 to provide program instruction for this AAS program, equating to an overall increase of .25 FTE. Additional NTT faculty members will be hired in Fall 2023 to bring this overall increase to .5 FTE to ensure the success of the AAS IT Network Technology program. Necessary non tenure track faculty have been secured through industry partner connections

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

and general college instructor recruitment. Cost of these faculty have been included in the program fiscal analysis form.

11. Other resources.

a. Are the available library and information resources adequate for the program? If not, how will adequate resources be obtained moving forward? *[100 words]*

Library resources are not currently utilized for the program. Information resources are instead provided by course textbooks and relevant industry content obtained by course instructors.

b. What impacts has the program had on student services? What are the implications of the new program on services for the rest of the student body? *[150 words]*

Gallatin College provides internal student services for workforce programs. One student success advisor on average, works with 300 students. Currently, Gallatin College is meeting this ratio of student body to student success advisors. Impacts of the program on student services are minimal as the IT student advisor has adequate capacity to serve the current cohort.

Because Gallatin College is a college within Montana State University, students also have access to MSU student services, including, but not limited to, tutoring, financial aid, Veterans services, disability services and counselling and psychological services. With the current and projected IT student headcount, these services can support the program.

12. Revenues and expenditures. Describe the implications of the program on the financial situation of the institution. *[100 words]*

Financial implications on the institution, including curriculum development, equipment, and lab set-up, have been mitigated by CFAC, grant, and Mill Levy funding. Please see included program fiscal worksheet.

a. Describe expenses associated with the implementation of the program. How have these expenses been met? *[200 words]*

Expenses thus far have been met through CFAC, grant and Mill Levey funding intended for program start up. The funding model that Gallatin College follows utilizes Mill Levy funding for the first 3 years of startup. As enrollment and revenue grow the Dean may request general fund support through the MSU strategic investment process.

i. If funding came from the reallocation of existing state appropriated funds, please indicate the sources of the reallocation. What impact has the reallocation of funds in support of the program had on other programs? *[150 words]*

ii. If an increase in base funding was required to fund the program, indicate the amount of additional base funding and the fiscal year when the institution included the base funding in the department's budget.

Montana Board of Regents

CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Base funding for this program was requested for AY 24 through the MSU strategic investment process.

iii. If funding has or will come from one-time sources such as a donation, indicate the sources of other funding. What are the institution's plans for sustaining the program when that funding ends? *[150 words]*

n/a

iv. Describe the federal grant, other grant(s), special fee arrangements, or contract(s) that are or will be valid to fund the program. What does the institution propose to do with the program upon termination of those funds? *[150 words]*

Montana State University CFAC funding and Perkins Grant funding were utilized in AY 2022 to create additional student work stations and meet the growing demand for the program.

13. Student fees. If the proposed program has or intends to impose new course, class, lab, or program fees, please list the type and amount of the fee.

Each ITS course has a $30 fee for consumable supplies, cables, tools, and student software fees.

14. Complete the fiscal analysis form, starting from the inception of the program and noting which fiscal years show actual program data and which are projected.

Please see attached Fiscal Analysis Form.

Signature/Date

College or School Dean:	DocuSigned by: Stephanie Gray 846EB00FC0D245E...	9/13/2023 | 1:19 PM MDT
Chief Academic Officer:	DocuSigned by: Robert Mokwa 212A28411AC04BD...	9/13/2023 | 1:19 PM MDT
Chief Executive Officer:	DocuSigned by: Waded Cruzado 7D6A4CE96C3F415...	9/13/2023 | 1:19 PM MDT
Flagship Provost*:	DocuSigned by: Robert Mokwa 212A28411AC04BD...	9/13/2023 | 1:19 PM MDT
Flagship President*:	DocuSigned by: Waded Cruzado 7D6A4CE96C3F415...	9/13/2023 | 1:19 PM MDT

*Not applicable to the Community Colleges.

