Faculty Senate Minutes
2/28/2020
1-2 pm
Room 144 Highlands College

Present: Charie Faught (Chair), Peter Lucon, Jackie Timmer, John Ray, Atish Mitra, Stella Capoccia, Laura Young, Courtney Young, Miriam Young, Dennis Noel, Abhishek Choudhury, Chris Gammons, Ed Matesh, Matt Donnelly, Ulana Holtz.

Quorum@ 1:05pm.

I. Welcome and Minutes [https://www.mtech.edu/facultystaff/facultysenate/minutes/index.html]

Approvals for February 14, 2020. Motion and seconded. PASSED.

<table>
<thead>
<tr>
<th>Action Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>II. CRC Approvals</td>
</tr>
<tr>
<td>a. EELE 435 Course Revision SME</td>
</tr>
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<td>b. EELE Program Revision SME</td>
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<tr>
<td>c. EELE Humanities BGEN 363 SME</td>
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<tr>
<td>d. Civil Engineering Technology-HC</td>
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<tr>
<td>e. SAP Certificate- Student Recognition- CLSPS</td>
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<td>f. BIT Rename- CLSPS</td>
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<td>g. Nursing (Pre-Licensure) B.S. CLSPS</td>
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<td>h. Stats minor proposal CLSPS</td>
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<td>i. Mining Proposed Changes SME</td>
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<td>j. Highlands Welding Program Changes</td>
</tr>
</tbody>
</table>

Motion to approve CRC approvals, and seconded. PASSED.

<table>
<thead>
<tr>
<th>Informational Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>III. Request for Faculty Participation in Advisory group for e-sports proposal</td>
</tr>
</tbody>
</table>

Rick LaDouceur nominated for the advisory group (with confirmation that he accepted the nomination). The senate seeks more nominations/volunteers.
IV. Review of Faculty Senate Composition

Chair presented a revised roster for the faculty senate (see attached). Those senators who have terms expiring should organize elections at their respective departments for next academic year. As usual, in each such case the outgoing senator and the senator elect will be invited to the last 3 meetings. The faculty senate officers’ election will be held at the last meeting of the semester. The Chair noted changes (see attached revised roster) in representations due to formation of new departments, eliminations of existing departments /programs going into moratorium. The writing program will have a representation in the senate after a representative is elected in their internal elections. The roster will stay the same through this semester; the changes (after any changes in departmental elections in March) will come in effect from next academic year.

Motion to add the writing program and make other changes (as per revised draft), and seconded. PASSED.

Chair will send a cleaned up list by the next meeting.

V. Activities and priorities for the upcoming year

a. Faculty Satisfaction Survey

The 2019 survey was circulated as a draft. Carrie Vath had several suggestions for questions. (See below)

1. I have integrity and can be trusted.
2. I am knowledgeable of Montana Tech's policies, rules, procedures, guidelines, and directives.
3. My actions are consistent.
4. Am accessible for communication.
5. I am a good representative of Montana Tech within the local communities.
6. Resolve conflict with the goal for all to succeed.

Stella Capoccia: Provost Gammon suggested faculty senators suggest any questions they want to see answered. Otherwise, the earlier format and questions should be kept unchanged as much as possible. She stressed that anonymity is guaranteed.

The survey will be launched sometime in March.
VI. Other Items

a. Faculty Staff Handbook Change Proposal Regarding Late Teaching Assignments
   Chair: discussed the issue that often teaching assignments are due before sabbatical announcements, which creates the need for last minute changes.
   Stella Capoccia: Suggested that these university processes (such as sabbatical announcements, etc.) be better streamlined to make the teaching assignment processfairer. Suggested that three questions be circulated – which senators will be requested to fill in twice a year (by some fixed date):
   1. Was next semester’s schedule sent to all departmental faculty?
   2. Did each course have a faculty assigned to it?
   3. Are there any courses with faculty vacancies that raise concern or that needs discussions?
   Senator: There should be a question about whether workload distribution appears to be fair and equitable. Senator: Suggest that special topics / independent studies should be counted as workload.
   Senator: there do exist grievance processes for issues such as these (workload fairness). Why is the faculty senate going into these issues?
   Chair: Further discussions on this topic next time.

b. Discuss what constitutes an action item, etc. on faculty senate agenda
   Chair: Usually action items are items to be voted on; often a future action item comes up as discussion item.

c. Creating and filling of new positions
   Chair: senate has representations in committees for filling administrative positions.

Other issues: Courtney Young - will report on committee on committees’ report in the near future.

Motion to adjourn @ 2:10pm
IV. Request for Faculty Participation in Advisory group for e-sports proposal

There has been some interest in building an esports program at Tech over the last few years. To respond to this interest we’ve been working on putting together a proposal for what this program and teams would look like, and it is very important to get faculty senate/faculty input. What I think would be very helpful is to have a small advisory group of (3) faculty that weighs in on all of the esports issues, from the development of the proposal to how to structure on campus competitions. These faculty would not necessarily have to be senators, but it would be helpful if they were willing to provide feedback to the senate (both good and bad).

It would be wonderful to have this group in place as soon as possible, and to help with decision making, I will attach a few articles related to college esports. Also, this week we asked students several questions via a qualtrics survey about an esports program. Whereas the responses are still coming in, I thought the following was very insightful about student interest:

<table>
<thead>
<tr>
<th>#</th>
<th>Field</th>
<th>Choice Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I’m not interested in participating in esports</td>
<td>29.96% 80</td>
</tr>
<tr>
<td>2</td>
<td>I’m interested in participating if I can fit training and travel into my schedule</td>
<td>42.32% 113</td>
</tr>
<tr>
<td>3</td>
<td>I’m interested in participating and will make time in my schedule</td>
<td>27.72% 74</td>
</tr>
</tbody>
</table>

Please let me know if you have any questions. I hope you have a wonderful weekend,

sdr

S D Risser
Psychology
Montana Tech
Curriculum Change Request Form Dated 6 September 2018

Date 01/7/20
Dept. Business and Information Technology
Program BS BIT, BAS Business
College CLSPS
CRC Representative David Hood

Description of Request:

Rename the Department from the Department of Business and Information Technology to the Department of Business

Current Course or Program Information: Degree requirements attached

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are no new courses involved in this proposal

List of supporting documentation attached:
1. Degree Requirements

Assessment Leading to Request

The Department of Business and Information Technology has engaged in detailed discussion related to its name as a part of our efforts to promote and market our programs. The inclusion of Information Technology in our name is appropriate and in fact a differentiator when comparing our program to other business programs in the state. This differentiation is justified, but it is believed that the inclusion of Information Technology in our name may in fact be detrimental in attracting new students. It is believed that prospective students searching for business programs may not see the inclusion of Information Technology as a differentiator but may see it as not matching their academic interests. It is believed the proposed change will put us in line with the other business programs in the state of Montana thus removing confusion for potential students.

The faculty members unanimously support the proposed change to drop Information Technology from our name. The proposal has also been informally discussed with a few members of our Industrial Advisory Board and these individuals have also supported the proposal. Finally, the Department Head has discussed the proposal with the Dean of CLSPS and the Dean also has supported the proposal.

Anticipated Impacts to “Other” Programs

None

Impact on Library: The Montana Tech library was not consulted as there is no change with the Department’s academic requirements.

Date to take effect: this proposal will take effect with the 2020-21 Catalog

APPROVALS

Department Head Approval

[Signature]

Date 11/8/2020

Dean Approval

[Signature]

By Steve Gammon at 8:00 am, Jan 10, 2020

Date

Graduate Council Approval

[Signature]

Date

CRC Approval

[Signature]

Date 2/3/2020
LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):

☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
☐ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
☐ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
☐ New degree certification program of 29 credits or less
☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):

☐ Placing a postsecondary educational program into moratorium
☐ Withdrawing a postsecondary educational program from moratorium
☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
☐ Establishing a B.A.S./A.A./A.S. area of study
☐ Offering an existing postsecondary educational program via distance or online delivery
☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Re-titling an existing postsecondary educational program
☐ Terminating an existing postsecondary educational program
☐ Consolidating existing postsecondary educational programs
☐ Establishing a new minor where there is a major or an option in a major
☐ Revising a postsecondary educational program
☐ Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-titling an academic, administrative, or research unit
☐ Other:

Need for forms
Montana Board of Regents

ACADEMIC PROPOSAL REQUEST FORM

ITEM XXX-XXXX-XXXX
Submission Month or Meeting: January 2020

Institution: University
CIP Code:

Program/Center/Institute Title: Department of Business and Information Technology (College of LSPS)

Includes (please specify below): Online Offering Options

Please mark the appropriate type of request and submit with an Item Template and 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

   X 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
ITEM XXX-XXX-XXXX

Item Name

Request to rename the Department of Business and Information Technology to the Department of Business

THAT
The College of Letters, Sciences, and Professional Studies of the Montana Technological University respectfully requests authorization from the Montana Board of Regents to change the name of the Department of Business and Information Technology. The Department is seeking to become the Department of Business, effectively removing Information Technology from its current name.

EXPLANATION
Montana Tech implemented a bachelor of science in Business and Information Technology in the mid-1990s as a way to differentiate itself from other business degrees in the state. The newly formed Department adopted the same name at this time. The name of both the degree and the department were seen as a way to differentiate our program from other business programs in the state.

It is the belief of the Department that the current name of the Department is confusing to potential students. It is believed the inclusion of Information Technology in the Department’s name may lead to the conclusion that Montana Tech does not provide a four-year business degree that can be directly compared to other four-year business programs in the state. In summary, as prospective students search for prospective business programs, the current Department name, and specifically the inclusion of the word Technology, may lead these individuals to dismiss our program as a non-four-year degree as the word Technology is commonly used in the two-year associate of applied science degrees on the campus.

This proposal is a request to change the name of the Department only. We have no inclination, at this time, to change the name of the bachelor of science degree from Business and Information Technology.

ATTACHMENTS
There are no attachments for this proposal.
Date 01/14/20  
Dept. Business and Industry  
Program Civil Engineering Technology (CET)  
College Highlands  
CRC Representative LINDA GRANGER

Description of Request: A few years ago, I was asked to allow M 114 (Advanced Technical Math) as the math requirement for CET students. The required math class was M 151 (Precalculus). I wasn’t comfortable removing M 151 from the catalog as the required math course but agreed to compromise with the Department and approve course substitutions for students wishing to take M 114. I understand M 114 is being replaced with M 105 next year.

To eliminate the need for course substitutions, I’m requesting a change to the catalog to allow M 151 or M 114 or M 105

Current Course or Program Information: The catalog currently requires M 151

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>XXXXXXXXX</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This should include what will appear in the catalog, exactly. New course require course objectives listed in this area.

List of supporting documentation attached:
1. CET program worksheet

Assessment Leading to Request
Dean Gurchiek was not comfortable approving M 114 substitutions for M 151. I agreed to submit a CRC request to allow M 114 or M 151 as the math requirement for the CET A.A.S. degree.

Anticipated Impacts to “Other” Programs
None

Impact on Library: None

Date to take effect: Fall 2020
Description of Request: The CET degree requirements currently require students to complete a 3-credit "Trades Elective." The intention of this elective was to offer cross-discipline exposure (Welding, Machining, Automotive, Drafting, or Construction) to CET students. Unfortunately, many Trades courses are restricted to program-registered students due to program fees. I am requesting to replace the Trades Elective with a General Elective, allowing students to take any 3-credit course that interests them. A.A.S. degrees do not leave much room for general exploration and this is one way a student can take an interesting course without losing traction towards their degree. The change will also help transfer students coming into the CET program as a few more existing credits can apply toward the CET degree requirements.

Current Course or Program Information: The catalog currently requires a "Trades Elective" (any course from DDSN, ETCC, CNST).

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Elective</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

This should include what will appear in the catalog, exactly. New course require course objectives listed in this area.

List of supporting documentation attached:
1. CET program worksheet

Assessment Leading to Request

Anticipated Impacts to "Other" Programs
None

Impact on Library: None

Date to take effect: Fall 2020
Date: 01/14/20
Dept. Business and Industry
Program Civil Engineering Technology (CET)  
College Highlands
CRC Representative Linda Granger

Description of Request: The CET degree requirements currently require students to complete a 3-credit ETCC 292 (Special Projects) course. During my 10 years with the program, this has not been a meaningful course. Most students elect to take an existing, structured class as a substitute, usually SRVY 247 (Survey-grade GPS Control Analysis). I'm submitting this request to replace the CET program's ETCC 292 requirement with SRVY 247.

Current Course or Program Information: The catalog currently requires ETCC 292.

Proposed Change

<table>
<thead>
<tr>
<th>Course #</th>
<th>Name</th>
<th>Credits</th>
<th>Pre-req</th>
</tr>
</thead>
<tbody>
<tr>
<td>SRVY 247</td>
<td>Survey-grade GPS Control Analysis</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

This should include what will appear in the catalog, exactly. New course require course objectives listed in this area.

List of supporting documentation attached:
1. CET program worksheet

Assessment Leading to Request

Anticipated Impacts to "Other" Programs
None

Impact on Library: None

Date to take effect: Fall 2020
Description of Request: The CET degree requirements currently require DDSN 116 – 3D CAD. This is a legacy requirement when DDSN 116 was a 2nd-semester general CAD class. As the course now focuses on 3D applications, it is less relevant to the CET curriculum. Also, CET was recently moved into the new Business and Industry Department.

To collaborate with other programs in this new department and introduce meaningful business topics to CET students, I am requesting DDSN 116 be replaced with an option of taking either ACTG 101 – Accounting Procedures I or BGEN 105 – Introduction to Business.

Current Course or Program Information: The catalog currently requires DDSN 116

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
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</thead>
<tbody>
<tr>
<td>This should include what will appear in the catalog, exactly. New course require course objectives listed in this area.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

List of supporting documentation attached:
1. CET program worksheet

Assessment Leading to Request
Discussion with Highlands College Dean and Business and Industry department head.

Anticipated Impacts to “Other” Programs
None

Impact on Library: None

Date to take effect: Fall 2020
# Graduation Curriculum Worksheet

**Civil Engineering Technology**

**Catalog 2016 -**

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**Student Name**

**Student ID**

**Began CET program**

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<table>
<thead>
<tr>
<th>Course No.</th>
<th>Course Title</th>
<th>Credits</th>
<th>Grade</th>
<th>Semester Completed</th>
<th>Approved Substitute</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FIRST SEMESTER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPP 131</td>
<td>Basic MS Office</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COMM 0110</td>
<td>Interpersonal Communications</td>
<td>3</td>
<td></td>
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<tr>
<td>or PSYX 100</td>
<td>Introduction to Psychology</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>DDSN 113</td>
<td>Technical Drafting</td>
<td>4</td>
<td></td>
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<tr>
<td>DDSN 114</td>
<td>Introduction to CAD</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td><strong>SECOND SEMESTER</strong></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>CET 0210</td>
<td>Soil Materials and Testing</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDSN 116</td>
<td>3D CAD</td>
<td>3</td>
<td></td>
<td><strong>REPLACE w/ ACTG 101 or BGEN 105</strong></td>
<td></td>
</tr>
<tr>
<td>M 151</td>
<td>PreCalculus</td>
<td>4</td>
<td></td>
<td><strong>ALLOW M151 OR M 114 OR M105</strong></td>
<td></td>
</tr>
<tr>
<td>MT 0220</td>
<td>Employment Strategies</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRVY 230</td>
<td>Intro to Surveying for Engineers</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WRIT 101</td>
<td>College Writing I</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td><strong>THIRD SEMESTER</strong></td>
<td></td>
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<tr>
<td>DDSN 245</td>
<td>Civil Drafting</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>ETCC 310</td>
<td>Concrete Technology</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>GPHY 284</td>
<td>Intro to GIS Science Cartography</td>
<td>3</td>
<td></td>
<td></td>
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<tr>
<td>GEO 101</td>
<td>Intro to Physical Geology</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SRVY 273</td>
<td>Route Surveying</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trades Elective (CET, ETCC, DDSN, CSTM)</td>
<td></td>
<td>3</td>
<td></td>
<td><strong>REPLACE w/ GENERAL ELECTIVE</strong></td>
<td></td>
</tr>
<tr>
<td><strong>FOURTH SEMESTER</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAPP 156</td>
<td>MS Excel</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DDSN 246</td>
<td>Civil Drafting II</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETCC 235</td>
<td>Const. Legal Docs and Specs</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETCC 236</td>
<td>Site Evaluation and Testing</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ETCC 292</td>
<td>Independent Study</td>
<td>3</td>
<td></td>
<td><strong>REPLACE w/ SRVY 247</strong></td>
<td></td>
</tr>
<tr>
<td>SRVY 262</td>
<td>U.S. Public Land Survey System</td>
<td>3</td>
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</tbody>
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**Advisor**

**Date**

**Student**

**Date**
Montana Tech
Curriculum Change Request Form Dated 6 September 2019

APPROVALS

Department Head Approval Linda Granger_________ Date 02/24/2020

Dean Approval Date 2-24-20

Graduate Council Approval Date

CRC Approval Date 2/25/2020

Faculty Senate Approval Date

VCAA Approval (see below) Date

Chancellor Approval (see below) Date

LEVEL of Request

Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):

☐ Establish a new course for the catalog (please contact the Registrar for MUS CCN information)

☐ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.

☐ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor

☐ New degree certification program of 29 credits or less

☐ Other:

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☐ Withdrawing a postsecondary educational program from moratorium

☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more

☐ Establishing a B.A.S./A.A./A.S. area of study

☐ Offering an existing postsecondary educational program via distance or online delivery

☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):

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☐ Terminating an existing postsecondary educational program

☐ Consolidating existing postsecondary educational programs

☐ Establishing a new minor where there is a major or an option in a major

☐ Revising a postsecondary educational program

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

☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Establishing a new postsecondary educational program

☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11

☐ Forming, eliminating or consolidating an academic, administrative, or research unit

☐ Re-titling an academic, administrative, or research unit

☐ Other:
Montana Tech

**Curriculum Change Request Form Dated 8 May 2017**

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: https://www.umt.edu/provost/faculty/curriculum/default.php.

**Date** 10/21/2019  
**Dept.** Electrical Engineering  
**College** SME  
**Program:** BS Electrical Engineering

**Description of Request/Summary:** Add Lab component to EELE 445 (Telecommunications). Change from 3 hours lecture to 2lec/3lab.

**Current Course Program Information: EELE 445 (3cr – 3lec)**

**Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)**

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EELE 445, Telecommunication Systems. (no change)</td>
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<td>The course description will remain the same.</td>
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**List of supporting documentation attached:**

None

**Assessment Leading to Request**

This proposed change is responsive to the EE department’s 2017-18 ABET assessment in which the recommended action was to “assess whether we have enough labs where the student designs an experiment.” Faculty have determined that a telecom lab would be conducive to experiment design, and that reducing the lecture hours for this course would not detrimentally impact other outcomes. The requested change is consistent with departmental philosophy espousing a lab-heavy curriculum.

**Anticipated Impacts to Other Programs or Business Units**

None

**Date to take effect:** Fall 2020.

**LEVEL of Request**

Please indicate the type of request(s) by selecting all that apply:

**Faculty Approvals (directly to CRC, then Faculty Senate):**

- [ ] Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- [X] Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- [ ] Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- [ ] New degree certification of 29 credits or less
- [ ] Other:

**Campus Approvals (must be approved by the VCAA prior to CRC submission):**

- [ ] Placing a postsecondary educational program into moratorium
- [ ] Withdrawing a postsecondary educational program from moratorium
- [ ] Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
- [ ] Establishing a B.A.S./A.A./A.S. area of study
- [ ] Offering an existing postsecondary educational program via distance or online delivery
Montana Tech  
Curriculum Change Request Form Dated 8 May 2017

☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Re-titling an existing postsecondary educational program
☐ Terminating an existing postsecondary educational program
☐ Consolidating existing postsecondary educational programs
☐ Establishing a new minor where there is a major or an option in a major
☐ Revising a postsecondary educational program
☐ Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.1
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-titling an academic, administrative, or research unit
☐ Other:

APPROVALS

Department Head Approval

[Signature] Date 8/21/19

Dean Approval

[Signature] Date 10/30/19

Graduate Council Approval

N/A Date

CRC Approval

[Signature] Date 2/21/2020

Faculty Senate Approval

Date

VCAA Approval (see above)

Date

Chancellor Approval (see above)

Date
Montana Tech  Curriculum Change Request Form Dated 8 May 2017

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: https://www.umt.edu/provost/faculty/curriculum/default.php.

Date  10/21/2019
Dept. Electrical Engineering
Program: B5 Electrical Engineering
Description of Request/Summary: Add BGEN 363 to curriculum.

Current Course Program Information: Current curriculum requires 6 Humanities credits from the GenEd list.

Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)
Add BGEN 363 (Business Ethics and Decision Making) to curriculum. Remove 3 credits of Humanities from the GenEd list from the curriculum worksheet.

List of supporting documentation attached:
Curriculum worksheet.

Assessment Leading to Request
This proposed change is responsive to the 2017-18 ABET assessment in which the recommend action was to “assess if the general ed component supports achievement of the ‘global, environmental and societal issues’ indicator”. Faculty believe that an exposure to business ethics and business decision-making will be synergistic with our engineering ethics content and will give students a better feel for engineering decisions in the business context.

Anticipated Impacts to Other Programs or Business Units
None

Date to take effect: Fall 2020.

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
- Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- New degree certification of 29 credits or less
- Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- Placing a postsecondary educational program into moratorium
- Withdrawing a postsecondary educational program from moratorium
- Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
- Establishing a B.A.S./A.A./A.S. area of study
- Offering an existing postsecondary educational program via distance or online delivery
- Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- Re-titling an existing postsecondary educational program
MontanaTech

Curriculum Change Request Form Dated 8 May 2017

☐ Terminating an existing postsecondary educational program
☐ Consolidating existing postsecondary educational programs
☐ Establishing a new minor where there is a major or an option in a major
☐ Revising a postsecondary educational program
☐ Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
☐ Other:

Level II *(must be approved by the VCAA and Chancellor prior to CRC submission)*:
☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-tilting an academic, administrative, or research unit
☐ Other:

APPROVALS

Department Head Approval

[Signature]

Date 8/21/19

Dean Approval

[Signature]

Date 10-30-19

Graduate Council Approval

N/A

Date

CRC Approval

[Signature]

Date 2/22/20

Faculty Senate Approval

Date

VCAA Approval (see above)

Date

Chancellor Approval (see above)

Date
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*Free Elect. Any 1xx course or higher
*humanss see Catalog for list of approved HUMAN and SS courses meeting the general ed requirement. EE requires 6 cr. of HUMAN electives and 3 cr. of SS electives other than ECNS 203.
*P&E Professional Electives are restricted to EEELE 400 level or higher excluding EEELE 498
*em1 Corequisite: EEELE 203 or M 405 or PHSX 453 or consent of instructor
*em2 Prerequisite: M 274, PHSX 237, PHSX 238
*gen1 The prerequisites for EGEN 324 is PHSX 235, the prerequisite for EGEN 335 is EGEN 201 and M 172

**Note:** The total credits for graduation is 135.
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MontanaTech

Curriculum Change Request Form Dated 8 May 2017

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: https://www.umt.edu/provost/faculty/curriculum/default.php.

Date: 10/21/2019
Dept. Electrical Engineering
Program: BS Electrical Engineering
Description of Request/Summary: Drop 2 free electives.

Current Course Program Information: Current overall curriculum has 136 credits. This would reduce to total to 134.

Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)
Drop 2 credits of free elective. Curriculum worksheet attached.

List of supporting documentation attached:
Curriculum.

Assessment Leading to Request
This proposed change is responsive to MBOR Policy 301.11(1)(A) which states that baccalaureate degrees are limited to a maximum of 120 credits. The EE department currently holds an exception to offer a 136 credit degree. This change would bring the EE baccalaureate closer to MBOR policy. There are no ABET implications because free electives are not used for assessment.

Anticipated Impacts to Other Programs or Business Units
None

Date to take effect: Fall 2020.

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:
Faculty Approvals (directly to CRC, then Faculty Senate):
- ☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- ☐ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- ☒ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- ☐ New degree certification of 29 credits or less
- ☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- ☐ Placing a postsecondary educational program into moratorium
- ☐ Withdrawing a postsecondary educational program from moratorium
- ☐ Estableshing, re-titling, terminating or revising a campus certificate of 29 credits or more
- ☐ Establishing a B.A.S./A.A./A.S. area of study
- ☐ Offering an existing postsecondary educational program via distance or online delivery
- ☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- ☐ Re-titling an existing postsecondary educational program
- ☐ Terminating an existing postsecondary educational program
- ☐ Consolidating existing postsecondary educational programs
- ☐ Establishing a new minor where there is a major or an option in a major
- ☐ Revising a postsecondary educational program
MontanaTech

Curriculum Change Request Form Dated 8 May 2017

☐ Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-titling an academic, administrative, or research unit
☐ Other:

APPROVALS

Department Head Approval

Date 8/21/19

Dean Approval

Date 10/30/19

Graduate Council Approval

Date

CRC Approval

Date 7/23/2020

Faculty Senate Approval

Date

VCAA Approval (see above)

Date

Chancellor Approval (see above)

Date
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*Free Elect.*  Any 1xx course or higher
*matht  Prerequisite: ACT above 27, or SAT above 610, or M 151 or equivalent
*humn/ss  See Catalog for list of approved HUMN and SS courses meeting the general ed requirement. EE requires 6 cr. of HUMN electives and 3 cr. of SS electives other than ECNS 323.
*Prof.Elect.  Professional Electives are restricted to EEE 400 level or higher excluding EEE 498
*Prof.Elect.  Corequisite: EEE 203 or M 405 or PHSX 453 or consent of instructor
*HUMN  The prerequisite for EGEN 324 is PHSX 235, the prerequisite for EGEN 335 is EGEN 201 and M 172
### EE Course Curriculum, 2020-2021 Catalog (DRAFT)

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Total credits for graduation: 134
Date: 11/21/19
Dept.: Trades & Technical
Program: CAS Welding
College: Highlands
CRC Representative: Tony Patrick

Description of Request: Remove Math pre-requisite for WLDG 170 CRN 35376 and WLDG CRN 155 CRN 35570

Current Course or Program Information: NCCER Welding Level I and Design and Fabrication

Proposed Change

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This should include what will appear in the catalog, exactly. New course require course outcomes listed in this area.

List of supporting documentation attached:
1. Example: Syllabus
2. Example: Curriculum worksheet

Assessment Leading to Request
No changes to curriculum. Program prioritization changes to Math 111 (Math for trades) no longer is taught.

Anticipated Impacts to “Other” Programs
None

Impact on Library: None
Has consulted with XXNameXX (XX/XX/XX) at the Montana Tech library to ensure needed materials and media are available. (Or No consultation is required since changes are only in the course number, course name, or course pre-requisites.)

Date to take effect: 11/21/19
Montana Tech
Curriculum Change Request Form Dated 6 September 2019

APPROVALS
Department Head Approval
Date 11-26-19

Dean Approval
Date 11-25-19

Graduate Council Approval
Date _____

CRC Approval
Date 2/21/2020

Faculty Senate Approval
Date _____

VCAA Approval (see below)
Date _____

Chancellor Approval (see below)
Date _____

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
☐ Establish a new course for the catalog (please contact the Registrar for MUS CCN information)
☒ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
☐ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
☐ New degree certification program of 29 credits or less
☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
☐ Placing a postsecondary educational program into moratorium
☐ Withdrawing a postsecondary educational program from moratorium
☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
☐ Establishing a B.A.S./A.A./A.S. area of study
☐ Offering an existing postsecondary educational program via distance or online delivery
☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Re-titling an existing postsecondary educational program
☐ Terminating an existing postsecondary educational program
☐ Consolidating existing postsecondary educational programs
☐ Establishing a new minor where there is a major or an option in a major
☐ Revising a postsecondary educational program
☐ Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-titling an academic, administrative, or research unit
☐ Other:
Date 11/21/19
Dept. Trades and Technical
College Highlands
Program CAS Welding
CRC Representative Tony Patrick

Description of Request: Curriculum change to CAS welding math requirements

Current Course or Program Information: CAS Welding

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
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<tbody>
<tr>
<td>Replace Math 111 with Math 105</td>
<td>3</td>
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</table>

List of supporting documentation attached:
1. Example: Syllabus
2. Example: Curriculum worksheet

Assessment Leading to Request
Program Prioritization changes to Math department: Math 111 is no longer offered. Math 105 replaced Math 111

Anticipated Impacts to "Other" Programs
None

Impact on Library: None has consulted with XXNameXX (XX/XX/XX) at the Montana Tech library to ensure needed materials and media are available. (Or No consultation is required since changes are only in the course number, course name, or course pre-requisites.)

Date to take effect: 11/21/19
Montana Tech Curriculum Change Request Form Dated 6 September 2019

APPROVALS
Department Head Approval
Date 11-21-19

Dean Approval
Date 11-25-19

Graduate Council Approval
Date

CRC Approval
Date 2/3/2020

Faculty Senate Approval
Date

VCAA Approval (see below)
Date

Chancellor Approval (see below)
Date

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
- Establish a new course for the catalog (please contact the Registrar for MUS CCN information)
- Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- New degree certification program of 29 credits or less
- Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- Placing a postsecondary educational program into moratorium
- Withdrawing a postsecondary educational program from moratorium
- Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
- Establishing a B.A.S./A.A./A.S. area of study
- Offering an existing postsecondary educational program via distance or online delivery
- Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- Re-titling an existing postsecondary educational program
- Terminating an existing postsecondary educational program
- Consolidating existing postsecondary educational programs
- Establishing a new minor where there is a major or an option in a major
- Revising a postsecondary educational program
- Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
- Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
- Establishing a new postsecondary educational program
- Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.1:
- Forming, eliminating or consolidating an academic, administrative, or research unit
- Re-titling an academic, administrative, or research unit
- Other:
## Welding Technology Program

**Certificate of Applied Science Degree**

---

**Student Name**  
**Catalog Year Started**

**Student ID**  
**PIN**

---

### Fall Entry Only

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<th>Course Title</th>
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<td>NCCER Tier I Welding</td>
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<td>WLDG 155</td>
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<td>Writing Fundamentals</td>
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<tr>
<td>PSYX 100 or COMX 115</td>
<td>Introduction to Psychology or Interpersonal Communications</td>
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<td>Credits (Spring)</td>
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</table>

**Total Program Credits**  
41

---

**Advisor’s Signature**  
**Date**

**Student’s Signature**  
**Date**
Syllabus – Fall
Montana Tech Highlands College

WLDG 155 – Design & Fabrication. 3 Credits

Instructor
Dennis Noel, BS, Applied Technology. Contact Number #496-3748  droel@metch.edu

Text
None

Location
Drafting room between Machine Shop and Welding Shop.

Hours
Lecture - Tuesday, 9:00 – 10:00AM
Lab – Thursday, Friday 9:00 – 10:00

Course Description
An introduction to fabrication and manufacturing of products using welding technology. Use of metal shears, chop saws, band saws, rollers, and punch machines. Layout and metal preparation for welding processes. Work includes instructor assigned fabrication projects. Enrolled in WLDG 170 (NCCER Level 1)

Objectives
Students will develop skills needed to fabricate projects from drawing, blueprints, and instructor assigned work.

Class Requirements
Class attendance and participation required. Absences will reduce final grade.
Example: We meet 10 times during the Term. A student misses 2 classes. The student will have an 80% attendance. This will be averaged with the sum of all the other grades. If the student gets a 70% for other graded work and an 80% attendance the final grade would be a 75%

Six (6) Unexcused absences will result in a failing grade and drop from enrollment in MFAB Program.