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

Appendix A – Proposed New Curriculum

Information Technology Network Technology

Year 1	Credits	
	FALL	SPRING
WRIT 101W - College Writing I	3	
ITS 164 - Networking Fundamentals (First 8 weeks)	3	
ITS 280 - Computer Repair Maintenance (First 8 weeks)	4	
ITS 163 - Windows and Configuration (Second 8 weeks)	4	
ITS 218 - Network Security (Second 8 weeks)	3	
M 108 - Business Mathematics or M 121Q - College Algebra		3
ITS 110 - Introduction to Networking and Cabling (First 8 weeks)		3
ITS 170 - Microsoft Windows Serve (First 8 weeks)		4
ITS 142 - CCNA 2: Discovery (Second 8 weeks)		4
ITS 224 - Introduction to Linux (Second 8 weeks)		4
Year Total:	17	18

Year 2	Cre its	
	FALL	SPRING
ITS 125 Fundamentals of Voice and Data Cabling	3	
ITS 250 CCNA 3 Exploration	3	
ITS 252 CCNA 4 Exploration	4	
WRIT 121 Technical Writing	3	
CSCI 107 - Joy and Beauty of Computing	3	
COMX 222 - Professional Communication		3
ITS 179 Cloud Systems 3		3
ITS 221 Project Management		3

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CURRICULUM PROPOSAL FORM – A.A.S. / C.A.S. PERMANENT AUTHORIZATION

ITS 299 Capstone		3
Year Total:	16	12

Total Program Credits: 63

Academic Degree Program Proposal - Fiscal Analysis Form

CAMPUS:	Gallatin College Montana State University
AWARD LEVEL:	Associates Applied Science
PROGRAM NAME:	Network Technology
PROGRAM CODE:	

	FY2022	FY2023	FY2024	FY2025	FY2026
ENROLLMENT PROJECTIONS					
Headcount					
annual unduplicated headcount of students with declared major or minor within the program	4	8	8	13	16
Credit Hours					
annual avg. credits hours earned per student in program related curriculum	28	28	28	28	28
Student FTE					
Undergrad: (Headcount x CH)/30	4	7	7	12	15
Completions					
Annual number of program completers	0	2	7	9	12
REVENUE					
Tuition Revenue (net of waivers)	$16,172	$32,990	$33,650	$55,775	$70,019
Institutional Support (Mill Levy, State Funds)					
Other Outside Funds (grants, gifts, etc.) Mil Levy			$10,000	$10,000	$0
Program Tuition/Course Fees	$466	$932	$932	$1,514	$1,864
Total Revenue	**$16,638**	**$33,922**	**$44,582**	**$67,289**	**$71,883**
Total Revenue per Student FTE	**$4,457**	**$4,543**	**$5,971**	**$5,546**	**$4,814**
EXPENDITURES					
Tenure Track Faculty — FTE	0.0	0.0	0.0	0.0	0.0
Tenure Track Faculty — Salary + Benefits	$0	$0	$0	$0	$0
Non-tenure Track Faculty *Includes Adjunct Instructors — FTE (30-31cr. = 1.0 FTE)	0.0	0.15	0.63	0.63	0.63
Non-tenure Track Faculty *Includes Adjunct Instructors — Salary + Benefits	$0	$8,925	$49,837	$49,837	$49,837
Graduate Teaching Assistants — FTE	0.0	0.05	0.15	0.15	0.15
Graduate Teaching Assistants — Salary + Benefits	$0	$903	$2,709	$2,709	$2,709
Staff & Dept. Head — FTE	0.0	0.1	0.1	0.1	0.1
Staff & Dept. Head — Salary + Benefits	$0	$5,590	$5,590	$5,590	$5,590
Total Faculty & Staff — FTE	0.0	0.3	0.9	0.9	0.9
Total Faculty & Staff — Salary + Benefits	**$0**	**$15,419**	**$58,136**	**$58,136**	**$58,136**
Operations (supplies, maintenance, etc)	$0	$2,000	$2,000	$2,000	$2,000
Start-up Expenses (OTO)	$15,000				
Total Expenses	**$15,000**	**$14,828**	**$57,546**	**$57,546**	**$57,546**
Student FTE to Faculty (TT + NTT) Ratio	#DIV/0!	49.8	11.9	19.4	23.9
Net Income/Deficit (Revenue - Expenses)	$1,63	$16,504	-$15,554	$7,153	$11,747

The signature of the campus Chief Financial Officer signifies that he/she has reviewed and assessed the fiscal soundness of the proposal and provided his/her recommendations to the Chief Academic Officer as necessary.

DS

DocuSigned by:

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Campus Chief Financial Officer Signature

Chief Financial Officer Comments

NOTE: Associates degree is an optional 2nd year of courses after taking the 1 year Network Technology certification.
Assumes new revenue is captured in the 2nd year and in expanded sections of the 1st year. This also assumes that 80% of students taking the certificate program will either move on to the Cyber Security Associates degree or the Network Technology Associates degree.
New NTT costs for a 1.25 FTE are split between Network Technology and Cyber Security programs.
Completion of the fiscal form does not guarantee funding for described expenses. The request for additional funding should be included in standard campus processes for investments in new programs if internal funding, within unit, cannot be reallocated. Staff FTE of .1 accounts for advising and administrative costs.

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

October 2023

ITEM 1001-LII1023

ITEM TITLE - Request for authorization to establish a Center for Cybersecurity Workforce & Rural Policy

Institution: **University of Montana** CIP Code: **11.1003**

Program/Center/Institute Title: **Center for Cybersecurity Workforce & Rural Policy**

Includes (please specify below): Face-to-face Offering: _____ Online Offering: _____ Blended Offering: _____

Options: _____

Proposal Summary [360 words maximum]

What: The University of Montana seeks to establish the ***Center for Cybersecurity Workforce & Rural Policy*** (CWRP) with the purpose of serving as a regional hub for cybersecurity workforce training, community outreach, policy development and practice, and research. The Center will provide a home for multidisciplinary cybersecurity teaching and learning, creative scholarship, and collaborations within the University, public entities, military agencies, and the private sector.

The UM-CWRP builds on the existing National Center of Academic Excellence for Cybersecurity (NCAE-C) at Missoula College, a National Security Agency designation (2017). NCAE-C programs aim to create and manage collaborative cybersecurity educational programs that establish standards for cybersecurity curriculum and academic excellence, develop competency among students and faculty, participate in community outreach, provide leadership in professional development, integrate cybersecurity practices across academic disciplines, and actively engage in solutions to challenges facing cybersecurity education (https://www.caecommunity.org/about-us/what-cae-cybersecurity).

Why: The increasing reliance on digital technologies and interconnected systems has raised cybersecurity to a prominent position among the most significant threats to our society. It's important to note that cybersecurity now extends far beyond issues like phishing attacks and ransomware. With ongoing advancements in technology, particularly in areas like AI and machine learning, and the integration of these technologies into a wide range of autonomous devices and machines, the potential for malicious actors to cause disruption and chaos is rapidly expanding. This poses a substantial risk not only to Montana's businesses but also to state, tribal, and local governments, agricultural communities, healthcare facilities, educational institutions, and critical public infrastructure. The security of our state and the well-being of its citizens hinge on the protection of digital resources and the responsible utilization of these interconnected technologies. Cybersecurity is a collective responsibility that every citizen must shoulder. Safeguarding our economy, public safety, and democracy against cyber threats necessitates responsible action from all individuals. The Center is addressing this societal need by serving as a central hub for cybersecurity education, learning, and research.

Resources: Resources needed for the Center include office space, staffing, and an operating budget. Office space will be provided at the University of Montana at no charge. The Center will be staffed by a director and a graduate assistant. Hiring will take place following approval of the proposal. External funding has been secured to pay staff salaries and operating expenses for the first two years of the Center's operation (AY24 & AY25). The expectation for the Center is to be fiscally self-sufficient. Fiscal support for cybersecurity workforce and policy solutions remains strong, with backing from public entities, philanthropic interests, grant funding, the Department of Defense, and private industry. The Center will better position the University of Montana to respond to cybersecurity funding opportunities.

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

ATTACHMENTS

Attachment #1 – Center/Institute Proposal Form
Attachment #2 – Request to Plan Form

Please mark the appropriate type of request and submit with any additional materials, including those listed in parentheses following the type of request. For more information pertaining to the types of requests listed below, how to complete an item request, or additional forms please visit http://mus.edu/che/arsa/academicproposals.asp.