Six (6) Excused absences will result in an Incomplete Grade for the semester and the student will be dropped from the WLDG program and must return to retake the class the following year. An Incomplete grade is only given if the student is passing with a C or higher at the time of removal from WLDG Program.

Any combination of (6) absences will result in either a Failing grade or an Incomplete.
On either occasion, the student will be dropped from the WLDG Program and must retake the class before continuing the WLDG program.

Note: Tardiness is regarded as an absence.
Leaving class or lab before the end of class is an absence.

Exams and Assignments
Midterm Exam
Class Participation
Attendance
Projects
Final Exam

Grading Scale
A 100 to 90
B 89 to 80
C 79 to 70
D 69 to 60
Scores below 600 must schedule meeting with instructor.

Fabrication Tasks

1. Accurately shear sheet steel to specific dimensions.
2. Safely use power hack saw.
3. Safely use abrasive chop saw.
4. Operate hydraulic punch/sheer machine.
5. Correct use of drill press
7. Use geometry to prepare steel frameworks for final welding
8. Accurately measure steel gauge thickness.
9. Identify structural steel shapes.
10. Design and prepare welded joints during the fabrication process.
11. Use measuring tools to accurately "square" a welded framework.
12. Correctly tack weld before final welding.
13. Weld in all positions using SMAW and GMAW
14. Read mechanical blueprints and interpret data.
I \hspace{5mm} \textbf{COURSE DESCRIPTION}

In Welding I, students will learn welding Safety, Oxy-Fuel cutting (OFC), Shielded Metal Arc Welding (SMAW), Joint-Fit Up and Alignment, Welding Position, Power Source Selection, and Terminology and Use of Measuring Devices. Students will also learn how to interpret welding symbols as they appear on engineering drawings or blueprint and weld the projects using the correct welding system and material. Students will also be introduced and reinforce their knowledge of different materials and how they react to the high heat of the welding process. Student competency will be based upon module tests and hands-on performance.

II \hspace{5mm} \textbf{COURSE MATERIALS}

- NCCER Weld level I (Required) No used books!!!!
- Standard Welding tools
- Books must be purchased at the Montana Tech Bookstore.

\textbf{The following will be needed for lab everyday and everyday that you do not have all of these items you will receive one days absence:}

- Welding hood
- Welding jacket
- Welding gloves
- Chipping Hammer
- Combination Square
- Sharpes
- 4 ½ inch grinder
- Welpers (Mig Pliers)
- 2 Vise grips
- Wire brush
- Clear Safety Glasses
- Shade 5 Glasses
- Soapstone with holder or Grease pencil
- Striker
III COURSE OBJECTIVES
The students will be able to:

- Interpret and demonstrate welding safety.
- Employ the oxy-fuel cutting (OFC) process.
- Demonstrate the shielded Metal Arc Welding (SMAW) process.
- Explain and interpret welding positions.
- Interpret different power source selections.
- Use different measuring instruments/devices.
- Apply math skills.
- Interpret measurements as required on engineering drawings.
- Interpret the length, size, and contour of welds specified on a drawing, as well as the type of filler metals and welding procedures required.
- Apply fit-up and weld an assembly given a drawing and a corresponding Bill of Materials.

Note: all course objectives will be performed to AWS welding industry standards.

IV COURSE OUTLINE

NCCER Weld Level 1  www.nccer.org/
Module 1  Welding safety
Module 2  Oxy-fuel cutting
Module 3  Plasma arc cutting
Module 4  Air carbon arc cutting and gouging
Module 5  Metal preparation
Module 6  Weld quality
Module 7  SMAW – equipment and setup
Module 8  Shielded metal arc electrodes
Module 9  SMAW – Beads and fillet welds
Module 10  Joint fit-up and alignment
Module 11  SMAW groove welds with backer
Module 12  SMAW – open V-groove

V. COURSE EVALUATION

1. ONLINE
The online portion of the course will consist of the theory components of NCCER Weld level 1 Modules. The module tests must be proctored at an approved testing facility. All tests must be passed at a 70% or higher in order to pass the module only one retest may be given per module. Practical portions of the modules will be completed in a lab setting.

2. Practical (Hands on)
   You will attend the program 4 days a week, up to 6 hours a day until you either complete all the performance tasks or until the 16 week period is up.

   **In order to continue on to 2nd semester and NCCER weld level II you must complete NCCER weld Level I which includes:**

   - Oxyfuel Cutting Performance Accreditation Tasks
   - Plasma Arc Cutting Accreditation Tasks
   - Air Carbon Arc Gouging Performance Accreditation Tasks
   - Base Metal Preparation Performance Accreditation Tasks
   - SMAW Welding Block with 6010 and 7018 in all positions
   - SMAW Beads and Fillet Welds Performance Accreditation Tasks
   - SMAW V-Groove Welds with Backing Performance Accreditation Tasks
   - SMAW Open V-Groove Welds Performance Accreditation Tasks

   **NCCER Performance Tasks Sheets**- After completing a performance task your sheet must be signed that day or you will have to repeat that task again. This is why it is important to bring your sheets everyday.

1. **Being prepared for class**
   Most of the material introduced in this class will likely be new to you therefore attendance is **required and expected.** Absenteeism is a leading cause of job loss, and college failure. That said, attendance is important, and poor attendance will result in lower grades. The classes in the Welding Technology Tier1 program are dependent on your participation during both lab, and classroom time. Without explanation, some of the material may be very difficult for you to understand. Class time will also be of value in providing you with an opportunity to ask questions. **Keep in mind that class lectures will not be repeated for anyone regardless of the reason for absence.** If you miss class you are still responsible for any material discussed.

   Being prepared for class is just as important as being prepared for work. The following is what you need to have to be prepared:
   1. Your BOOK
   2. All Personal Protective Equipment (PPE)
   3. A good attitude
   4. #2 pencil

   **Assessments/Tests/Quizzes: 100% of final grade**

   - NCCER Weld Level One

   You will be tested after each module of the book we will discuss. If you miss a test it is your responsibility to make that test up, if you do not make up the test you will receive a zero for test/tests that you missed which will then be averaged in to your final grade.

   **Grading Scale**
VI ATTENDANCE:

You will be graded daily any time you come in late or leave early you earn ½ of a day. Every 2 times you are late or leave early is equal to one absence. After 4 absences or equivalent during one semester, a student will be deemed a safety hazard, which will result in being removed from the program. If you do not call in, no assignment or test can be made up for that day(s).

There will be no radio, no cell phone, no I-pod or no listening to music by any means allowed while in the Classroom or Lab. This will result in a 0 for the day. You must stay busy, if you are not being productive or if there is any horseplay half a point will be deducted from your daily grade. Any disruptive student in classroom or lab will receive half a point and may be kicked out class for the day or for the semester.

Make-up Work- Make-up work will be allowed if you call in before class starts. There will be no lab make-up. You will be responsible to make up work. Don't ask me what work you have to make up lack on your NCCER account.

You will be responsible for cleaning your booth and completing your shop title duties every day. Failure to comply will result in one day absence.

100% participation is paramount. Failure to participate is 1 day absents.

Leaving early for lunch and/or coming back late will result in ½ half a day

Horse play, vulgar language and outburst in class will not be tolerated at any time. Repeated violations may subject you to being asked to leave the class and return when you can act responsibly. If you don't want to comply you may be asked to withdraw from the program.

VII THE USE OF CELL PHONES

Cell phones will not be tolerated in the classroom or lab! Your focus needs to be on the material being presented and the tasks you will be doing. Turn your cell phones off before class and keep them off during class. Cell phones will be removed from the person violating this rule or the student will be asked to leave the class for the day.

VIII THE USE OF DRUGS AND ALCOHOL

Highlands College is a drug-free campus, meaning that the use or selling of any illegal drugs on campus (even if you have a medical marijuana card) is prohibited. Being under the influence of illegal drugs as well as some legal ones can pose a serious risk to the safety of everyone in a welding lab. If drug use is suspected that student will be asked to leave for that day in order to maintain a safe environment. The student will be referred to the Assistant Dean of Student Services for this infraction of the Student Code of Conduct (found in the Student Handbook) and possibly be dismissed from the welding program because of the threat to the safety of others. Smoking is not permitted on Campus.

IX PLAGIARISM AND ACADEMIC INTEGRITY

300.14 ACADEMIC HONESTY

The integrity of the academic process requires credit be given where credit is due. Accordingly, it is academic misconduct to present the ideas or works of another as one’s own work, or to permit another to present one's work without customary and proper acknowledgment of authorship. Students may collaborate with other students only as expressly permitted by the instructor. Students are responsible for the honest completion and representation of their work, the appropriate citation of sources and the respect and recognition of others' academic endeavors.

300.42 DESCRIPTIONS AND EXAMPLES
D. Plagiarism

This is presenting the work of another as one's own without proper acknowledgment.

Examples of plagiarism include submitting as one's own work the work of another student, ghost writer or commercial writing service; directly quoting from a source without acknowledgment; paraphrasing or summarizing another's work without acknowledging the source; or using facts, figures, graphs, charts or information without acknowledging the source. Plagiarism may occur orally or in writing and may involve computer programs and files, research designs, distinctive figures of speech, ideas and images or any other information that belongs to another person and is not acknowledged as such. Inadvertent or unintentional misuse or appropriation of another's work (such as relying heavily on source material that is not expressly acknowledged) is still considered plagiarism.

Please see the link below for more information and the entire policy.
http://www.msugf.edu/about/PoliciesProcedures/300/300_STUDENT_CONDUCT_AND_GRIEVANCE_002.pdf

Anyone caught cheating will be awarded a zero for that assignment or task up to dismissal from the program.
Date: 1/6/20  
Dept: Mining Engineering  
Program: Mining Engineering  
College: SME  
CRC Representative: Dr. Paul Conrad

Description of Request: Currently mine surveying spends nearly the entire semester surveying and scanning in an underground environment. This change allows the same, and possibly more, data collection to occur than the current mine surveying class as a second one credit class is added whereby students transform their data collected into 3D models.

Current Course or Program Information: None

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-reg.</th>
</tr>
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<tbody>
<tr>
<td>MIN 216 - Mine Surveying &amp; Data Analysis 1</td>
<td>1</td>
<td>Co-Req MIN 210 Plane Surveying</td>
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</table>

The theory and practical application of mine surveying techniques are addressed along with the analysis of data utilizing specialized computer aided drafting (CAD) software. Students will collect data utilizing traditional and modern surveying techniques and incorporate the results into mine maps and volumetric models. Students will also be exposed to methods of mine survey markup and layout techniques. Students will be exposed to both surface and underground surveying techniques through a combination of classroom lecture, practical lab exercises, and computer lab data analysis and modeling.

Course Outcomes

Students will have experience performing the following tasks:
1. Conduct a closed traverse to establish coordinates of unknown control points.
2. Conduct detail (volume and outline) surveys
3. Establish instrument locations and direction above or below a known point and through the use of multi-point resection.
4. Provide mine operations with direction and grade guidance.
5. Utilize resection to establish location and direction from a vertical shaft.
6. Use of CAD tools to incorporate data into a mine map and volumetric model.
7. Dig face & final highwall location survey.
8. Ore control stake out.

List of supporting documentation attached:

1. Example: Syllabus Attached

Assessment Leading to Request

Mine surveying has traditionally been an underground mine survey class where students collect data and know how to underground survey. Students will still perform underground mine survey with the addition of utilizing that data to generate models of the underground allowing calculation of volumes, ore control stake out, and shaft surveying techniques.

Anticipated Impacts to “Other” Programs

No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
MontanaTech  Curriculum Change Request Form Dated 6 September 2019

APPROVALS

Department Head Approval ____________________________ Date 2/12/20

Dean Approval ____________________________ Date 2/12/20

Graduate Council Approval ____________________________ Date ______

CRC Approval ____________________________ Date 2/20/2020

Faculty Senate Approval ____________________________ Date ______

VCAA Approval (see below) ____________________________ Date ______

Chancellor Approval (see below) ____________________________ Date ______

LEVEL of Request

Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):

☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)

☐ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.

☐ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor

☐ New degree certification program of 29 credits or less

☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):

☐ Placing a postsecondary educational program into moratorium

☐ Withdrawing a postsecondary educational program from moratorium

☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more

☐ Establishing a B.A.S./A.A./A.S. area of study

☐ Offering an existing postsecondary educational program via distance or online delivery

☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Re-titling an existing postsecondary educational program

☐ Terminating an existing postsecondary educational program

☐ Consolidating existing postsecondary educational programs

☐ Establishing a new minor where there is a major or an option in a major

☐ Revising a postsecondary educational program

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

☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Establishing a new postsecondary educational program

☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11

☐ Forming, eliminating or consolidating an academic, administrative, or research unit

☐ Re-titling an academic, administrative, or research unit

☐ Other:
SYLLABUS
MIN 216 – Mine Surveying & Data Analysis 1

Fall 2020 • 1 credit
Lab - Monday • 2:00-5:00 pm • CRN 3xxxx
Montana Tech • Mining Engineering Dept.

Instructor
Chris Roos, P.E.
Assistant Professor
Office: 118, Mining Geology Building
Phone: (406) 496-4624
Email: croos@mtech.edu
Office hours: By appointment, and open door when available

Course Description
The theory and practical application of mine surveying techniques are addressed along with the analysis of data utilizing specialized computer aided drafting (CAD) software. Students will collect data utilizing traditional and modern surveying techniques and incorporate the results into mine maps and volumetric models. Students will also be exposed to methods of mine survey markup and layout techniques. Students will be exposed to both surface and underground surveying techniques through a combination of classroom lecture, practical lab exercises, and computer lab data analysis and modeling. Corequisite – MIN 210 – Plane Surveying.

Course Outcomes
Students will have experience performing the following tasks:
1. Conduct a closed traverse to establish coordinates of unknown control points.
2. Conduct detail (volume and outline) surveys
3. Establish instrument locations and direction above or below a known point and through the use of multi-point resection.
4. Provide mine operations with direction and grade guidance.
5. Utilize resection to establish location and direction from a vertical shaft.
6. Use of CAD tools to incorporate data into a mine map and volumetric model.
7. Dig face & final highwall location survey.
8. Ore control stake out.

Course Outcomes
This course is intended to build upon the students' engineering foundation and progress them towards achieving the following program outcomes (to be updated to new ABET Outcomes):
- An ability to apply knowledge of mathematics, science, and engineering.
- An ability to function on multidisciplinary teams.
- An ability to identify, formulate, and solve engineering problems.
- An ability to communicate effectively.
- An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
- Demonstrated proficiency in additional engineering topics; such as, rock fragmentation, materials handling, mineral processing, mine surveying, and valuation and resources/reserve estimation.
Grading

Attendance 20%
Individual Performance/Peer Review 20%
Lab Exercises 60%

A: 90–100% | B: 80–89% | C: 70–79% | D: 60–69% | F: < 60%

Homework and lab reports are due when indicated. This class is being treated as if it is the "real world" and real deadlines will be enforced. Late assignments will not be accepted without prior approval and the student may receive a zero for the assignment.

Attendance is critical and may be taken for all lab sessions, if a student must miss a lab, all effort should be made to make-up the work BEFORE your scheduled lab date. Lab make-ups need to be arranged with the instructor. Each unexcused absence will result in the loss of 10% of your grade; three unexcused absences will result in an "F" in the class.

Textbook (Recommended)

Student Conduct
https://www.mtech.edu/student-conduct/index.html
Since you have made it this far in your academic pursuits, I assume you aspire to a professional career. As an engineer you will be expected to lead people and manage resources, and your personal integrity will be an integral component of how you conduct yourself in this profession.

Academic Integrity: Montana Tech believes that academic honesty and integrity are fundamental to higher education. Cheating can result in losing at least one letter grade for the course (e.g., from a C to a D), a failing grade for the entire course, and even expulsion from Montana Tech. In the way you conduct yourself as a student, you are training yourself for the type of professional you will be.