____ A. Level I:

Campus Approvals

____ **1a. Placing a postsecondary educational program into moratorium** (Program Termination and Moratorium Form)

____ **1b. Withdrawing a postsecondary educational program from moratorium**

____ **2. Establishing, re-titling, terminating or revising a campus certificate of 29 credits or less**

____ **3. Establishing a B.A.S./A.A./A.S. area of study**

____ **4. Offering an existing postsecondary educational program via distance or online delivery**

OCHE Approvals

____ **5. Re-titling an existing postsecondary educational program**

____ **6. Terminating an existing postsecondary educational program** (Program Termination and Moratorium Form)

____ **7. Consolidating existing postsecondary educational programs** (Curriculum Proposal Form)

____ **8. Establishing a new minor where there is a major or an option in a major** (Curriculum Proposal Form)

____ **9. Revising a postsecondary educational program** (Curriculum Proposal Form)

____ **10. Establishing a temporary C.A.S. or A.A.S. degree program** *Approval limited to 2 years*

____ B. Level II:

____ **1. Establishing a new postsecondary educational program** (Curriculum Proposal and Completed Request to Plan Form)

____

Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

_____ **2. Permanent authorization for a temporary C.A.S. or A.A.S degree program** (Curriculum Proposal and Completed Request to Plan Form)

_____

_____ **3. Exceeding the 120-credit maximum for baccalaureate degrees** *Exception to policy 301.11*

_____

X **4. Forming, eliminating or consolidating an academic, administrative, or research unit** (Curriculum or Center/Institute Proposal and completed Request to Plan, except when eliminating or consolidating)

_____

_____ **5. Re-titling an academic, administrative, or research unit**

_____

Montana University System

REQUEST TO PLAN FORM

ITEM XXX-XXX-XXXX **Meeting Date: November 2022**

Request for authorization to plan the Center for Cybersecurity Workforce, Innovation, and Rural Policy

Program/Center/Institute Title: **Center for Cybersecurity Workforce, Innovation, and Rural Policy**

Planned 6-digit CIP code: **43.0404**

Campus, School/Department: **Missoula College, Business and Technology**

Expected Final Submission Date: **March 2023**

Contact Name/Info: **Tom Gallagher (thomas.gallagher@umontana.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 Center for Cybersecurity Workforce, Innovation, and Rural Policy is based on work accomplished by Missoula College's National Security Agency Center for Academic Excellence (NSA-CAE) in Cyber Defense. It includes cybersecurity workforce certificates, and the associate of applied science and bachelor of applied science degrees. The program, established in 2017, has expanded its cybersecurity workforce education impact across campus through the proposed bachelor of science degree. The Montana Cyber Range has been developed as a virtual learning environment and a hub for curriculum-sharing to serve cybersecurity workforce education programs across the State and in bringing together colleges, high schools, and public organizations.

The Center will provide a place to further expand the State's cyber defense posture by establishing a Rural Cybersecurity Policy, a Security Operations Center (SOC), and a hackerspace. The Rural Cybersecurity Policy will serve public institutions by providing policy guidance and a space to practice policy through tabletop exercise activities in simulating cyber-attacks with a focus on policy practice through action review. Inclusion of the term "Rural" acknowledges the challenges in developing and maintaining policy across the 4th largest state where the population density is 48th in the nation. The SOC will provide the opportunity to enhance security by monitoring access points at the University of Montana and other public institutions across the State. In addition to increasing institutional security, the proposed SOC would be staffed by students as a learning facility in training information security analysts. Finally, a hackerspace would be established in promoting innovation and the development of new cybersecurity defense systems.

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).**

Qualified cybersecurity professionals continue to be in high demand in our State and across the Nation. Over 700,000 open positions exist in the national workforce, while in the State of Montana over 1,000 positions are currently vacant (cyberseek.org). These positions provide high-wage careers with the annual median salary for Information Security Analysts is $102,600 (US-BLS, Occupation Handbook). The Center will address the demand for a cybersecurity workforce by developing a hub for education resources.

Montana University System
REQUEST TO PLAN FORM

It will also serve to strengthen the State's cybersecurity posture through the Rural Cyber Policy and the Security Operations Center.

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

One-time only (OTO) startup funding has been provided to the University of Montana in establishing a hub for cybersecurity workforce education. Faculty and staff have been added to support these activities.

The University has developed the Strategic Enrollment Planning (SEP) process in developing campus priorities. Cybersecurity education has been selected as a top priority for SEP, and the institution is committed to cybersecurity education funding.

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).

Over the past two years, Statewide collaborations have been established with faculty using a Communities of Practice (CoP) model. In the MUS, faculty members from City College, Gallatin College, Highlands College, Helena College, Great Falls College, and the University of Montana faculty have joined the Montana Cybersecurity CoP in curriculum sharing, delivering Cyber-STEM camps, participating in the Montana Cyber Range, and engaging in professional development. Cybersecurity faculty from Miles Community College, Flathead Community College, Aaniiih Nakoda College, and Sentinel High School have joined MUS faculty Cybersecurity CoPs.

The CoP model is utilized by Centers of Academic Excellence across the Nation and consists of three characteristics: (1) a domain of shared interest (cybersecurity), (2) a community of activities and shared interests, and (3) membership of cybersecurity practitioners (Wegner, 2011).

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 Center fits within the University of Montana's Strategic Plan through its Priorities for Action (PFAs).

PFA 4 Partner with Place states "We benefit greatly from our natural setting and our connection to our community, state, and region. We will both use and strengthen that asset through collaborative learning opportunities, research, and service". Objective 3 describes "Cultivate and nurture partnerships that foster talent, innovation and prosperity" and Strategy 4.4.4 "Strengthen UM's position as the cybersecurity training and education center for Montana".

Montana University System

REQUEST TO PLAN FORM

Signature/Date
Chief Academic Officer: **Chief Research Officer*:** **Chief Executive Officer:** **Flagship Provost**:**  **(9-27-22)** **Flagship President**:**
*Center/Institute Proposal only **Not applicable to the Community Colleges.

Montana Board of Regents

RESEARCH CENTER AND INSTITUTE PROPOSAL FORM

Research Centers and Institutes differ from one another in focus, scope, and staffing, but each contributes in unique ways to the common goals of expanding knowledge, generating new discoveries and/or having a positive impact on society through informing policy and systemic change. Communities of researchers and staff in Research Centers and Institutes provide a stimulating environment that encourages early researchers and challenges experienced researchers. Research Centers and Institutes also contribute to the education and training of the researchers of the future by serving as learning environments for students. Interdisciplinary collaboration is promoted by Research Centers and Institutes both within the Institution and among MUS Institutions. Research Centers and Institutes do not provide didactic coursework, confer academic degrees or academic certificates or require accreditation by external accrediting bodies. Research Centers and Institutes frequently provide a portal for obtaining external funding in response to federal and/or state research priorities. As such, apparent duplication of mission between MUS research centers and institutes is not generally problematic as with academic programs due to the different sources of funding.

1. State the proposed Institute/Center's name and purpose.

The University of Montana seeks to establish the ***Center for Cybersecurity Workforce & Rural Policy*** (CWRP) with the purpose of serving as a regional hub for cybersecurity workforce training, community outreach, policy development and practice, and research. The Center will provide a home for multidisciplinary cybersecurity teaching and learning, creative scholarship, and collaborations within the University, public entities, military agencies, and the private sector.

The UM-CWRP builds on the National Center of Academic Excellence for Cybersecurity (NCAE-C) at Missoula College, a National Security Agency designation (2017). NCAE-C programs aim to create and manage collaborative cybersecurity educational programs that establish standards for cybersecurity curriculum and academic excellence, develop competency among students and faculty, participate in community outreach, provide leadership in professional development, integrate cybersecurity practices across academic disciplines, and actively engage in solutions to challenges facing cybersecurity education (https://www.caecommunity.org/about-us/what-cae-cybersecurity).

2. A comprehensive statement of the Institute/Center's mission and its relationship to the University mission.

A. State the Institute/Center's mission.

The mission of the **University of Montana, Center for Cybersecurity Workforce & Rural Policy** is to serve as the hub for cybersecurity teaching, learning, research, and collaboration.

The vision for the **University of Montana, Center for Cybersecurity Workforce & Rural Policy** is to equip government, businesses, industry, and communities to proactively defend against digital threats by providing the programs needed to serve as the collaborative, multidisciplinary, cybersecurity training hub.

B. Identify the Institute/Center's goals and objectives.

The goals of UM-CWRP are:

Montana Board of Regents

RESEARCH CENTER AND INSTITUTE PROPOSAL FORM

GOAL 1 – WORKFORCE PIPELINE: Develop the pipeline of diverse workers needed to protect Montana businesses, government, and education institutions across the public and private sectors from cyber-attacks.

OBJECTIVE 1 – ACADEMIC PROGRAM SUPPORT: Provide shared resources and create faculty collaborations to support traditional programs of study leading to academic certificates and degrees.