Title IX: Title IX violations include sexual assault, harassment, dating and relationship violence, discrimination, stalking, and retaliation. Montana Tech is committed to providing an environment that emphasizes the dignity and worth of every member of its community. To report a violation of sexual misconduct or gender discrimination, contact the Title IX Coordinator [Vanessa Van Dyke vvandyke@mtech.edu] at (406) 496-4332.
All professors at Montana Tech are required to report any incidences to the Title IX Coordinator. Confidential support for students is available by contacting the Student Counseling Center at (406) 496-4429 (Engineering Hall, Room 103).

Students with Disabilities
Students wishing to request an accommodation of any type for a physical and/or cognitive challenge are directed to contact the Montana Tech Student Life Programs Office, Engineering Hall, Room 101 (406) 496-4198. This includes students requesting extra time on exams.

Final Exam
TBD

Note: This syllabus is subject to revision by the instructor at any time.
Date 1/6/20  
Dept. Mining Engineering  
Program Mining Engineering  
College SME  
CRC Representative Dr. Paul Conrad

Description of Request: Create a course that builds on MIN 216, utilizing the hands-on data obtained in MIN 216 and put it to work for a more complete understanding of the importance of mine surveying.

Current Course or Program Information: None

### Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
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<tr>
<td>MIN 217 – Mine Surveying &amp; Data Analysis 2</td>
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<td>Pre-Req MIN 217 – Mine Surveying &amp; Data Analysis 1</td>
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</table>

This course is a continuation of MIN 216 and will reinforce the concepts introduced in the previous class and expand on the application of modern survey techniques and spatial data analysis. A combination of classroom lecture, practical lab exercises, and computer lab data analysis and modeling will again be used to reinforce the foundations of mine surveying.

### Course Outcomes

Building on the outcomes from MIN 216, students will have experience performing the following additional tasks:

1. Use of modern laser scanning/LIDAR instruments and associated data analysis software.
2. Development of a volumetric model of the UMEC.
3. Application of unmanned systems (aerial and terrestrial) and/or mobile scanning systems for the collection of spatial data.
4. Develop a basic understanding of photogrammetry and its application in mine surveying.
5. Introductory geotechnical monitoring.

List of supporting documentation attached:

1. Example: Syllabus Attached

Assessment Leading to Request

Mine surveying is incorporating more and more technology and unmanned systems. Students working summer internships are using these tools so to be better prepared for an internship, hands-on use of the systems will prepare our students better for the workforce.

Anticipated Impacts to "Other" Programs

No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
Montana Tech
Curriculum Change Request Form Dated 6 September 2019

APPROVALS
Department Head Approval
Date 2/12/20

Dean Approval
Date 2-12-20

Graduate Council Approval
Date

CRC Approval
Date 2/12/20

Faculty Senate Approval
Date

VCAA Approval (see below)
Date

Chancellor Approval (see below)
Date

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
- Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- New degree certification program of 29 credits or less
- Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- Placing a postsecondary educational program into moratorium
- Withdrawing a postsecondary educational program from moratorium
- Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
- Establishing a B.A.S./A.A./A.S. area of study
- Offering an existing postsecondary educational program via distance or online delivery
- Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- Re-titling an existing postsecondary educational program
- Terminating an existing postsecondary educational program
- Consolidating existing postsecondary educational programs
- Establishing a new minor where there is a major or an option in a major
- Revising a postsecondary educational program
- Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
- Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
- Establishing a new postsecondary educational program
- Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
- Forming, eliminating or consolidating an academic, administrative, or research unit
- Re-titling an academic, administrative, or research unit
- Other:
SYLLABUS

MIN 217 – Mine Surveying & Data Analysis 2

Spring 2021 • 1 credit
Lab - Friday • 2:00-5:00 pm • CRN 3xxx
Montana Tech • Mining Engineering Dept.

Instructor
Chris Roos, P.E.
Assistant Professor
Office: 118, Mining Geology Building
Phone: (406) 496-4624
Email: croos@mtech.edu
Office hours: By appointment, and open door when available

Course Description
This course is a continuation of MIN 216 and will reinforce the concepts introduced in the previous class and expand on the application of modern survey techniques and spatial data analysis. A combination of classroom lecture, practical lab exercises, and computer lab data analysis and modelling will again be used to reinforce the foundations of mine surveying.
Prerequisite – MIN 216 – Mine Surveying & Data Analysis 1.

Course Outcomes
In addition to the outcomes associated with MIN 216, students will have experience performing the following additional tasks:
1. Use of modern laser scanning/LIDAR instruments and associated data analysis software.
2. Development of a volumetric model of the UMEC.
3. Application of unmanned systems (aerial and terrestrial) and/or mobile scanning systems for the collection of spatial data.
4. Develop a basic understanding of photogrammetry and its application in mine surveying.
5. Introductory geotechnical monitoring.

Course Outcomes
This course is intended to build upon the students’ engineering foundation and progress them towards achieving the following program outcomes (to be updated to new ABET Outcomes):
   a. An ability to apply knowledge of mathematics, science, and engineering.
   d. An ability to function on multidisciplinary teams.
   e. An ability to identify, formulate, and solve engineering problems.
   g. An ability to communicate effectively.
   k. An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
   o. Demonstrated proficiency in additional engineering topics; such as, rock fragmentation, materials handling, mineral processing, mine surveying, and valuation and resources/reserve estimation.
Grading

Attendance 20%
Individual Performance/Peer Review 20%
Lab Exercises 60%

A: 90–100% | B: 80–89% | C: 70–79% | D: 60–69% | F: < 60%

Homework and lab reports are due when indicated, this class is being treated as if it is the "real world" and real deadlines will be enforced. Late assignments will not be accepted without prior approval and the student may receive a zero for the assignment.

Attendance is critical and may be taken for all lab sessions, if a student must miss a lab, all effort should be made to make-up the work BEFORE your scheduled lab date. Lab make-ups need to be arranged with the instructor. Each unexcused absence will result in the loss of 10% of your grade; three unexcused absences will result in an “F” in the class.

Textbook (Recommended)

Student Conduct
https://www.mtech.edu/student-conduct/index.html
Since you have made it this far in your academic pursuits, I assume you aspire to a professional career. As an engineer you will be expected to lead people and manage resources, and your personal integrity will be an integral component of how you conduct yourself in this profession.

Academic Integrity: Montana Tech believes that academic honesty and integrity are fundamental to higher education. Cheating can result in losing at least one letter grade for the course (e.g., from a C to a D), a failing grade for the entire course, and even expulsion from Montana Tech. In the way you conduct yourself as a student, you are training yourself for the type of professional you will be.

Title IX: Title IX violations include sexual assault, harassment, dating and relationship violence, discrimination, stalking, and retaliation. Montana Tech is committed to providing an environment that emphasizes the dignity and worth of every member of its community. To report a violation of sexual misconduct or gender discrimination, contact the Title IX Coordinator (Vanessa Van Dyke vvandyk@mtech.edu) at (406) 496-4332.
All professors at Montana Tech are required to report any incidences to the Title IX Coordinator. Confidential support for students is available by contacting the Student Counseling Center at (406) 496-4429 (Engineering Hall, Room 103).

Students with Disabilities
Students wishing to request an accommodation of any type for a physical and/or cognitive challenge are directed to contact the Montana Tech Student Life Programs Office, Engineering Hall, Room 101 (406) 496-4198. This includes students requesting extra time on exams.

Final Exam
TBD

Note: This syllabus is subject to revision by the instructor at any time.
Date  1/6/20
Dept.  Mining Engineering
Program  Mining Engineering
College  SME
CRC Representative  Dr. Paul Conrad

Description of Request: Create a seminar format class combining faculty lectures, guest lectures by industrial experts, and student/graduate student research presentations in the areas of innovation, automation, and cutting-edge mining practices. The goal is to expose students to mining industry leading practices in development or in use, especially where this information is not covered in existing courses.

Current Course or Program Information: None

Proposed Change

<table>
<thead>
<tr>
<th>Course #</th>
<th>Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 300</td>
<td>Mining Technology</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

Investigations into innovation, automation and cutting-edge technologies applicable to mining engineering and mine operations combining faculty lectures, guest lectures by industrial experts, and student/graduate student research presentations.

Course Outcomes
Students will understand:
1. Current and in development technologies.
2. Applications of cutting-edge technologies.

List of supporting documentation attached:
1. Example: Syllabus Attached

Assessment Leading to Request
Mining Engineering students have grown up in the age of computers, virtual reality, and gaming. Exposing students to how these technologies can be applied in an industrial setting will lead to further innovation in mining. Provides Mining Engineering students exposure to technologies not included in other course content.

Anticipated Impacts to “Other” Programs
No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
Montana Tech

Curriculum Change Request Form Dated 6 September 2019

APPROVALS

Department Head Approval

[Signature]

Date 2/11/20

Dean Approval

[Signature]

Date 2-12-20

Graduate Council Approval

[Signature]

Date 2/19/20

CRC Approval

Date __________

Faculty Senate Approval

Date __________

VCAA Approval (see below)

Date __________

Chancellor Approval (see below)

Date __________

LEVEL of Request

Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):

☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)

☐ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.

☐ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor

☐ New degree certification program of 29 credits or less

☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):

☐ Placing a postsecondary educational program into moratorium

☐ Withdrawing a postsecondary educational program from moratorium

☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more

☐ Establishing a B.A.S./A.A./A.S. area of study

☐ Offering an existing postsecondary educational program via distance or online delivery

☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Re-titling an existing postsecondary educational program

☐ Terminating an existing postsecondary educational program

☐ Consolidating existing postsecondary educational programs

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☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Establishing a new postsecondary educational program

☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11

☐ Forming, eliminating or consolidating an academic, administrative, or research unit

☐ Re-titling an academic, administrative, or research unit

☐ Other:
SYLLABUS

MIN 300 – Mining Technology

Fall 2020 • 1 credit
Lecture – MG 103 • 2:00-3:50 pm, F • CRN 3xxx
Montana Tech • Mining Engineering Dept.

Instructor
Scott D. Rosenthal, P.E.
Associate Professor
Office: 119, Mining Geology Building
Phone: (406) 496-4867
Email: srosenthal@mtech.edu
Office hours: By appointment, and open door when available

Course Description
Investigations into innovation, automation and cutting-edge technologies applicable to mining engineering and mine operations combining faculty lectures, guest lectures by industrial experts, and student/graduate student research presentations.

Course Objective
A seminar format class combining faculty lectures, guest lectures by industrial experts, and student/graduate student research presentations in the areas of innovation, automation, and cutting-edge mining practices. The goal is to expose students to mining industry leading practices in development or in use, especially where this information is not covered in existing courses.

Course Outcomes
Course outcomes will evolve as the mining industry continues to evolve and adopt new and novel technology. Initially students will be exposed to:

1. Current and in development technologies.
   a. Semi-autonomous and autonomous mining equipment
   b. Modern communication technology required to support digitalization
   c. Alternative energy systems and the importance of energy management
   d. Modern applications of in-situ extraction/solution mining
   e. Applications of augmented and virtual reality in mining
   f. Big data and data analytics

2. Applications of cutting-edge technologies.
   a. Continuous mining systems (Hecla/Epiroc “Mobile Miner”)
   b. Developing use of artificial intelligence and/or machine learning algorithms in mine operations
   c. Techniques relevant to extraterrestrial mining

3. Mines of the Future
   a. Case study review of mines that are currently in development or planning stages that are embracing the use of one or more of these (or other) technologies.
Grading
You are responsible for anything I say in class.

Homework/Class Exercises  60%
Quizzes/Exams  40%

A: 90–100%  |  B: 80–89%  |  C: 70–79%  |  D: 60–69%  |  F: < 60%**Textbook**

No textbook is required for this class. Assigned reading of outside sources, handouts and other materials will be required.

Topics
See course outcomes.

Student Conduct
https://www.mtech.edu/student-conduct/index.html
Since you have made it this far in your academic pursuits, I assume you aspire to a professional career. As an engineer you will be expected to lead people and manage resources, and your personal integrity will be an integral component of how you conduct yourself in this profession.

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Final Exam
TBD

Note: This syllabus is subject to revision by the instructor at any time.
Date: 1/6/20  
Dept.: Mining Engineering  
Program: Mining Engineering  
College: SME  
CRC Representative: Dr. Paul Conrad

Description of Request: Create a dual listed course from the existing course MIN 575 – Tunneling & Underground Construction. Mining Engineering requires two (2) design courses for graduation as approved by the MIAB. Currently there are four (4) courses students can choose from to complete the two (2) design course requirement: MIN 401 – Mine Design Surface, MIN 405 – Mine Design Underground, MIN 430 – Aggregate Mine Design, or MIN 472 – Mine Design – Coal. In addition to dual listing MIN 575 as MIN 475, this course would be added to the four (4) courses students can choose from to complete the two (2) design course requirement. Students who have previously taken MIN 575 will not be permitted to take MIN 475, and vice-versa. Students enrolled in MIN 575 will be required to perform additional course work than students enrolled in MIN 475.

Current Course or Program Information: MIN 575 – Tunneling & Underground Construction  
3 credits (Hrs: 2 lec., 3 Lab)

This course will cover the most significant aspects of tunnel and underground construction in hard rock and soft ground, including site investigation, design, construction techniques, ground support design, tunnel utilities, construction sequencing and scheduling, and costs.

Prerequisite(s): MIN 305 and EGEN 325; junior or senior standing. Recommended preparation MIN 467 or ECIV 486. Course generally offered every other 2nd semester.

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 475 – Tunneling &amp; Underground Construction</td>
<td>3</td>
<td>MIN 305 and EGEN 325; junior or senior standing. Recommended preparation MIN 467 or ECIV 486</td>
</tr>
</tbody>
</table>

This course will cover the most significant aspects of tunnel and underground construction in hard rock and soft ground, including site investigation, design, construction techniques, ground support design, tunnel utilities, construction sequencing and scheduling, and costs.

Course Outcomes
Students will understand:
1. History of tunneling.
3. Site investigation.
4. Ground control and tunnel linings.
5. Tunnel construction methods
6. Design and develop tunneling plan and schedule.
7. Develop capital and operating budget.


List of supporting documentation attached:  
1. Example: Syllabus Attached

Assessment Leading to Request
Mining Engineering students are recruited to work for companies engaged in tunneling & Underground Construction and the Mining Engineering department wants to further prepare our students for success in this field. Provides Mining Engineering students with an additional technical elective option. Mining Engineering allows flexibility in students’ choices of design courses to follow their passion and requires two (2) design courses are completed.
Anticipated Impacts to “Other” Programs
No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
Curriculum Change Request Form Dated 6 September 2019

APPROVALS

Department Head Approval

Date 2/14/20

Dean Approval

Date 2-12-20

Graduate Council Approval

Date 2/20/2020

CRC Approval

Date ______

Faculty Senate Approval

Date ______

VCAA Approval (see below)

Date ______

Chancellor Approval (see below)

Date ______

LEVEL of Request

Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):

☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
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☐ New degree certification program of 29 credits or less
☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):

☐ Placing a postsecondary educational program into moratorium
☐ Withdrawing a postsecondary educational program from moratorium
☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
☐ Establishing a B.A.S./A.A./A.S. area of study
☐ Offering an existing postsecondary educational program via distance or online delivery
☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Re-titling an existing postsecondary educational program
☐ Terminating an existing postsecondary educational program
☐ Consolidating existing postsecondary educational programs
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☐ Revising a postsecondary educational program
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☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-titling an academic, administrative, or research unit
☐ Other:
SYLLABUS
MIN 475 – Tunneling & Underground Construction

Spring 2020 • 3 credits
Lecture – MG 103 • 10:00-10:50 am, Tu/Th • CRN 35495
Lab – MG 102 • 2:00-4:50 pm, Mon • CRN 35496
Montana Tech • Mining Engineering Dept.