OBJECTIVE 2 – PROFESSIONAL DEVELOPMENT AND EMPLOYER-DRIVEN RAPID TRAINING: Respond to the cybersecurity workforce education needs of businesses, law enforcement, state and local governments, schools, and colleges, and the Montana National Guard by "upskilling" practicing cyber professionals and by providing needed rapid training programs for nontechnical workers.

OBJECTIVE 3 – WORKFORCE DIVERSITY: Expand the workforce by engaging traditionally underrepresented groups to pursue careers in cybersecurity.

OBJECTIVE 4 – WORKFORCE RESEARCH AND CREATIVE SCHOLARSHIP: Support research and creative scholarship related to the cybersecurity workforce.

GOAL 2 – RURAL CYBERSECURITY POLICY ACADEMY: Establish the Rural Cybersecurity Policy Academy to support cybersecurity policy development, maintenance, and analysis with an eye toward the unique challenges that are associated with a geographically large and sparsely populated state.

OBJECTIVE 1 – POLICY ANALYSIS, PRACTICE, and TRAINING: Provide training opportunities for organizations to practice and analyze cybersecurity policy through incident response activities.

OBJECTIVE 2 – COMMUNITY OUTREACH: Support and deliver community outreach programs to address safety through cybersecurity policy development and analysis.

OBJECTIVE 3 – POLICY RESEARCH AND CREATIVE SCHOLARSHIP: Support research and creative scholarship related to cybersecurity policy.

GOAL 3 - SECURITY OPERATIONS CENTER: Establish a student-staffed security operations center (SOC) at the University of Montana.

OBJECTIVE 1 - SOC ANALYST TRAINING: Develop a student training program for security operations analysts.

OBJECTIVE 2 - MUS SECURITY MONITORING: Protect the Montana University System (MUS) through a student security monitoring program.

OBJECTIVE 3 - VULNERABLE INFRASTRUCTURE MONITORING: Expand the student security monitoring program to protect public and nonprofit organizations that do not possess the means to protect themselves.

GOAL 4 - MULTIDISCIPLINARY INNOVATION: Develop nontechnical, multidisciplinary education, research, and community outreach activities to protect our State from cybersecurity threats.

Montana Board of Regents
RESEARCH CENTER AND INSTITUTE PROPOSAL FORM

OBJECTIVE 1 - COLLABORATION: Create the multidisciplinary collaborations needed to solve the cybersecurity challenges in every aspect of our modern society by bringing together the expertise of practitioners from nontechnical areas in the social sciences, business, law, public administration, healthcare, and education.

OBJECTIVE 2 - COMMUNITY OUTREACH: Support and deliver cybersecurity community outreach programs to increase the narrative intelligence of individuals and organizations.

OBJECTIVE 3 - SHARED FUNDING OPPORTUNITIES: Serve as a catalyst to bring together partnerships needed to pursue multidisciplinary funding opportunities.

C. What specific need is being responded to in developing the proposed Institute/Center?

The reliance on digital technologies and interconnectedness has elevated cybersecurity as one of the greatest threats to our society. Cybersecurity is no longer just about phishing attacks and ransomware. With continued advances in technology through AI and machine learning and the integration of those technologies into a wide array of autonomous devices and machines, the potential for bad actors to create disruption and mayhem continues to grow rapidly. It poses a significant risk to Montana businesses, state, tribal, and local government; agricultural communities; healthcare facilities; education entities; and critical public infrastructure. The safety of our state and its citizens depends on the security of digital resources and the responsible use of these interconnected technologies. Cybersecurity is the responsibility of all citizens. Protecting our economy, public safety, and democracy from cyber threats requires all individuals to act responsibly. The Center is responding to the societal need for cybersecurity by serving as the hub for cybersecurity teaching, learning, and research.

D. Describe how the Institute/Center benefits the department, college, or institution.

The Center will benefit the University by serving as a multidisciplinary hub for established community outreach programs, workforce training, and research activities that fall outside the traditional scope of a single academic department. It will provide a venue for overlapping disciplines to collaborate in developing new solutions to cybersecurity threats through teaching, learning, and research.

E. Describe the Institute/Center's relationship to the University mission.
The Center aligns with the University of Montana's mission of transforming lives by providing high-quality and accessible education and by generating world-class research and creative scholarship.

3. Briefly describe the Institute/Center's anticipated activities.
CYBERMONTANA: The Center will provide a home for activities through the CyberMontana program. CyberMontana was launched by the 2021 legislature as a statewide initiative providing cybersecurity awareness, training, and workforce development for businesses and residents of Montana in serving as a hub for cybersecurity teaching and learning. The Center will host CyberMontana outreach activities such as non-technical security awareness training (SAT); the Montana Cyber Range – an education resource available to high schools, colleges, universities, businesses, and National Guard members; community of practices for faculty members across the State; rapid training programs to upskill existing IT professionals, high school early college programs and middle school STEM camps; cybersecurity competitions; and employer career fairs.

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RESEARCH CENTER AND INSTITUTE PROPOSAL FORM

CRITICAL INFRASTRUCTURE TRAINING AND RESEARCH: The Center will host incident response training activities to protect critical infrastructure for public entities. An early example took place in April 2023 when faculty members from the University of Montana convened with the Montana National Guard, Federal Cybersecurity Infrastructure and Security Agency (CISA), Montana State Information Technology Services Division (MTSID), the Montana Electric Coop Association (MECA), and Northwestern Energy in delivering an incident response training exercise. These activities focus on active research to identify and provide solutions to cybersecurity threats using a cyclical process driven by collaboration among practitioners to empower individuals and communities to develop the policies, communication tools, and processes to respond to cyber threats. The event provided data for College of Business researchers. In June 2023, the University of Montana hosted cybersecurity training for the Montana manufacturing community in collaboration with CISA and Idaho National Labs. Planning for incident response training for the Montana University System is underway with a launch date in October 2023. The vision for the Center is to provide incident response training, policy analysis, and research to serve Montana's critical infrastructure sectors.

CYBER CLINICS: The Center will provide cybersecurity clinics, a program where students serve non-profit organizations by providing guidance and assistance with basic cyber hygiene safeguards (Critical Security Controls Group 1 Implementation). Clinics provide security assessments and assist nonprofit organizations with policy development and implementation of best practices.

SECURITY OPERATIONS CENTER: The Center will serve as the home for a student-based Security Operations Center (SOC). The SOC will serve as a training center to provide individuals with entry-level skills needed to become SOC Analysts. The Center will be part of the Public Infrastructure Security Cyber Education System (PISCES) project, a multistate effort to train students while protecting rural municipalities without the resources to support and protect themselves. Specifically, the SOC student training center will serve as an added level of protection to enhance cybersecurity for rural communities without the resources or capacity to proactively monitor cyber threat activity. The workforce demand for SOC analysts is high and the position has been identified as the tenth fastest-growing career field in the United States. The SOC would create an additional communication channel with State IT officials in reporting anomalies in network meta-data. The SOC will create the teaching and learning environment for "Montana students to protect Montana critical infrastructure".

MULTIDISCIPLINARY COLLABORATIONS: The Center will create new multidisciplinary collaborations and research across the UM campus, state and nation. For instance, the University of Montana has recently developed a collaboration with the University of Mississippi and industry partner Edge Theory, a technology company focused on using Artificial Intelligence (AI) and Narrative Intelligence and Artificial Intelligence (AI). This partnership has resulted in a grant submission and invitation to be part of the proposed National Narrative Intelligence Center at Ole Miss. The National Narrative Intelligence Center is focused on Foreign Malign Influence (FMI), a National Counterterrorism Center effort to deter activities or actions taken by foreign governments or entities to interfere with or undermine the national security or democratic processes of the United States.

Projects such as Narrative Intelligence, AI, and FMI provide an example of the multidisciplinary research opportunities available to the Center for Cybersecurity Workforce and Rural Policy and the collaborations that can be built with the College of Arts & Media, the School of Journalism, the College of Humanities and Sciences, and the Mansfield Center. An existing collaboration is in place with the College of Education and the University of Montana Safe Schools Center (MSSC) where a cybersecurity

Montana Board of Regents

RESEARCH CENTER AND INSTITUTE PROPOSAL FORM

training program has been developed for K-12 school administrators. Multidisciplinary collaborations will create opportunities to pursue new funding to support cybersecurity research.

A. Identify faculty expertise available for participation in the Institute/Center's activities.

Assistant Professor Vic Valgenti, Missoula College
Professor Shawn Clouse, College of Business
Assistant Professor Michael Cassens, College of Arts & Media
Professor Lee Banville, College of Arts & Media - Journalism
Zach Rossmiller CIO/Affiliate Associate Professor
Clinical Assistant Professor Dianne Burke, Missoula College
Clinical Assistant Professor Jeff Arends, Missoula College

B. Which departments on campus will be involved and how will the Institute/Center contribute to the academic programs of the institution?