Instructor
Scott D. Rosenthal, P.E.
Professor
Office: 119, Mining Geology Building
Phone: (406) 496-4867
Email: srosenthal@mtech.edu
Office hours: By appointment, and open door when available

Course Description
This course will cover the most significant aspects of tunnel and underground construction in hard rock and soft ground, including site investigation, design, construction techniques, ground support design, tunnel utilities, construction sequencing and scheduling, and costs.

Course Objective
An understanding of tunneling methods and underground construction for civil and mining engineering projects incorporating safety in design, tunnel construction, equipment selection, tunnel completion, project scheduling, and cost analysis.

Course Outcomes
Students will understand:
  1. History of tunneling.
  3. Site investigation.
  4. Ground control and tunnel linings.
  5. Tunnel construction methods
  6. Design and develop tunneling plan and schedule.
  7. Develop capital and operating budget.

Grading
You are responsible for anything I say in class.

Homework/Class Exercises  30%
Exams                        40%
Laboratory Mine Design Report 30%

A: 90–100%  |  B: 80–89%  |  C: 70–79%  |  D: 60–69%  |  F: < 60%
Textbook

Topics
See course outcomes.

Student Conduct
https://www.mtech.edu/student-conduct/index.html
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Students with Disabilities
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Final Exam
Wednesday, April 29, 2020, 8:00 – 10:00 am

Note: This syllabus is subject to revision by the instructor at any time.
Montana Tech

Curriculum Change Request Form Dated 8 May 2017

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: https://www.umt.edu/provost/faculty/curriculum/default.php.

Date 01/06/2020
Dept. Mining Engineering
Program: Mining Engineering
College School of Mines & Engineering

Description of Request/Summary: Mining Engineering requires two (2) design courses for graduation as approved by the MIAB. Two (2) for the following courses are required: MIN 401 - Mine Design Surface, MIN 405 - Mine Design Underground, MIN 430 - Aggregate Mine Design, or MIN 472 - Mine Design – Coal.

Current Course Program Information: MIN 401 - Mine Design Surface
3 credits (Hrs: 2 Lec., 3 Lab)

A senior-level design course incorporating the principles of previous mining and engineering courses. Phases of this economic design covered are development, equipment selection and productivity. Engineering economy of all designs is considered. Laboratory design problems involve the integration of the knowledge gained in previous courses within and outside the department.

Prerequisite(s): MIN 305, MIN 310, and EGEN 325; senior standing. Course generally offered 1st semester.

Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)

<table>
<thead>
<tr>
<th>Course #</th>
<th>Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 401</td>
<td>Mine Design Surface</td>
<td>3</td>
<td>No Change</td>
</tr>
</tbody>
</table>

No change to course description.


List of supporting documentation attached:
1. No change to Syllabus
2. Curriculum worksheet attached-N/A

Assessment Leading to Request
Mining Engineering allows flexibility in students’ choices of design courses to follow their passion. Two design courses are required and this change is requested to make CAPP more flexible and reduce the number of Course Substitutions.

Anticipated Impacts to “Other” Programs
No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
- □ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- ✔ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- □ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- □ New degree certification of 29 credits or less
- □ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- □ Placing a postsecondary educational program into moratorium
- □ Withdrawing a postsecondary educational program from moratorium
- □ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
- □ Establishing a B.A.S./A.A./A.S. area of study
- □ Offering an existing postsecondary educational program via distance or online delivery
- □ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- □ Re-titling an existing postsecondary educational program
- □ Terminating an existing postsecondary educational program
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- □ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
- □ Establishing a new postsecondary educational program
- □ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
- □ Forming, eliminating or consolidating an academic, administrative, or research unit
- □ Re-titling an academic, administrative, or research unit
- □ Other:

APPROVALS

Department Head Approval ____________________________ Date 2/11/20

Dean Approval ______________________________________ Date 2/12/20

Graduate Council Approval ____________________________ Date 2/13/20

CRC Approval ________________________________________ Date ______

Faculty Senate Approval ______________________________ Date ______

VCAA Approval (see above) _____________________________ Date ______

Chancellor Approval (see above) _________________________ Date ______
MontanaTech

Curriculum Change Request Form Dated 8 May 2017

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Date 01/06/2020
Dept. Mining Engineering
College School of Mines & Engineering
Program: Mining Engineering

Description of Request/Summary: Mining Engineering requires two (2) design courses for graduation as approved by the MIAB. Two (2) for the following courses are required: MIN 401 - Mine Design Surface, MIN 405 - Mine Design Underground, MIN 430 - Aggregate Mine Design, or MIN 472 - Mine Design – Coal.

Current Course Program Information: MIN 405 - Mine Design Underground
3 credits (Hrs: 2 Lec., 3 Lab)

Incorporates the unit operations of mining into the design of mining systems. Phases of mine design covered are plant layout, planning development openings, selection of a mining method and equipment, and economic analysis.

Prerequisite(s): MIN 305, and EGEN 325; junior or senior standing. Course generally offered 2nd semester.

Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 405 - Mine Design Underground</td>
<td>3</td>
<td>No Change</td>
</tr>
</tbody>
</table>

No change to course description.


List of supporting documentation attached:
1. No change to Syllabus
2. Curriculum worksheet attached-N/A

Assessment Leading to Request
Mining Engineering allows flexibility in students' choices of design courses to follow their passion. Two design courses are required and this change is requested to make CAPP more flexible and reduce the number of Course Substitutions.

Anticipated Impacts to “Other” Programs
No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

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OCHIE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
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- [ ] Terminating an existing postsecondary educational program
- [ ] Consolidating existing postsecondary educational programs
- [ ] Establishing a new minor where there is a major or an option in a major
- [ ] Revising a postsecondary educational program
- [ ] Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
- [ ] Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
- [ ] Establishing a new postsecondary educational program
- [ ] Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
- [ ] Forming, eliminating or consolidating an academic, administrative, or research unit
- [ ] Re-titling an academic, administrative, or research unit
- [ ] Other:

APPROVALS

Department Head Approval ___________________________ Date 2/11/20

Dean Approval ___________________________ Date 2-12-20

Graduate Council Approval ___________________________ Date 2/20/2021

CRC Approval ___________________________ Date

Faculty Senate Approval ___________________________ Date

VCAA Approval (see above) ___________________________ Date

Chancellor Approval (see above) ___________________________ Date
Montana Tech

Curriculum Change Request Form Dated 8 May 2017

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance:

https://www.umt.edu/provost/faculty/curriculum/default.php

Date 01/06/2020
Dept. Mining Engineering
College School of Mines & Engineering

Program: Mining Engineering

Description of Request/Summary: Mining Engineering requires two (2) design courses for graduation as approved by the MIAB. Two (2) for the following courses are required: MIN 401 - Mine Design Surface, MIN 405 - Mine Design Underground, MIN 430 - Aggregate Mine Design, or MIN 472 - Mine Design – Coal.

Current Course Program Information: MIN 430 - Aggregate Mine Design
3 credits (Hrs: 3 Lec.)

Thorough coverage of the production of aggregate, including economic considerations, aggregate properties and testing, environmental and public concerns, permitting, extraction and processing, transportation, aggregate applications, and aggregate sampling.

Course offered on demand.

Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 430 – Aggregate Mine Design</td>
<td>3</td>
<td>No Change</td>
</tr>
</tbody>
</table>

Thorough coverage of the production of aggregate, including economic considerations, aggregate properties and testing, environmental and public concerns, permitting, extraction and processing, transportation, aggregate applications, and aggregate sampling. (Correct typos in course description)


List of supporting documentation attached:
1. No change to Syllabus
2. Curriculum worksheet attached-N/A

Assessment Leading to Request
Mining Engineering allows flexibility in students' choices of design courses to follow their passion. Two design courses are required and this change is requested to make CAPP more flexible and reduce the number of Course Substitutions.

Anticipated Impacts to "Other" Programs
No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:
Faculty Approvals (directly to CRC, then Faculty Senate):
☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
☒ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
☐ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
☐ New degree certification of 29 credits or less
☐ Other:
Campus Approvals (must be approved by the VCAA prior to CRC submission):
☐ Placing a postsecondary educational program into moratorium
☐ Withdrawing a postsecondary educational program from moratorium
☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
☐ Establishing a B.A.S./A.A./A.S. area of study
☐ Offering an existing postsecondary educational program via distance or online delivery
☐ Other:
OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Re-titling an existing postsecondary educational program
☐ Terminating an existing postsecondary educational program
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☐ Forming, eliminating or consolidating an academic, administrative, or research unit
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☐ Other:

APPROVALS
Department Head Approval ________________________________ Date 2/11/20
Dean Approval ________________________________ Date 2-12-20
Graduate Council Approval ________________________________ Date 2/20/2020
CRC Approval ________________________________ Date
Faculty Senate Approval ________________________________ Date
VCAA Approval (see above) ________________________________ Date
Chancellor Approval (see above) ________________________________ Date
Curriculum Change Request Form Dated 8 May 2017

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: https://www.umt.edu/provost/faculty/curriculum/default.php.

Date 01/06/2020  
Dept. Mining Engineering  
College School of Mines & Engineering  
Program Mining Engineering  

Description of Request/Summary: Mining Engineering requires two (2) design courses for graduation as approved by the MIAB. Two (2) for the following courses are required: MIN 401 - Mine Design Surface, MIN 405 - Mine Design Underground, MIN 430 - Aggregate Mine Design, or MIN 472 - Mine Design – Coal.

Current Course Program Information: MIN 472 - Mine Design – Coal  
3 credits (Hrs: 3 Lec.)

Covers surface and underground coal mining methods incorporating the principles of previous mining and engineering courses, including ore reserve estimation, mine layout and design, unit operations, equipment selection, blasting, ventilation, planning, permitting, and engineering economics. A coal mine design project is performed.

Prerequisite: Junior standing, or consent of the instructor

Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 472 – Mine Design – Coal</td>
<td>3</td>
<td>No Change</td>
</tr>
</tbody>
</table>

AND one (1) other design course: MIN 401 - Mine Design Surface OR MIN 405 - Mine Design Underground OR MIN 472 - Mine Design – Coal, **MIN 475 – Tunneling & Underground Construction.**

List of supporting documentation attached:  
1. No change to Syllabus  
2. Curriculum worksheet attached-N/A

Assessment Leading to Request:  
Mining Engineering allows flexibility in students’ choices of design courses to follow their passion. Two design courses are required and this change is requested to make CAPP more flexible and reduce the number of Course Substitutions.

Anticipated Impacts to “Other” Programs:  
No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
☒ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
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☐ New degree certification of 29 credits or less
☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
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☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
☐ Establishing a B.A.S./A.A./A.S. area of study
☐ Offering an existing postsecondary educational program via distance or online delivery
☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Re-titling an existing postsecondary educational program
☐ Terminating an existing postsecondary educational program
☐ Consolidating existing postsecondary educational programs
☐ Establishing a new minor where there is a major or an option in a major
☐ Revising a postsecondary educational program
☐ Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-titling an academic, administrative, or research unit
☐ Other:

APPROVALS
Department Head Approval

Date 2/11/20

Dean Approval

Date 2/12/20

Graduate Council Approval

Date 2/20/2020

CRC Approval

Date

Faculty Senate Approval

Date

VCAA Approval (see above)

Date

Chancellor Approval (see above)

Date
Date 1/6/20
Dept. Mining Engineering
Program Mining Engineering
College SME
CRC Representative Dr. Paul Conrad

Description of Request: Create a course focused on maintenance planning & scheduling. This topic was previously taught as a special topics class with interest from Mining Engineering students and Mechanical Engineering students with an interest in working in the mining industry.

Current Course or Program Information: MIN 480 – Maintenance Planning & Scheduling
3 credits (Hrs: 3 lec.)

Previously taught as MIN 491 – Maintenance Planning & Management. Based on course feedback from students and the Mining Industry Advisory Board’s input, the course proposed would be less management focused and more scheduling focused.

Proposed Change

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 480 – Maintenance Planning &amp; Scheduling</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

This course is designed to give students an understanding of the procedures, techniques, strategies and methodologies required to manage maintenance planning & scheduling effectively. The course explores the interactions between various departments to support maintenance and the framework of a well-defined maintenance program.

Course Outcomes
Students completing this course will be able to:
1. Understand the role of maintenance and the roles of other operations groups.
2. Experience the problems in a real-world maintenance planning problem.
3. Learn from outside experts the differences in maintenance programs and strategies.

List of supporting documentation attached:
1. Example: Syllabus Attached

Assessment Leading to Request
This course is an elective offering. Mining Engineering graduates are frequently cross-trained in the maintenance function once entering industry. Many of Montana Tech’s Mechanical Engineering students are recruited to work for mining companies. This course is aimed at broadening the skills base of our engineering students as they enter the mining industry. Provides Mining & Mechanical Engineering students with an additional technical elective option.

Anticipated Impacts to “Other” Programs
No impact to other programs.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
Montana Tech
Curriculum Change Request Form Dated 6 September 2019

APPROVALS
Department Head Approval ____________________________ Date 2/12/20

Dean Approval ____________________________ Date 2/12/20

Graduate Council Approval ____________________________ Date __________

CRC Approval ____________________________ Date 2/12/20

Faculty Senate Approval ____________________________ Date __________

VCAA Approval (see below) ____________________________ Date __________

Chancellor Approval (see below) ____________________________ Date __________

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):

☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
☐ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
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☐ New degree certification program of 29 credits or less
☐ Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):

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☐ Offering an existing postsecondary educational program via distance or online delivery
☐ Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Re-titling an existing postsecondary educational program
☐ Terminating an existing postsecondary educational program
☐ Consolidating existing postsecondary educational programs
☐ Establishing a new minor where there is a major or an option in a major
☐ Revising a postsecondary educational program
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☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Establishing a new postsecondary educational program
☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
☐ Forming, eliminating or consolidating an academic, administrative, or research unit
☐ Re-titling an academic, administrative, or research unit
☐ Other:
SYLLABUS

MIN 480 – Maintenance Planning & Scheduling

Spring 2019 • MG 103 • M/W/F 0800-0850
CRN 36529 • 3 credits
Montana Tech • Mining Engineering Dept.

Instructor
Scott D. Rosenthal, P.E.
Associate Professor
Office: 119, Mining Geology Building
Phone: (406) 496-4867
Email: srosenthal@mtech.edu
LinkedIn: https://www.linkedin.com/in/scottdroenthal
Office hours: By appointment, and open door when available

Course Description
This course is designed to give students an understanding of the procedures, techniques, strategies and methodologies required to manage maintenance planning & scheduling effectively. The course explores the interactions between various departments to support maintenance and the framework of a well-defined maintenance program.

Course Objective
The objective of this course is to provide students’ with an understanding of maintenance planning and scheduling using mining maintenance as a real-world example. Effective maintenance is a universal, critical component of profitable mining and an integral part in the success of a mining operation. This course is intended to teach students that effective equipment maintenance impacts all other operation’s activities, knowledge of how maintenance works would better enable future managers and engineers to employ maintenance resources effectively as their responsibilities increase and expand.

Course Outcomes
Students completing this course will be able to:

1. Understand the role of maintenance and the roles of other operations groups.
2. Experience the problems in a real-world maintenance planning problem.
3. Learn from outside experts the differences in maintenance programs and strategies.

Grading
Anything said by the instructor, guest speakers, or people giving presentations in class, as well as anything in the reading assignments not specifically discussed in class is fair game for questions on exams.

In class exercises 10%
Maintenance Schedule Project 50%
Tests (3) & Final 40%

A: 90–100%  |  B: 80–89%  |  C: 70–79%  |  D: 60–69%  |  F: < 60%

Textbook
Maintenance in Transition-The Journey to World Class Maintenance; Paul D. Tomlinson, © 2014;
ISBN 978-1-4675-9069-3 (Provided as class materials)
Handouts, additional reading and other materials to be supplied.
Topics
1. Maintenance Program Overview
2. Maintenance Terminology
3. Managers Roles in Effective Maintenance
4. Applying World-Class Maintenance Principles
5. Implementing the Maintenance Management Program
6. Applying ISO 55000 Standards
7. Selecting and Implementing Maintenance Organizations
8. Duties of Key Maintenance Personnel
9. Determining Workforce Size and Craft Composition
10. Implementing Effective Preventive Maintenance
11. Utilizing Condition-monitoring Technologies
12. Implementing Reliability Centered Maintenance
13. Maintenance Planning Essentials
14. Conducting Maintenance Scheduling
16. Establishing Effective Cost Control
17. Making Equipment Replacement Decisions
18. Measuring and Improving Worker Productivity
19. Conducting Benchmarking Surveys
20. Managing Projects and Shutdowns
21. Improving Maintenance Performance Special Topics

Student Conduct
https://www.mtech.edu/student-conduct/index.html

Since you have made it this far in your academic pursuits, I assume you aspire to a professional career. As an engineer you will be expected to lead people and manage resources, and your personal integrity will be an integral component of how you conduct yourself in this profession.

Academic Integrity: Montana Tech believes that academic honesty and integrity are fundamental to higher education. Cheating can result in losing at least one letter grade for the course (e.g., from a C to a D), a failing grade for the entire course, and even expulsion from Montana Tech. In the way you conduct yourself as a student, you are training yourself for the type of professional you will be.

Title IX: Title IX violations include sexual assault, harassment, dating and relationship violence, discrimination, stalking, and retaliation. Montana Tech is committed to providing an environment that emphasizes the dignity and worth of every member of its community. To report a violation of sexual misconduct or gender discrimination, contact the Title IX Coordinator (Vanessa Van Dyke vvandyk@mtech.edu) at (406) 496-4332.
All professors at Montana Tech are required to report any incidences to the Title IX Coordinator. Confidential support for students is available by contacting the Student Counseling Center at (406) 496-4429 (Engineering Hall, Room 103).

Students with Disabilities
Students wishing to request an accommodation of any type for a physical and/or cognitive challenge are directed to contact the Montana Tech Student Life Programs Office, Engineering Hall, Room 101 (406) 496-4198. This includes students requesting extra time on exams.
Final Exam

Scheduled Wednesday 1 May: 8:00 AM – 10:00 AM

Note: This syllabus is subject to revision by the instructor at any time.
Montana Tech

Curriculum Change Request Form Dated 8 May 2017

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: https://www.umt.edu/provost/faculty/curriculum/default.php.

Date 01/06/2020
Dept. Mining Engineering
College School of Mines & Engineering
Program: Mining Engineering

Description of Request/Summary: Change wording in Prerequisite(s) to Course generally offered second semester from Course generally offered both semesters. Add GEOE 499W as a substitution, with advisor approval.

Current Course Program Information: MIN 499W - Mine Design Project
3 credits (Hrs: 3 Lec.)

A capstone design course for seniors in Mining Engineering. Students will be assigned a design project related to mining to complete during the semester. The course grade will depend on the performance shown on the design project. Readings and exercises will be assigned as needed to implement design procedures needed for the design project.

Prerequisite(s): WRIT 321W and within two semesters of graduation. Satisfies upper division Writing core. Course generally offered both semesters.

Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)

<table>
<thead>
<tr>
<th>Course # Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIN 499 - Mine Design Project</td>
<td>3 (Hrs: 3 lec.)</td>
<td>No Change</td>
</tr>
</tbody>
</table>

No change to course description.

Prerequisite(s): WRIT 321W and within two semesters of graduation. Satisfies upper division Writing core. Course generally offered second semester. GEOE 499W as a substitution, with advisor approval.

List of supporting documentation attached:
1. No change to Syllabus
2. Curriculum worksheet attached-N/A

Assessment Leading to Request
Offering only one semester, instead of two, provides greater opportunity for team projects from a larger pool of students. Some semester “team projects” were two-person teams and this does not fully meet the intention of a Capstone project work students work in teams (of 3 or 4 people) to complete a real-world project. Allowing GEOE 499W as a substitution, with advisor approval, allows those December graduates who cannot fit MIN 499W into their spring schedule an option to complete their degree.

Anticipated Impacts to “Other” Programs
No impact to other programs. Consultation occurred with Larry Smith, GEOE Department Chair, as some GEOE Mining Option students take MIN 499W.

Impact on Library: No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: 08/01/2020
LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
- Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
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- New degree certification of 29 credits or less
- Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- Placing a postsecondary educational program into moratorium
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- Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
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- Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- Re-titling an existing postsecondary educational program
- Terminating an existing postsecondary educational program
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- Re-titling an academic, administrative, or research unit
- Other:

APPROVALS
Department Head Approval

Dean Approval

Graduate Council Approval

CRC Approval

Faculty Senate Approval

VCAA Approval (see above)

Chancellor Approval (see above)
Montana Tech  
Curriculum Change Request Form Dated 2 Feb 2017

Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: https://www.umt.edu/provost/faculty/curriculum/default.php.

Date: 02/03/20  
Dept: Mathematical Sciences  
College: CLSP  
Program: Statistics Minor

Description of Request/Summary: Updating Option 2 in the Statistics minor to reflect all of the appropriate applied statistics courses being offered.

Current Course Program Information: (Old Stat Minor to be replaced)

<table>
<thead>
<tr>
<th>Student ID:</th>
<th>Student Name:</th>
<th>Adviser Name:</th>
<th>Catalog: 2012-2013</th>
<th>Program: Statistics Minor</th>
<th>Minimum Credits Required:</th>
</tr>
</thead>
</table>

### Statistics Minor

#### Option 1

##### Course Requirements (19 Credits)

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credits</th>
<th>Term Taken</th>
<th>Grade</th>
<th>Gen Ed</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 171 - Calculus I</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 172 - Calculus II</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 273 - Multivariable Calculus</td>
<td>4 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 274 - Introduction to Differential Equation</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 332 - Statistics for Scientists and Engineers</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* STAT 4xx - 400 Level Stats course 3 credits</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Option 2

##### Course Requirements

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credits</th>
<th>Term Taken</th>
<th>Grade</th>
<th>Gen Ed</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 171 - Calculus I</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 172 - Calculus II</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 432 - Regression and Model Building</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 435 - Statistical Computing &amp; Exploratory Data Analysis</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 441 - Experimental Design</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 431 - Introduction to Biosciences</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
<td></td>
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</tr>
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<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

19 credits required for a Statistics Minor

Notes:
### Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)

**Revised 2/3/20**

<table>
<thead>
<tr>
<th>Course #</th>
<th>Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Student ID:</th>
<th>Student Name:</th>
<th>Adviser Name:</th>
<th>Catalog: 2012-2013 Catalog</th>
<th>Program: Statistics Minor</th>
<th>Minimum Credits Required:</th>
</tr>
</thead>
</table>

### Statistics Minor

#### Option 1

**Course Requirements (19 Credits)**

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<tr>
<td>STAT 332 - Statistics for Scientists and Engineers</td>
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#### Option 2

**Course Requirements**

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Total: 136

Updated 10/5/2020
Proposed Changes to Mining Engineering Curriculum

In consultation with the faculty, Mining Industry Advisory Board and including student feedback, the following curriculum changes are proposed for Mining Engineering.

1) MIN 152 – Mapping & Surface Modeling (2 cr, 1st Sem)
   - Remove from curriculum due to overlap with other courses.
   - Justification: This course was added many years ago to expose students to 3D software, use of GPS survey equipment, and determination of volumetrics. Now students learn AutCAD in EGEN 101 Introduction Engineering Calculations & Problem Solving and MIN 105 Introduction to Mining with GPS survey equipment use in MIN 210 Plane Surveying with volumetrics added in MIN 217.

2) MIN 216 – Mine Surveying (1 cr, 2nd Sem)
   - Rename: MIN 216: Mine Surveying & Data Analysis 1
   - Move from Spring Semester to Fall Semester 2nd year
   - Justification: Currently mine surveying spends nearly the entire semester surveying and scanning in an underground environment. This change allows the same, and possibly more, data collection to occur than the current mine surveying class as a second one credit class is added whereby students transform their data collected into 3D models.

3) Create: MIN 217 – Mine Surveying & Data Analysis 2 (1 cr, 2nd Sem)
   - Offered Spring Semester 2nd year
   - Justification: Building on the outcomes from MIN 216, students will have experience performing the following additional tasks:
     1. Use of modern laser scanning/LIDAR instruments and associated data analysis software.
     2. Development of a volumetric model of the UMEC.
     3. Application of unmanned systems (aerial and terrestrial) and/or mobile scanning systems for the collection of spatial data.
     4. Develop a basic understanding of photogrammetry and its application in mine surveying.
     5. Introductory geotechnical monitoring.

4) Create: MIN 300 – Mining Technology (1 cr, 1st Sem)
   - Offered Fall Semester 3rd year
   - Justification: A seminar format combining faculty lectures, guest lectures by industrial experts, and student/graduate student research presentations in the areas of innovation, automation, and cutting-edge mining practices. The goal is to expose students to mining industry leading practices in development or in use, especially where this information is not covered in existing courses.

5) Create: MIN 475 – Tunneling & Underground Construction (3 cr, 2nd Sem)
   - Will be co-taught with MIN 575: Tunneling & Underground Construction (3 cr 2nd Sem)
   - MIN 475/575 will alternate each year with MIN405: Mine Design-Underground
Justification: Students taking MIN 475 or 575 will be able to count the class as a design class or as a technical elective. Provides Mining Engineering students with an additional technical elective option. Mining Engineering allows flexibility in students' choices of design courses to follow their passion and requires two (2) design courses are completed. Several Mining Engineering graduates are recruited by civil engineering firms to work in the tunneling industry therefore additional education before embarking on a career in this field better prepares our students.

6) MIN 480 Maintenance Planning & Scheduling
   - Assign a permanent course number to it.
   - Justification: Course was taught previously, Spring 2019, to a combination of Mining and Mechanical Engineering students. This course provides an additional technical elective for mining and mechanical engineering students that intend to work in the mining industry.

7) Change MIN 499W to Spring only, allow GEOE 499W with advisor approval
   - Generally offered both semesters.
   - Justification: Offering only one semester, instead of two, provides greater opportunity for team projects from a larger pool of students. Some semester "team projects" were two-person teams and this does not fully meet the intention of a Capstone project work students work in teams (of 3 or 4 people) to complete a real-world project. Allowing GEOE 499W as a substitution, with advisor approval, allows those December graduates who cannot fit MIN 499W into their spring schedule an option to complete their degree.


9) Wording changes in catalog to update and clarify electives:
   A total of 6 credits of technical electives must be taken to complete the curriculum in Mining Engineering. Technical electives may be completed by taking any Mining Engineering course at the 300 level or above not required for the Mining Engineering degree, any School of Mines and Engineering course at the 300 level or above, or any Math or Statistics course at the 300 level or above. The Mining Engineering Department must approve the selection of all electives. In addition, all students must meet the general core requirements of the college in completing electives.
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<td>Statistics for Scientists &amp; Engineers</td>
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<td>MIN 140/260</td>
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<td>Introduction to Mineral Processing</td>
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<td>MIN 467</td>
<td>Geomechanics I</td>
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<td>Valuation of Mineral Properties</td>
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<td>Mine Ventilation</td>
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<td><strong>136</strong></td>
<td><strong>136</strong></td>
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Current Course or Program Information: The Nursing pre-licensure B.S. program requires students to complete a math course to meet the general education requirement. M-140 is one of the math courses that will meet this requirement.

Proposed Change

<table>
<thead>
<tr>
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<th>Credits</th>
<th>Pre-req.</th>
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<tbody>
<tr>
<td>M-140 College Math for Healthcare</td>
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<td>M-095</td>
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</table>

New course require course outcomes listed in this area.

This course is designed to provide students with a solid mathematical foundation necessary to succeed in health care profession. This course will review algebra, systems of measurement, ratio and proportions, basic probability and statistics concepts, and ionic solutions and pH calculations. This course will apply mathematical reasoning and problem solving as it appears to the health care field and is suitable prerequisite for STAT 216.

List of supporting documentation attached:
1. Curriculum worksheet Link
2. Link

Assessment Leading to Request
Students who complete M-140 will be able to accomplish a dual requirement for the Nursing pre-licensure, B.S. degree program as this course is listed as one of the general education requirements and as a pre-requisite to CHMY 121 and to STAT 216.

Anticipated Impacts to “Other” Programs
None

Impact on Library: Elaine Hunter has consulted with Scott Juskiewicz 11/22/19 at the Montana Tech library to ensure needed materials and media are available. (Or No consultation is required since changes are only in the course number, course name, or course pre-requisites.)

Date to take effect: 01/06/2020
LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
- Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- New degree certification program of 29 credits or less
- Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- Placing a postsecondary educational program into moratorium
- Withdrawing a postsecondary educational program from moratorium
- Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
- Establishing a B.A.S./A.A./A.S. area of study
- Offering an existing postsecondary educational program via distance or online delivery
- Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- Re-titling an existing postsecondary educational program
- Terminating an existing postsecondary educational program
- Consolidating existing postsecondary educational programs
- Establishing a new minor where there is a major or an option in a major
- Revising a postsecondary educational program
- Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
- Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
- Establishing a new postsecondary educational program
- Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
- Forming, eliminating or consolidating an academic, administrative, or research unit
- Re-titling an academic, administrative, or research unit
- Other:
M 140 – College Mathematics for Health Care  
Fall 2019

| Instructor         | Dr. Hilary Risser  
|                   | Museum 112  
|                   | Highlands 111  
|                   | hrisser@mttech.edu  
|                   | 406-496-4581  
| Office hours       | MWF 10:00 – 10:50 (North campus)  
|                   | MWF 1:30 – 2:00 (Highlands)  
| Required text and  | Mathematics for Health Sciences: A Comprehensive Approach (1\textsuperscript{st} edition) by Joel R. Helms  
| materials          | Scientific or graphing calculator  
| Learning Outcomes  | 1. Apply knowledge of decimals, fractions, and percents to solve algebraic linear equations in the healthcare field.  
|                   | 2. Understand rational equations and use knowledge of rational equations to solve problems involving ratios and proportions (including but not limited to volume, mass, weight and temperature).  
|                   | 3. Be able to use the fundamental units of the metric system (SI), household units, and the apothecary system in making measurements and doing calculations related to allied health applications.  
|                   | 4. Interpret the meaning of range, standard deviation, and the coefficient of variation in applied situations.  
|                   | 5. Use and apply the basic probability concepts: probability models (Venn diagrams, two-way tables), sample spaces with equally likely outcomes (counting), probability distributions.  
|                   | 6. Use and apply the rudiments of statistics: measures of center and spread, the normal distribution.  
|                   | 7. Understand and interpret exponential and logarithmic functions and graphs.  
|                   | 8. Apply knowledge of logarithmic functions to solve problems in the healthcare.  
|                   | 9. Apply mathematical and statistical reasoning to a variety of applied or theoretical healthcare problems.  
| Important dates:   | Last day to drop without class appearing on transcript: September 16th  
|                   | Last day to withdraw with an automatic "W": November 4th  
|                   | Final Exam: Friday December 13\textsuperscript{th} 9AM?  

Class Policies:  
Academic Dishonesty: Academic Dishonesty as defined in the student handbook will not be tolerated. Any violations of the policy will result in all involved parties receiving a 0 on the assignment in question. All violations will also be reported to the provost.  
Attendance: Attendance is required and will be taken daily. You are expected to be on-time and remain the entire class time. You should sign in on the sign in sheet every day. If you didn’t sign in,
you weren't there. Responsibility for work missed because of illness or school business is placed upon the student. Attendance will be considered for students with a grade of D+.

Evaluation and Measurement:

**Homework:** These problems are listed on the syllabus. The problems on tests will be similar to these problems. Questions concerning these problems will be answered during class. However, these problems will not be collected or graded.