The multidisciplinary aspect of cybersecurity allows for nearly all departments across campus to participate. Missoula College is leading the efforts for the Center with strong collaboration from the MIS Department in the College of Business.

4. Identify the organizational structure of the Institute/Center within the institution.

The organizational structure will consist of a director and support staff. The director will report to the UM Associate Provost for Workforce Development and Two-year Education. The Center will have an advisory committee from one or more agencies, organizations, and institutions listed below. The advisory committee will meet quarterly with members selected from industry, State IT, CISA, and education.

A. Identify all agencies, organizations and/or institutions that will be involved.

Montana National Guard
Federal Cybersecurity Infrastructure Security Agency (CISA)
Montana State Information Technology Services Division (MTSID)
Private industry
UM Provost Office/Missoula College Dean
UM Information Technology Office

B. Identify advisory council information.

At least one member of the agencies, organizations, and institutions listed above will participate in the advisory committee.

5. Identify first year and continuing finances necessary to support the Center/Institute, including the sources of funding.

Funding has been secured through the Long-range Information Technology Appropriations (HB 10) to support faculty, a director, and operational expenses through FY 2025.

Cybersecurity is an important priority for our nation and state. External funding opportunities will continue to be available in the foreseeable future. The University of Montana has successfully obtained

external funding to support cybersecurity education, partly based on the Missoula College Cybersecurity program's designation as an NSA-recognized CAE. The faculty and director will be responsible for sustaining an external funding stream to support the research, teaching, and learning activities of the Center. The Center is well-poised to seek funding from external sources including the Department of Defense, Federal and State agencies, research grant activities, and philanthropic efforts.

A. Will additional faculty and other resources be required to implement this Center/Institute? If yes, please describe the need and indicate the plan for meeting this need.

Additional faculty and resources are not needed to implement the Center.

B. Are other, additional resources required to ensure the success of the proposed Center/Institute? If yes, please describe the need and indicate the plan for meeting this need.

No additional resources are requested at this time.

6. Describe other similar Centers/Institutes or research capacities in the state and surrounding region.

Great Falls College, MSU has been recognized by NSA as a Center of Academic Excellence in Cyber Defense. There are no similar Centers/Institutes or research capacities in the state. In the surrounding region and across the country, other states have developed cybersecurity centers or hubs focused on teaching, learning, and research. For example, Portland State University has the Hatfield Cybersecurity & Cyber Defense Center. The State of Washington has developed the Cybersecurity Center of Excellence. The University of Colorado – Colorado Springs has developed a multidisciplinary cybersecurity hub that facilitates collaborations with its College of Engineering and Applied Science, College of Business, College of Letters, Arts & Science, School of Public Affairs, and the College of Education. The Center for Secure and Dependable Systems is found in the State of Idaho.

A. Describe the relationship between the proposed Center/Institute and any similar Centers/Institutes, programs, or research capacities within the Montana University System.

Missoula College and Great Falls College have formed teaching and learning collaborations such as the NSF GenCyber program. Teaching and learning collaborations and resources have been provided through the University of Montana Cyber Hub (CyberMontana) to other K12 and two-year college cybersecurity programs across the State. Still, no similar centers or research capacities in the Montana University System are currently focused on workforce and policy.

B. In cases of substantial duplication, explain the rationale for the proposed Center/Institute.

N/A

7. Assessment: How will the success of the center/institute be measured?

The Center's focus on teaching and learning will be assessed by the community outreach activities, education programs, and training activities. It will be measured by the number of training activities, participants served (quantitative), and participant surveys (qualitative). As research capabilities are further developed, the Center will measure success through successful funding opportunities, presentations, and research publications.

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RESEARCH CENTER AND INSTITUTE PROPOSAL FORM

8. State the internal campus review and approval process which has occurred prior to submission to the Commissioner's Office. Indicate, where appropriate, involvement by faculty, students, community members, professional constituencies, etc.

A request to plan (RTP) was submitted in November 2022 to the State leadership representatives from ARSA committee members, the Office of the Commissioner of Higher Education, and the Board of Regents. The full proposal has been circulated to faculty and administrators at colleges across the University of Montana and through the campus Faculty Senate approval process.