**Reading Quizzes:** You will be given a reading assignment each Friday. That material concerns topics that will be covered in class the following week. At the end of class, the following Friday you will take a reading quiz. There will be approximately 14 reading quizzes (one per week). Your ten highest quiz grades will be counted towards your course grade. Each reading quiz is worth ten points. Two points will be given for turning in your reading notes for that week. The remaining eight points will be awarded based on the accuracy of the answers to the two to three questions on the quiz. You should read the assigned material before then and take notes. These notes may be used on your reading quizzes. Your notes will also be turned in with your reading quizzes. As you read you should:

1. Define important terms from the textbook. On the weekly reading quiz, you should be able to use those definitions to create examples of the term and/or determine if a provided example fits the definition of the term. Ex: "Give an example of a linear equation."
2. Understand key examples in the textbook. On the weekly reading quiz, you should be able to identify appropriate next step(s) for a problem, identify formulas needed to work a problem, and/or explain how the example is the same or different from other examples. Ex: "What would be an appropriate first step in solving the equation 4x = 3(x-4)?"
3. Summarize main ideas/concepts from the reading. On the weekly reading quiz, you should be able to express your understanding of key ideas from the section on your own words. Ex: "True or False: The average or mean test grade is not a good way to determine if the test was fair."

**Exam:** There will be three exams, including a comprehensive final exam. The exams during the semester will be announced approximately one week in advance. Makeup exams will be available for one calendar week after the missed exam. If the missed exam is not made up by that time, you will receive a zero. Documentation must be provided to receive a makeup exam. Scientific calculators will be allowed on all exams. The final exam will be comprehensive.

**Grade distribution:**

- 3 exams @ 50 points each = 150 points
- 10 quizzes @ 10 points each = 100 points

**Topics Covered:**

<table>
<thead>
<tr>
<th>Objective</th>
<th>Homework</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solve linear equations</td>
<td>2.1 (17-42)</td>
</tr>
<tr>
<td></td>
<td>2.3 (34-60)</td>
</tr>
<tr>
<td>Solve mixture problems</td>
<td>2.2 (1-15)</td>
</tr>
<tr>
<td>Evaluate formulas for a given value</td>
<td>2.4 (21-28, 35-38)</td>
</tr>
<tr>
<td>Problem Statement</td>
<td>Page</td>
</tr>
<tr>
<td>---------------------------------------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Solve problems using ratio and proportions</td>
<td>2.5</td>
</tr>
<tr>
<td>Solve percent problems</td>
<td>2.6</td>
</tr>
<tr>
<td>Simplify exponential expressions</td>
<td>2.7</td>
</tr>
<tr>
<td>Convert between scientific and standard notation</td>
<td>2.8</td>
</tr>
<tr>
<td>Simplify expressions given in scientific notation</td>
<td>2.8</td>
</tr>
<tr>
<td>Simplify units using dimensional analysis</td>
<td>3.1</td>
</tr>
<tr>
<td>Convert units within the metric system</td>
<td>3.2</td>
</tr>
<tr>
<td>Convert between metric and nonmetric systems</td>
<td>3.3</td>
</tr>
<tr>
<td>Convert between apothecary and household systems</td>
<td>3.4</td>
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<tr>
<td>Convert between Celsius and Fahrenheit</td>
<td>3.5</td>
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**Exam 1**

<table>
<thead>
<tr>
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<tr>
<td>Solve single dilution problems</td>
<td>4.1</td>
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<tr>
<td>Determine final concentrations</td>
<td>4.2</td>
</tr>
<tr>
<td>Solve dilution problems of two solutions</td>
<td>4.3</td>
</tr>
<tr>
<td>Solve problems using percent volume</td>
<td>4.4</td>
</tr>
<tr>
<td>Read and interpret drug orders</td>
<td>5.1</td>
</tr>
<tr>
<td>Calculate drug orders</td>
<td>5.2</td>
</tr>
<tr>
<td>Calculate the volume that is required when medicine is provided in powdered form</td>
<td>5.4</td>
</tr>
<tr>
<td>Perform intravenous calculations</td>
<td>5.5</td>
</tr>
<tr>
<td>Perform titration calculations</td>
<td>5.6</td>
</tr>
<tr>
<td>Calculate drug dosages based on body weight</td>
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<tr>
<td>Determine if a physician's order is appropriate</td>
<td>5.7</td>
</tr>
<tr>
<td>Calculate drug dosages based on BSA</td>
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<tr>
<td>Calculate drug dosages based on BSA using the West Nomogram chart</td>
<td>5.8</td>
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**Exam 2**

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<td>Task</td>
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<tr>
<td>Plot ordered pairs on the coordinate plane</td>
<td>6.1</td>
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<tr>
<td>Determine the slope of a line given a graph or two points</td>
<td>6.2</td>
</tr>
<tr>
<td>Graph a linear equation using slope and y-intercept</td>
<td>6.3</td>
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<tr>
<td>Read and interpret linear and nonlinear graphs</td>
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<tr>
<td>Determine if a graph represents a function</td>
<td>7.1</td>
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<tr>
<td>Graph inequalities</td>
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<tr>
<td>Graph exponential functions</td>
<td>7.2</td>
</tr>
<tr>
<td>Solve applications involving exponential functions</td>
<td>7.3</td>
</tr>
<tr>
<td>Expand and condense logarithmic expressions</td>
<td>7.4</td>
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<tr>
<td>Determine the pH of a solution</td>
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<tr>
<td>Create a frequency table</td>
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<tr>
<td>Construct graphs from tables</td>
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<tr>
<td>Calculate the mean, median, and mode of a data set</td>
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<td>Compute the standard deviation of a data set</td>
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<tr>
<td>Compute percentages that fall within a range of data values for normally distributed data</td>
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<tr>
<td>Calculate percentiles</td>
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<tr>
<td>Find outcomes, events, probabilities, and probability distributions</td>
<td>7A (39-42, 67, 68)</td>
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<tr>
<td>Use the multiplication principle</td>
<td>7A (13 - 16)</td>
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<tr>
<td>Find &quot;and&quot; probabilities</td>
<td>7B (13 - 22)</td>
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<tr>
<td>Find &quot;either/or&quot; probabilities</td>
<td>7B (23 - 28)</td>
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<tr>
<td>Solve application problems involving combining probabilities</td>
<td>7B (35 - 45)</td>
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<td>BIOH 201/202 - Anatomy &amp; Physiology I</td>
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<td>M 121 - College Algebra</td>
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<td>M 140 Math for Healthcare</td>
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<td>NUTR 258 - Fundamentals of Nutrition</td>
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<td>PSYX 100 - Introduction to Psychology</td>
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<td>WRIT 121 - Introduction To Technical Writing</td>
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<td>BIOH 211/212 - Anatomy &amp; Physiology II</td>
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<td>SOCI 101 - Introduction to Sociology</td>
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<td>PSYX 230 - Developmental Psychology</td>
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<td>CHMY 121 - Introduction to General Chemistry</td>
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<td>NRSNG 107 - Perspectives in Professional Nursing*</td>
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<td>CHIVIY 122 - Introduction to General Chemistry Lab</td>
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Total: 16

Sophomore

Fall Semester

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<td>BIOM 250 - Microbiology for Health Sciences</td>
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<tr>
<td>NRSG 313 - Mgmt of the Adult with Complex Health Alterations</td>
<td>4 credits</td>
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<td>NRSG 340 - Transitional Care</td>
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<td>INRSG 351 - Advanced Concepts and Clinical Reasoning</td>
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**Senior**

**Fall Semester**

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<td>NRSG 405 - Pediatrics Nursing</td>
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<tr>
<td>NRSG 415 - Nursing Care of the Childbearing Family</td>
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<tr>
<td>NRSG - Concepts in Family Nursing</td>
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<tr>
<td>NRSG 430 - Healthcare from the Patient's Perspective</td>
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**Spring Semester**

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<td>NRSG 407 - Integrated Health Assessment</td>
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<tr>
<td>NRSG 450W - Global Health, Healthcare Policy and Finance</td>
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<tr>
<td>NRSG 499 - Leading and Managing: Capstone Experience</td>
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Minimum credits for a B.S. degree in Nursing: 120

Notes:
Date 01/20/20  
Dept. Business and Information Technology  
College CLSPS  
Program BS BIT, BAS Business  
CRC Representative David Hood  

Description of Request: Creation of a new certificate titled SAP Student Recognition Award

Current Course or Program Information: Certificate requirements are listed below

Proposed Change

The Department of Business and Information Technology proposes a new certificate titled the SAP Student Recognition Award. This certificate will provide Tech students with a formal recognition of the requirements set by SAP regarding a student’s completion of SAP based coursework.

The requirements for the certificate are set by SAP. To be eligible for the certificate, a student must complete three courses that each incorporate a minimum of 30 percent of SAP or ERP related content. Currently, the Department has worked to meet this requirement with three existing courses (BMIS 311, BMIS 416, BMIS 453).

There are no new courses involved in this proposal

List of supporting documentation attached:

1. Certificate Requirements: The title of the certificate is the “SAP Student Recognition Award.” Any student completing the following three courses (starting with the Fall Semester 2019) with a grade of “C” or better, are eligible for this certificate:
   a. BMIS 311 Management Information Systems (3 cr) – Fall semester
   b. BMIS 416 Enterprise Systems and Industry Software (3 cr) – Spring Semester
   c. BMIS 453 Business Intelligence and Big Data Analytics (3 cr) – Spring Semester

Assessment Leading to Request

The Department of Business and Information Technology is a member of the SAP University Alliance and has worked to incorporate SAP software into a number of its courses. For those not aware, SAP is the largest enterprise system software manufacturer in the world and it is estimated that 75 percent of all global transactions will go through a SAP system. The Alliance is a very valuable tool to teach business processes, and enterprise systems, to the students and currently Montana Tech is the only school in Montana that is a member of the alliance. Also, there currently are three local companies (NorthWestern Energy, Harrington Bottling, and REC Silicon) that use SAP software.

SAP, as a part of the alliance, currently offers a certificate for students completing three courses that have an significant SAP emphasis. Per discussion with other schools, employers, and members of our advisory board, it is believed this certificate is a valuable addition to a graduating student’s resume. This proposal would allow the certificate to become a part of a qualifying student’s transcript.

The Department faculty members unanimously support the proposed change to add this certificate. Students outside the Business Department are also welcome to complete the three courses and receive the certificate.

Anticipated Impacts to “Other” Programs

Students from other programs are welcome to complete the three course sequence and receive the certificate. It is recommended that the BMIS 311 course be completed first and it currently does not have a prerequisite course.

Impact on Library: The Montana Tech library was not consulted as there is no change with the Department’s academic requirements.

Date to take effect: if accepted, this proposal will take effect with the 2020-21 Catalog
Montana Tech
Curriculum Change Request Form Dated 6 September 2018

APPROVALS
Department Head Approval 
[Signature]
Date 1/20/2020

Dean Approval
[Signature]
Date 2/2/2020

Graduate Council Approval

Date

CRC Approval
[Signature]
Date 2/6/2020

Faculty Senate Approval

Date

VCAA Approval (see below)
[Signature]
Date 6/11/2020

Chancellor Approval (see below)

Date

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):

☐ Establish a new course for the catalog (please contact the Registrar of MUS CCN information)

☐ Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.

☐ Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor

X New degree certification program of 29 credits or less

Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):

☐ Placing a postsecondary educational program into moratorium

☐ Withdrawing a postsecondary educational program from moratorium

☐ Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more

☐ Establishing a B.A.S./A.A./A.S. area of study

☐ Offering an existing postsecondary educational program via distance or online delivery

Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Re-titling an existing postsecondary educational program

☐ Terminating an existing postsecondary educational program

☐ Consolidating existing postsecondary educational programs

☐ Establishing a new minor where there is a major or an option in a major

☐ Revising a postsecondary educational program

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

☐ Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):

☐ Establishing a new postsecondary educational program

☐ Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11

☐ Forming, eliminating or consolidating an academic, administrative, or research unit

☐ Re-titling an academic, administrative, or research unit

☐ Other:
Protocol: The department requesting curriculum change holds a discussion at the departmental level, and if agreed upon by the department head, discuss with the Dean for approval. Forward the completed form along with supporting information to the CRC chair after approval from the department head, dean, and graduate council if necessary. Final changes are then made by the registrar after faculty senate approval. Guidance: [https://www.umt.edu/provost/faculty/curriculum/default.php](https://www.umt.edu/provost/faculty/curriculum/default.php).

Date: 02/03/20  
Dept.: Mathematical Sciences  
Program: Statistics Minor  
College: CLSP

Description of Request/Summary: Updating Option 2 in the Statistics minor to reflect all of the appropriate applied statistics courses being offered.

Current Course/Program Information: (Old Stat Minor to be replaced)

<table>
<thead>
<tr>
<th>Student ID:</th>
<th>Student Name:</th>
<th>Adviser Name:</th>
<th>Catalog: 2012-2013 Catalog Program:</th>
<th>Credits Required:</th>
</tr>
</thead>
</table>

**Statistics Minor**

**Option 1**

Course Requirements (19 Credits)

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credits</th>
<th>Term Taken</th>
<th>Grade</th>
<th>Gen Ed</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 171 - Calculus I</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 172 - Calculus II</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 273 - Multivariable Calculus</td>
<td>4 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 274 - Introduction to Differential Equation</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 332 - Statistics for Scientists and Engineers</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>* STAT 4xx - 400 Level Stats course 3 credits</td>
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</tr>
</tbody>
</table>

**Option 2**

Course Requirements

<table>
<thead>
<tr>
<th>Course Name</th>
<th>Credits</th>
<th>Term Taken</th>
<th>Grade</th>
<th>Gen Ed</th>
</tr>
</thead>
<tbody>
<tr>
<td>M 171 - Calculus I</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M 172 - Calculus II</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 432 - Regression and Model Building</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 435 - Statistical Computing &amp; Exploratory Data Analysis</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 441 - Experimental Design</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 131 - Introduction to Biostatistics</td>
<td>3 credits</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>- OR -</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 332 - Statistics for Scientists and Engineers</td>
<td>3 credits</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

19 credits required for a Statistics Minor

Notes:
## Proposed Change (Attach syllabus or curriculum for new course or curriculum changes.)

<table>
<thead>
<tr>
<th>Course #</th>
<th>Name</th>
<th>Credits</th>
<th>Pre-req.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revised 2/3/20</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Student ID:</th>
<th>Student Name:</th>
<th>Adviser Name:</th>
<th>Catalog: 2012-2013 Catalog</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Program: Statistics Minor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Minimum Credits Required:</td>
</tr>
</tbody>
</table>

### Statistics Minor

#### Option 1

**Course Requirements (19 Credits)**

<table>
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<th>Course Name</th>
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<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STAT 4xx - 400 Level Stats course</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Option 2

**Course Requirements**

<table>
<thead>
<tr>
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<td>M 172 - Calculus II</td>
<td>3 credits</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Take any three of the following Statistics courses (9 credits)*:

| STAT 432 - Regression and Model Building | 3 credits | |
| STAT 435 - Statistical Computing & Exploratory Data Analysis | 3 credits | |
| STAT 441 - Experimental Design | 3 credits | |
| STAT 453 Statistical Learning and Data Science I | 3 credits | |
| STAT 454 Statistical Learning and Data Science II | 3 credits | |
| STAT 131 - Introduction to Biostatistics | 3 credits | |

- OR -

| STAT 332 - Statistics for Scientists and Engineers | 3 credits | |

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Page - 2 - of 4
19 credits required for a Statistics Minor

List of supporting documentation attached:
1. Example: syllabus
2. Example: Curriculum worksheet

Assessment Leading to Request
Re-evaluation of Statistics Minor. The Statistics minor had not been changed in 15 years.

Anticipated Impacts to “Other” Programs
None.

Impact on Library: None

Date to take effect: 08/15/20

LEVEL of Request
Please indicate the type of request(s) by selecting all that apply:

Faculty Approvals (directly to CRC, then Faculty Senate):
- Establish a new course for the catalog (please contact the Registrar of MUS CCN information)
- Changed course: addition, deletion or change of title, credit, course number, pre-req, description, or cross listing.
- Amend an existing degree program. Making changes to programs such as adding a writing course to a major, changing the list of accepted electives or removing a requirement of a minor
- New degree certification of 29 credits or less
- Other:

Campus Approvals (must be approved by the VCAA prior to CRC submission):
- Placing a postsecondary educational program into moratorium
- Withdrawing a postsecondary educational program from moratorium
- Establishing, re-titling, terminating or revising a campus certificate of 29 credits or more
- Establishing a B.A.S./A.A./A.S. area of study
- Offering an existing postsecondary educational program via distance or online delivery
- Other:

OCHE Approvals (must be approved by the VCAA and Chancellor prior to CRC submission):
- Re-titling an existing postsecondary educational program
- Terminating an existing postsecondary educational program
- Consolidating existing postsecondary educational programs
- Establishing a new minor where there is a major or an option in a major
- Revising a postsecondary educational program
- Establishing a temporary C.A.S. or A.A.S. degree program Approval limited to 2 years
- Other:

Level II (must be approved by the VCAA and Chancellor prior to CRC submission):
- Establishing a new postsecondary educational program
- Exceeding the 120 credit maximum for baccalaureate degrees Exception to policy 301.11
- Forming, eliminating or consolidating an academic, administrative, or research unit
- Re-titling an academic, administrative, or research unit
- Other:
Montana Tech
Curriculum Change Request Form Dated 2 Feb 2017

APPROVALS

Department Head Approval

[Signature]

Dean Approval

[Signature]  Date 2/12/19

VCAAR Approval (see above)

Date

Chancellor Approval (see above)

Date

Graduate Council Approval

Date

CRC Approval

[Signature]  Date 2/21/2020

Faculty Senate Approval

Date
Faculty Senate Roster

Terms are for 2 or 3 years, as chosen by the department/area. Elections are held in March with terms expiring in May. The senator-elect and the retiring senator are invited to attend the last senate meetings of the academic year. Faculty Senate officers for the following academic year will be elected by the new senate at the last meeting of the academic year.

Article IV. Elections

SECTION 1:

Membership in the Faculty Senate shall be determined by annual elections held in March at the department level. Only persons holding faculty rank are eligible to vote, except in the case of Adjunct Faculty. Members shall be elected to two-year or three-year terms at the option of their respective departments. Vacancies created by unexpired terms shall be filled by special election.

Article III. Membership

SECTION 1:

The Faculty Senate shall consist of 26 members composed as follows:
School of Mines and Engineering Faculty...........................................9-11 Senators
College of Letters, Science, and Prof. Studies Faculty......... 9-8 Senators
Highlands College Faculty.................................................................4-3 Senators
Research & Library Faculty...............................................................3 Senators
Adjunct Faculty.................................................................................1 Senator

The representation shall be subdivided and elected at the department level as follows:

School of Mines and Engineering

1. Electrical Engineering
2. Geological Engineering
3. Geophysical Engineering
4. General Engineering
5. Mechanical Engineering
6. Metallurgical and Materials Engineering
7. Environmental Engineering
8. Mining Engineering
9. Petroleum Engineering
10. Safety Health and Industrial Hygiene
11. Computer Sci. & Software Engr. & Data Science
Highlands College

1. Business Technology and Industry
2. Trades and Technology
3. Health Programs
4. General Studies - Network Technology (same members as below)

College of Letters, Science, and Professional Studies

1. Biological Sciences
2. Chemistry
3. Health Care Informatics
4. Mathematical Sciences
5. Nursing
6. Liberal Studies
7. Business and Information Technology
8. Computer Sci. & Software Engr. and Network Technology
9. Professional and Technical Communication
10. Writing Program

Research, Library, & Adjunct Faculty

1. Library Faculty
2. Research Faculty (2 senators)
3. Adjunct Faculty

As needed, the size and composition of the Faculty Senate shall be re-evaluated to account for changes in faculty and department structure of the College.
Welcome

Dear Montana Tech and MBMG Faculty,

The Montana Tech Faculty Senate is once again conducting a Faculty Opinion & Satisfaction Survey. This survey will be open through Friday May 3rd. If the Faculty Senate is to serve as the voice of all Faculty, we must understand what's working well and what needs improvement. Every voice matters and every opinion counts.

Please note, the responses are anonymous.

Best,
Your Faculty Senate Officers

You can also complete a paper survey in lieu of the Quadratics survey. I attached one to the e-mail sent out, there is also a link to a PDF available on the Faculty Senate Home Page, or available from any Faculty Senator.

These paper surveys can be submitted via campus mail anonymously to senate officers: C Faught (HCI), S. Capoccia (Biology), A. Mitra (Mathematics)

Chancellor

Please answer the following questions regarding the Chancellor of Montana Tech (Donald Blackketter):

The Chancellor is the chief executive officer of the Institution and of the Montana Bureau of Mines and Geology, a department of Montana Tech. The Chancellor reports to the President of The University of Montana for the internal administration of the Institution. Subject to the supervision of the President, the Chancellor shall (1) have the immediate direction, management, and control of the respective units, including instruction, practical affairs, and scientific investigation; (2) be the chief administrative officer of the general faculty and of the special faculties of the departments or colleges and the executive head of the unit in all its departments; and (3) have the duties of one of the professorships as long as the interests of the unit requires it.
In what areas has Chancellor Blackketter excelled in the last year? Please check all that apply:

Communication  External Relations  Leadership  Management  Planning  University Finance  Values
☐ ☐ ☐ ☐ ☐ ☐ ☐

In what areas should Chancellor Blackketter improve based on his performance in this last year? Check all that apply:

Communication  External Relations  Leadership  Management  Planning  University Finance  Values
☐ ☐ ☐ ☐ ☐ ☐ ☐

What grade would you assign for Chancellor Blackketter for the last year?

A B C D F
☐ ☐ ☐ ☐ ☐

Grade Comments:

Dr. Blackketter should be retained as Chancellor.

☐ Does not apply this year

Provost/Vice Chancellor for Academic Affairs

Please answer the following questions regarding the Provost/Vice Chancellor for Academic Affairs of Montana Tech (Douglas Abbott):

The Provost and Vice Chancellor for Academic Affairs (Provost) serves as the Chief Academic Officer for Montana Tech. The Provost reports directly to the Chancellor and acts in the capacity of Chief Executive Officer of the institution in the absence of the Chancellor. The Provost's duties include (but are not limited to): Academic Leadership, Institutional Integrity, Accreditation (both regional and degree-specific), Curriculum, Campus representative to external constituencies, Management of the campus degree portfolio, Budget Planning and Fiscal Management, Staffing, Student Affairs, and Faculty Development/Personnel. The Provost works with the Chancellor, Vice Chancellors, Deans, and the faculty/staff to carry out the mission of Montana Tech.
In what areas has Dr. Abbott, Vice Chancellor for Academic Affairs (P/VCAA) excelled in the last year? Please check all that apply:

- [ ] Academic Management
- [ ] Academic Planning
- [ ] Budgeting
- [ ] External Relations
- [ ] Faculty Development
- [ ] Institutional Integrity
- [ ] Leadership
- [ ] Communication

In what areas should Dr. Abbott, P/VCAA, improve based on his performance in this last year? Check all that apply:

- [ ] Academic Management
- [ ] Academic Planning
- [ ] Budgeting
- [ ] External Relations
- [ ] Faculty Development
- [ ] Institutional Integrity
- [ ] Leadership
- [ ] Communication

What grade would you assign Dr. Abbott, P/VCAA, for the last year?

- [ ] A
- [ ] B
- [ ] C
- [ ] D
- [ ] F

Grade Comments:


Dr. Abbott should be retained as Provost and Vice Chancellor for Academic Affairs.

- [ ] Does not apply this year

Vice Chancellor for Research / Dean of the Graduate School

Please answer the following questions regarding the Vice Chancellor for Research/Dean of the Graduate School for Montana Tech (Beverly Hartline):

The Vice Chancellor of Research and Dean of the Graduate School sets a climate that enables excellence and growth in research and creative scholarship and serves as the chief academic officer for graduate education. The Vice Chancellor also oversees institution-level Centers of Excellence, including the Center for Advanced Materials Processing (CAMP).
In what areas has the Dr. Hartline, Vice Chancellor for Research/Dean of the Graduate School (VCR/DGS), excelled in the last year? Please check all that apply:

- CAMP Oversight
- Grant/Funding Assistance
- Grant/Funding Promotion
- Graduate Education
- Research Leadership
- Communication

In what areas should Dr. Hartline, VCR/DGS, improve based on her performance in this last year? Check all that apply:

- CAMP Oversight
- Grant/Funding Assistance
- Grant/Funding Promotion
- Graduate Education
- Research Leadership
- Communication

What grade would you assign the VCR/DGS for the last year?

- A
- B
- C
- D
- F

Grade Comment:

Dr. Hartline should be retained as Vice Chancellor of Research and Dean of the Graduate School.

- Yes
- No

Vice Chancellor for Development and University Relations; President, Montana Tech Foundation

Please answer the following questions regarding the Vice Chancellor for Development and University Relations/President, Montana Tech Foundation (Joe McClafferty):

The Vice Chancellor of Development and University Relations/President of the Montana Tech Foundation (VCDUR) serves as head of the campus' fundraising arm. In addition, s/he leads the offices of Alumni Affairs, Career Services and Public Relations. S/he works closely with Montana Tech's Chancellor, the Montana Tech Foundation Board, alumni, and other university constituencies, functioning as the campus chief advancement officer to raise private financial support for the campus, while marketing the university to generate interest in and raise the profile of its programs, faculty and students.
In what areas has Mr. McClafferty, Vice Chancellor for Development and University Relations/President, Montana Tech Foundation (VCDUR/PMTF), excelled in the last year? Please check all that apply:

- Alumni Affairs Leadership [ ]
- Campus Fundraising [ ]
- Public Relations Leadership [ ]
- Communication [ ]

In what areas should Mr. McClafferty, VCDUR/PMTF, improve based on his performance in this last year? Check all that apply:

- Alumni Affairs Leadership [ ]
- Campus Fundraising [ ]
- Public Relations Leadership [ ]
- Communication [ ]

What grade would you assign the VCDUR/PMTF for the last year?

- A [ ]
- B [ ]
- C [ ]
- D [ ]
- F [ ]

Grade Comments:


Mr. McClafferty should be retained as Vice Chancellor of Development and University Relations/President of the Montana Tech Foundation.

- Yes [ ]
- No [ ]

Vice Chancellor for Administration and Finance

Please answer the following questions regarding the Vice Chancellor for Administration and Finance:
The Vice Chancellor is responsible for the areas of budgeting, payroll, personnel, purchasing and accounts payable. This includes supervision, program development, problem resolution and policy development and oversight. Other areas of responsibility and supervision include the business office, grants and contracts accounting, telecommunications, the mail and copy center, the bookstore, environmental health and safety, network technology, information services and other computer related functions. The Vice Chancellor also acts as the EEO/AA and Title IX officer. Reports to the Chancellor.

Due to a change over in personnel, this question block is based on the university administration collectively.

**Budget and Finance**

**As it relates to finance, in what areas has the university administration excelled?**

<table>
<thead>
<tr>
<th>Budget Process</th>
<th>Transparency</th>
<th>Communication</th>
<th>Justification</th>
<th>Allocation</th>
<th>Fiscal Responsibility</th>
<th>Budget Balancing</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

**As it relates to finance, in what areas should the university administration improve?**

<table>
<thead>
<tr>
<th>Budget Process</th>
<th>Transparency</th>
<th>Communication</th>
<th>Justification</th>
<th>Allocation</th>
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<td></td>
</tr>
</tbody>
</table>

**As it relates to financing, what grade would you assign the university administration?**

- A
- B
- C
- D
- F

**Grade Comment**


My department budget information is available for all faculty to access and the funds are appropriately allocated.

- Strongly Agree
- Agree
- Somewhat agree
- Somewhat disagree
- Disagree
- Strongly disagree

Deans

Is teaching one of your primary duties as a faculty member?

- Yes
- No

Are you a full time Montana Tech or Bureau employee?

- Yes
- No

Are you tenured?

- Yes
- No

In which College or School do you reside?

- Highlands
- Letters, Sciences, and Professional Studies
- Mines and Engineering
- Graduate/Library/Bureau/Athletics

Please answer the following questions regarding Dean David Gurchiek

Please answer the following questions regarding Dean Steve Gammon:
Please answer the following questions regarding Dean Dan Trudnowski:

Please answer the following questions regarding your Dean / Director:

Please provide the name of your Dean / Director:

Deans at Montana Tech are the leaders and chief representatives of their school/college and, except in extraordinary circumstances, are the conduits through which communications flow to and from their school/college on policy and procedural matters of an academic or administrative nature. The Dean, in consultation with the Department Heads of the school/college, is responsible for setting goals and objectives for the school/college, for developing plans to achieve them, and for periodically assessing progress towards meeting them.

In what areas has your academic Dean / Director excelled in the last year? Please check all that apply:

- Communication
- Fair & Reasonable
- Grants Autonomy
- Leadership
- Represents College
- Fiscal Responsibility
- Transparency

In what areas should your academic Dean / Director improve based on her/his performance in this last year? Check all that apply:

- Communication
- Fair & Reasonable
- Grants Autonomy
- Leadership
- Represents College
- Fiscal Responsibility
- Transparency

What grade would you assign your academic Dean / Director?

- A
- B
- C
- D
- E
- F

Grade Comment:
Please indicate your agreement with the following statements regarding Montana Tech:

The charge of the Program Prioritization Committee (PPC) was to help guide the university through structural changes as they relate to Department and Program activities and/or retention.

The PPC was used effectively to generate beneficial changes on campus

Strongly agree  Agree  Somewhat agree  Somewhat disagree  Disagree  Strongly disagree

The Chancellor Search Committee was used effectively for the selection of a new Chief Executive Office.

Strongly agree  Agree  Somewhat agree  Somewhat disagree  Disagree  Strongly disagree

I can openly express my concerns without fear of retribution.

Strongly agree  Agree  Somewhat agree  Somewhat disagree  Disagree  Strongly disagree

My department practices shared governance in the way our program is shaped.

Strongly Agree  Agree  Somewhat agree  Neither agree nor disagree  Somewhat disagree  Disagree  Strongly disagree

Montana Tech's online course management system (Moodle 2) is a useful and usable resource for faculty.

Strongly agree  Agree  Somewhat agree  Somewhat disagree  Disagree  Strongly disagree

Montana Tech's buildings and grounds are well-maintained.

Strongly agree  Agree  Somewhat agree  Somewhat disagree  Disagree  Strongly disagree

My Computer Support Specialist provides effective IT support to faculty (e.g. Workstations and Instructional Technology).

Strongly agree  Agree  Somewhat agree  Somewhat disagree  Disagree  Strongly disagree
**Campus Technology Services** provide effective IT support to faculty (e.g. Network Performance).

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

The **Library** provides access to high quality resources.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

The **Library** provides excellent service to faculty.

<table>
<thead>
<tr>
<th>Strongly agree</th>
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<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
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</table>

The **Bookstore** provides excellent service to faculty.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

The office of **Enrollment Services** provides excellent support to faculty.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

The office of **Human Resources** provides high-level support to faculty.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

The Montana Tech **Dining Services** provides excellent services and food.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

**Campus Security** maintains a safe and secure environment at Montana Tech.

<table>
<thead>
<tr>
<th>Strongly agree</th>
<th>Agree</th>
<th>Somewhat agree</th>
<th>Somewhat disagree</th>
<th>Disagree</th>
<th>Strongly disagree</th>
</tr>
</thead>
</table>

Please offer any comments in relation to general campus function
Senate

Please answer the following questions concerning Faculty Senate:

How often would you like Faculty Senate to call meetings of the full faculty?

○ Never
○ Once a Year
○ Once a Semester
○ More Than Once a Semester

What issues do you think Faculty Senate should prioritize? Please be specific.

What grade would you assign Faculty Senate for the last year?

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>F</th>
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Grade Comments: