Minutes of the March 29th, 2012 CRC Meeting

Old Business:

Approved Minutes of the December 1st 2011 CRC Meeting

New Business: All items passed except for two tabled items from GeoE pending Graduate Council Approval. These items are to be reconsidered at the 4/26/12 CRC meeting.

Electrical Engineering:

Curriculum Change Request Form

Date___2/19/2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._____Electrical Engineering **College__SME_____**

Program___Electrical Engineering, _____ **Option_**

Description of Request:

Update course description for EE 261 (Digital Circuit Design) to include programmable logic devices.

Proposed Change (Attach syllabus for new course.)

Old Description: "Digital circuit design techniques. Emphasis on combinational and sequential circuit design using commercially available TTL and MOS integrated circuits. Topics in analog and digital conversion (and vise-versa) together with digital data transmission are covered." **New Description**: "Digital circuit design techniques. Emphasis is on combinational and sequential logic circuit design, simulation, and hardware implementation. Topics in data acquisition, programmable logic devices, and digital test instrumentation are covered."

Assessment Leading to Request

New description is more consistent with what is currently taught. The main thing changed is the addition of programmable logic devices (PLDs). PLDs are a relatively new circuit device in digital that came into the industry since the original course description was written.

Anticipated Impacts to "Other" Programs

None.

Please Attach Supporting Documentation as Needed.

Date to take effect: ___Fall 2012_____
APPROVAL
Dept. Head ____Donnelly____ Date __2/16/12_ Dean _____ Date _____
(Dept. has approved) **(College has approved)**

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Updated 10/24/2002

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date___2/16/2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._____Electrical Engineering **College__SME_____**

Program___Electrical Engineering, _____ **Option_**

Description of Request:

1. Change prerequisites EELE 423 (I&C) from "EELE 201, PHSX 238" to "EELE 201, EELE 202".

2. Offer EELE 456 (Power System Protection, Operation, and Control) every spring semester instead of every other semester.

3. Offer EELE 451 (Power Electronics) on demand instead of every other spring.

Proposed Change (Attach syllabus for new course.)

See above.

Assessment Leading to Request

1. EELE 202 is a better lab prep for EELE 423 instead of PHSX 238. EELE 202 covers op-amp usage and PHSX 238 does not.

2. Students prefer this course as it fits the job needs of many graduates today.

3. This will not be taught in order to make room for 3.

Anticipated Impacts to "Other" Programs

Item 2 impacts General Engineering. But, their students already take EELE 202.

Please Attach Supporting Documentation as Needed.

Date to take effect: __Fall 2012_____
APPROVAL
Dept. Head ____Donnelly____ Date __2/16/12_ Dean _____ Date _____
(Dept. has approved) **(College has approved)**

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Updated 10/24/2002

General Engineering: Montana Tech THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date__February 7, 2012

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept.General Engineering **College__SOM&E**

Program___ _____ **Option_Civil**

Description of Request:

Change Curriculum, including several courses and criteria for professional electives. See attached Curriculum Worksheet

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
EGEN 318	Comp Apps for Engr Design	2		
ECIV 312	Structures I or ECIV 484	Reinforced Concrete 3		
ECIV 230	Construction Management & Bid Estimation	3		

Writing Component ☐ **YES** ☐ **NO**

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
ECIV 350	Intro to Transportation Engineering	3
ECIV 312 or ECIV 484 or EGEN 413	Wood Design or EGEN 414 Steel Design	3
ECIV 208	Constr. Contracts & Intro to Construction Engineering	3

Pre-req : none

New Courses

EGEN 413 Wood Analysis and Design 3 Pre-req: EGEN 305

EGEN 513 Wood Analysis and Design 3 Pre-req: EGEN 305

EGEN 412 Wind and Seismic Provisions 1 Pre-req: EGEN 305

EGEN 414 Steel Analysis and Design 3 Pre-req: EGEN 305

EGEN 514 Steel Analysis and Design 3 Pre-req: EGEN 305

ECIV 350 Transportation Engineering 3 Pre-req. Jr. Standing

ECIV 304 Constr. Means & Methods 3 Pre-req: ECIV 208, Coreq: EGEN 325

ECIV 307 Constr. Bidding & Estimating 3 Pre-req: ECIV 304, Coreq: WRIT 321 (Replaces ECIV 230)

ECIV 405 Constr. Project Planning & Scheduling 3 Pre-req: Jr. Standing

Writing Component ☐ **YES** ☐ **NO**

Assessment Leading to Request

Consensus of the Civil Option faculty in General Engineering. The civil option is seeking degree status. Structures and Transportation will be two focus areas of the four required by ABET.

Professional Electives caveat is needed because some students are taking math and management classes instead of civil classes in the civil option.

Anticipated Impacts to "Other" Programs

No impact expected on other programs.

Anticipated Impact on Library

I have consulted with __Scott Juskiewicz__, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

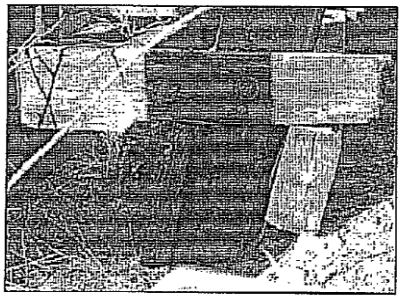
Date to take effect: _____
APPROVAL
Dept. Head _____ Date _____ Dean _____ Date _____
(Dept. has approved) (College has approved)

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Updated 10/24/2002



Course:	Wood Analysis and Design, Engineering EGEN 413/513
Schedule:	MWF, 10:00 a.m.-10:50 a.m., S.E. 209
Instructor:	Brian Kukay, bkukay@mtech.edu, 496-4517, Office: SE 307
Office Hours:	M, T, W, R 12:00-1:00
Text:	Design of Wood Structures, ASD/LRFD, 6th Edition, Donald E. Breyer, Kenneth J. Fridley, Kelly E. Cobeen, David G. Pollock, McGraw Hill 2007
Description:	To develop a general familiarity with the structural design of wood structures. This includes concepts of general structural analysis and design as well as specific design procedures unique to this material.
GE Objective:	b. Develop sub-areas of expertise through experience and pursuit of life-long learning opportunities.
Outcomes:	a. Apply knowledge of mathematics, science, and engineering. k. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.
Pre-requisite:	Structural Analysis and Design

Students shall adhere to all policies and regulations called out in the student handbook for this course. Tests are basic components of this course. Students must be present in class on test days in order to receive credit. Accordingly, make-up tests shall be re-administered solely at the discretion of the instructor. In the event no prior arrangements have been made in person (and approved by) the instructor, students should expect to receive a score of "0" for missed tests.

Routinely, in class quizzes will be administered. Students must be present in class on quiz days for the duration of the class period in order to receive credit, unless prior arrangements have been made in person (and approved by) the instructor, students should expect to receive a score of "0" for missed quizzes.

Lectures for this course will oftentimes be work sessions. Partial and/or complete solutions will be posted thereafter. Bring your calculator and textbook to class each day and be prepared to participate in classroom discussions. Suggested homework problems will be announced during class. It is the students' responsibility to keep informed of these problems.

Attendance is an integral part of enjoying and benefiting from this course. Attendance will be taken on un-announced days through the end of the semester. With advanced notice, each student is permitted to miss two lecture periods without penalty; presuming that:1) a quiz and or/test is not administered at that time (see above). Students will not be penalized for excused absence(s) that are in accordance with the student handbook. I will be available for help during scheduled office hours. If needed, you can also schedule a time to meet with me outside of the hours posted for this course. Additional information on disabilities and test taking policies for this course will be supplied to you on a separate sheet. It is understood that you will uphold these policies as well. Above all, enjoy the course!

CURRICULUM WORKSHEET

Name:

General Engineering - Civil Option, Spring 2012 **Advisor:** **Date:**

	Course #	Course Description	Grade	Credits	Math/Sci	ENGR	Design	HSS	Other
Freshman	CHMY 141	College Chem I		3	3				
	CHMY 142	College Chem Lab I		1	1				
First	WRIT 121	Intro to Technical Writing		3					3
Semester	M 171	Calc I		3	3				
	EGEN 101	Intro Engr Calc&Problems		3		3	D		
	EGEN 105	Intro to General Engineering		1		1			
	Approved Elective			2				2	
Freshman	CHMY 143	College Chem II		3	3				
	GEO 101	Introduction to Physical Geology		3	3				
Second	M 172	Calc II		3	3				
Semester	Humanities Elective			3				3	
	PHSX 234	Gen Phys-Mechanics		3	3				
Sophomore	EGEN 201	Engr Mechanics-Statics		3		3			
	MIN 2100	Plane Surveying		3		3			
First	EGEN 213	Survey of Mat & Met Engring		3		3			
Semester	M 273	Multivariable Calculus		4	4				
	PHSX 235	Gen Phys-Heat, Sound, & Optics		3	3				
	PHSX 236	Gen Phys-Heat, Sound, & Optics Lab		1	1				
Sophomore	EGEN 215	Engring Graphics		2		2	D		
	EGEN 202	Dynamics		3		3			
Second	M 274	Differential Equations		3	3				
Semester	EGEN 305	Mech of Materials		3		3			
	PHSX 237	Gen Phys-Ele, Magn, & Motion		3	3				
	PHSX 238	Gen Phys-Ele, Magn, & Motion Lab		1	1				
	EENV 204	Environmental Processes Engineering		3		3			
Junior	ECNS 203	Prin of Economics		3				3	
	WRIT 321	Advanced Technical Writing		3					3
First	ECIV 312 or ECIV 484 or EGEN 413 or EGEN 414	Structures I or Reinf. Conc. or Wood Design or Steel Design		3		3	D		
Semester	~~ECIV 230~~ ECIV 2XX	~~Construc Mgmt & Bid Estimation~~ Construction Contracts & Intro to Construc. Engr.		3		3			
	STAT 332	Statistics for Scientists & Engineers		3	3				
	EGEN 325	Engineering Economic Analysis		3					3
Junior	~~EGEN 318~~ ECIV 350	~~Comp Apps for Engr Design~~ Intro to Transport. Engring.		3		3	D		
	EGEN 335	Fluid Mechanics		3		3			
Second	EGEN 324	Applied Thermodynamics		3		3			
Semester	EGEN 306	Mech. of Materials Lab		1		1			
	Humanities Elective			3				3	
	Professional Electives, >=			3		3	D		

	3000								
Senior	EGEN 336	Fluid Mechanics Lab		1		1			
	EELE 201	Circuits I for Engineering		3		3			
First	EELE 202	Circuits I for Engineering Lab		1		1			
Semester	EGEN 494	Seminar/Workshop		1					1
	EGEN 489	Engineering Design I		2		2	D		
	ECIV 486	Soil Mech. & Found. Design		3		3	D		
	Professional Electives, >= 3000			6		6			
Senior	EGEN 488	Fundamentals of Engineering Exam		1					1
	EGEN 499	Engineering Design II		2		2	D		
Second	ENVE 4020	Surface Water Hydrology		3		3	D		
Semester	ECIV 487	Subdivision Design		4		4			
	Soc. Sci. Elective			3		3	D		
	Professional Electives, >= 3000			6		6	D		
				136	**37**	**77**		**11**	**11**

Approved Electives - do not include CHMY 121, 123, Physics 121, 123, Math 0070, M 121,MATH 1066

- HPER credits are limited to 2 credits except first aid
- Intern credits are limited to 4 credits at 2 credits per semester.
- OSH 2246 Safety Administration and Programs this is a good class for Civil Engr

Professional Electives. Students may choose from but are not limited to any of the following course

Min 1520 (3 credits) - Mapping, Surface Modeling & Volumetrics is a strongly recommended elective,
but, can be taken only as a Fresh or Soph

GEOE 420	Hydrogeology for Engineers
GEOE 422	Groundwater Flow Modeling
GEOE 440	Engineering Geology
GEOE 429	Field Hydrogeology
GEOE 541	Adv Engineering Geology
GEOE 542	Slope Stability Analysis & Design
EENV 403	Waste & Wastewater Treatment
EENV 404	Surface Water Quality
EENV 414	Land & Stream Restoration
EENV 445	Hazardous Waste Treatment
EENV 430	Soil & Subsurf Remediation
ENGR 5500	Hydraulic Structures
MIN 4440	Enviro Manage & Design of Dumps
MIN 4610	Quant. Methods for Engr & Mgt

MIN 4670	Geomechanics I
MIN 5200	Finite Element Methods in Geomechanics
MIN 5610	Design & Constr of Dumps, Pads
EWLD 476	Non-Destructive Examination
ENGR 5710	Advanced Fluid Mechanics
ENGR 5850	Advanced Mechanics of Materials
EELE 423/424	Instrumentation & Controls/Lab
ECIV 484	Reinforced Concrete Design
ECIV 484	Structures I
Min 5750	Tunneling & Underground Construction
Min 4580	Principles of Management
Min 5300	Aggregate Mine Design
EGEN 392	Construction Contracts
EGEN 414	Steel Design
EGEN 413	Wood Design
EGEN 412	Wind & Seismic Provisions
ECIV 3XX	Construction Means & Methods
ECIV 307	Construction Bidding & Estimating

One and only one upper level math course OR one and only one upper level management course will be accepted as a professional elective.

Montana Tech of the University of Montana
School of Mines and Engineering
ECIV 307 – Construction Bidding and Estimating
Term/ Year
Syllabus

Course: ECIV 307 – Construction Bidding and Estimating
Credits: 3 credits
Course Time and Location: Time and Place
Course Registration Number (CRN): #####
Course Prerequisites: ECIV 304 & WRIT 321
Final Exam: Required, date and Time.
Last day to drop a class without receiving a "W": Date Set
Last day to drop a class with an automatic "W": Date Set

Instructor:
Office: Office Location
Phone: Office Phone Number
Email: Email Address
Office Hours: Office hours as set, and by appointment

Textbook: Estimating Construction Cost, Fifth Edition; *Peurifoy, Robert, L., and Oberlender, Garold, D.*; McGraw Hill Publishers; ISBN – 13: 978-0-07-243580-1

Catalog Description: ECIV 307 3 Cr.. (Hrs.:.:3 Lec.)
Teaches students to read plans and perform quality take-offs from plans. Quantities then result in cost estimates Dirt moving and costs are presented in detail. Students will develop construction activities determining cycle times, loading characteristics, and cost of operation. Scheduling Processes are introduced. Prerequisites: ECIV 304 & WRIT 321 or consent of instructor.

Couse Description: Construction Bidding and Estimating is a course that builds on concepts developed in previous construction courses. Students will prepare their own bid based for a construction project. Students will be introduced to construction bidding software. This course will cover the following topics:

A. Defined activities used in construction
B. Determine labor costs including direct and indirect costs
C. Perform quantity take-offs from sets of plans.
D. Relate technical specifications and design drawings to determine construction costs
E. Learn to prepare a set of construction drawing and contract documents
F. Utilize bidding software
G. Introduction to construction scheduling software

Course Outcomes: The General Engineering: Civil Engineering Option has eleven program outcomes (a – k), this course is designed to present to students three program outcomes. These program outcomes are:

A. an ability to apply knowledge of mathematics, science, and engineering (Outcome a);
B. an ability to identify, formulate, and solve engineering problems (Outcome e); and
C. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice (Outcome k).

To better evaluate the General Engineering: Civil Engineering Option program it is useful to have predetermine actions within the course that will serve as evidence as to the attainment of these course outcomes. To provide this evidence, artifacts produced by the students will be used. If there are any

students that **do not** want me to use an artifact produced by them, please meet with me to let me know of your need.

Classroom Conduct:

- Attendance:
- Homework:
- Cell phones
- **Exams and Final Exam**

Evacuation Plan:

Academic Dishonesty:

Students with Disabilities:

Grading Policy:

General Class Schedule:

Course Syllabus ECIV 350 Transportation Engineering

Instructor: Butch Gerbrandt, Main Campus S&E Room 313, 496-4109

bgerbrandt@mtech.edu

Text: Traffic & Highway Engineering, Garber and Hoel, Latest Edition

Course Structure: 2 hours lecture, 3 hours lab. For the LAB portion of this class you will be using both AutoCAD and Civil 3-D.

Goals: To provide the student with basic theory and philosophy of traffic engineering along with rudimentary highway design aspects. To introduce Civil 3-D to the potential highway engineer.

Course Outcomes

- design a system, component, or process to meet desired needs
- function on multi-disciplinary teams
- identify, formulate, and solve engineering problems
- use the techniques, skills, and modern engineering tools necessary for engineering practice

---

Aug 26 Horizontal stationing, tangents, circ. curves. Chap 16

Aug 27 **Lab.** Spirals. Chap 16 and supplemental material. Circular & Spiral Curves in AutoCAD.

Aug 28 Survey staking of circular curves. Chap 16. pg 710. Field assignment.

Sep 2 Route design: Vertical alignments--Crest & sag curves. Chap 16, pg 688

Sep 3 **Lab.** Field Staking of circular curves. Chap 16, pg 710

Sep 4	Finish Crest & sag curves. **Take-home exam** on highway alignment.
Sep 9	Highway Cross-sections. Chapter 16.
Sep 10	**Lab.** Field staking of vertical curves
Sep 11	Cut & Fill Volumes, Mass Haul Diagram. Chapter 15. **Take-home exam due at 4:00 p.m.**
Sep 16	Highway Classification, Design Standards. Chapter 16.
Sep 17	**Lab.** Contour maps and surfaces from Point Files
Sep 18	Characteristics of the Driver. Chapter 3.
Sep 23	Characteristics of the Vehicle. Chapter 3
Sep 24	**Lab**. Horizontal Alignments
Sep 25	Characteristics of the Road. Chapter 3. Assignment.
Sep 30	Traffic Engineering Studies. Spot Speed. Chapter 4.
Oct 1	**Lab.** Spot speed field data collection.
Oct 2	Volume Studies. Chapter 4

Oct 7 Data Collection Methods.

Oct 8 **Lab.** Vertical Alignments.

Oct 9 Traffic Flow Elements-Flow, Density, and Speed. Chapter 6

Oct 14 Flow-Density Models - Greenshields & Greenberg Chapter 6

Oct 15 **Lab.** Cross-section templates or Assemblies

Oct 16 Calibration of Flow Models

Oct 21 Shock waves in Traffic Streams. Chapter 6

Oct 22 **Lab.** Corridors.

Oct 23 Gap and Gap Acceptance. Chapter 6

Oct 28 Gap and Gap Acceptance. Chapter 6

Oct 29 **Lab.** Project assignment. Cross-sections.

Oct 30 Queuing Theory. Chapter 6. Review for Exam 2.

Nov 4 Election Day. **No class.**

Nov 5 **Lab.** Cuts & fills.

Nov 6 **Exam 2** Material up to but not including Queuing

Nov 11 Veterens' Day. **No class.**

Nov 12 **Lab.** Intersection data collection.

Nov 13 Intersection Design. Design Principles. Chapter 7.

Nov 18 Intersection Design. Application of Principles. Chapter 7.

Nov 19 **Lab.** Project

Nov 20 Intersection Design. Student instruction. Chapter 7.

Nov 25 Intersection Design. Student instruction. Chapter 7.

Nov 26 **Lab.** Work independently on Project

Nov 27 **No class**. Thanksgiving Holiday.

Dec 2 Signal timing.

Dec 3 **Lab.** Work on Project. **Project due 4 p.m.**

Dec 9 Signal timing concluded. Chapter 7.

Dec 10 **No Lab.**

Dec 11 Review for Final.

Exam 3 Queuing, intersections and signal timing.

Grading

Exam 1	20%
Exam 2	20%
Exam 3	20%
Homework and lab assignments	40%

>89.9 A

>79.9 B

>69.9 C

>59.9 D

Montana Tech of the University of Montana
School of Mines and Engineering
ECIV 304, - Construction Means and Methods
Term/ Year
Syllabus

Course: ECIV 304 – Construction Means and Methods
Credits: 3 credits
Course Time and Location: Time and Place
Course Registration Number (CRN): ####
Course Prerequisites: ECIV 208, EGEN 325 (Pre or Co-requisite)
Final Exam: Required Set by schedule.
Last day to drop a class without receiving a "W": Date Set
Last day to drop a class with an automatic "W": Date Set

Instructor:
Office: Office Location
Phone: Office Phone
Email: Email Address
Office Hours: Set Office hours, and by appointment

Textbook: Construction Planning, Equipment, and Methods, Eighth Edition; *Peurifoy, Robert, L., Schexnayder, Clifford, J.,Shapira, Aviad, and Schmitt, Robert,L.*; McGraw Hill Publishers; ISBN – 13: 978-0-07-340112-6

Catalog Description: ECIV 304 3 Cr.. (Hrs:3 Lecture)
This course introduces the students to construction operations. Students will calculate ownership and operation costs for equipment. Students will analyze replacement procedures for construction equipment. Students will develop series of construction activities that will constitute a construction plan and calculate associated time and cost. Students will learn how to cost the operation of various construction activity. Prerequisites: ECIV 208 & EGEN 325 or consent of instructor.

Couse Description: Construction Means and Methods is a course that introduces the student into the means and methods used in heavy construction projects. Students will learn to identify and the activities performed by heavy equipment. In addition to a course orientation we cover the following topics:

H. Basics of construction activity
I. Equipment evaluation
J. Uses of construction equipment
K. Processes for construction activity
L. Cost estimates for construction projects
M. Scheduling construction activity

Course Outcomes: The General Engineering: Civil Engineering Option has eleven program outcomes (a – k), this course is designed to present to students three program outcomes. These program outcomes are:

D. an ability to apply knowledge of mathematics, science, and engineering (Outcome a);
E. an ability to design and conduct experiments, as well as to analyze and interpret data (Outcome b);

F. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability (Outcome c);
G. an ability to identify, formulate, and solve engineering problems (Outcome e); and
H. an ability to communicate effectively (Outcome g).

To better evaluate the General Engineering: Civil Engineering Option program it is useful to have predetermine actions within the course that will serve as evidence as to the attainment of these course outcomes. To provide this evidence, artifacts produced by the students will be used. If there are any students that **do not** want me to use an artifact produced by them, please meet with me to let me know of your need.

Classroom Conduct:

Attendance
Homework:
Cell phones
Exams and Final Exam:

Evacuation Plan:
Academic Dishonesty: :

Students with Disabilities:

Grading Policy:

Final grades will be based on the schedule as follows:

A	100% - 93%
A-	< 93% - 90%
B+	< 90% - 87%
B	< 87% - 83%
B-	< 83% - 80%
C+	< 80% - 77%
C	< 77% - 73%
C-	< 73% - 70%
D	<70% - 60%
F	< 60%

General Class Schedule:

Geological Engineering:

Curriculum Change Request Form

Date__March 1, 2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._Geological Engineering__ College__School of Mines & Engineering__

Program__B.S. Geological Engineering_____ Option___All____

Description of Request:

There are currently 16 credits in the Geological Engineering curriculum that are specified as "technical electives." Since most of the available courses are 3 credits each, we would like to reduce the total of "technical electives" to 15, and change the designation of the 16th credit to "free elective." Any course may be used to satisfy the free elective, and there are many 1-credit choices available (such as HPER classes, band, and undergraduate research).

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.

Writing Component ☐ YES ☐ NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits

Writing Component ☐ YES ☐ NO

Assessment Leading to Request

Review of the required number of math, science, and engineering topics credits during preparation of our last ABET report revealed that we have nearly 50% more of those technical credits than the minimum required. Changing 1 technical elective credit to a "free elective" will allow students more

flexibility and provide more opportunities to achieve the required 136 credit total without having to take extra credits.

Anticipated Impacts to "Other" Programs

Minimal. Possible very slight increase in enrollment 1-credit (or more) courses in other programs.

Anticipated Impact on Library

I have consulted with __Scott Juskiewicz____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _Mary MacLaughlin_____ Date _3/1/12__ Dean _____ Date _____
(Dept. has approved) **(College has approved)**

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty __Mary MacLaughlin_____ Date __3/1/12_____

Updated 10/24/2002

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date__March 1, 2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._Geological Engineering__ College__School of Mines & Engineering__

Program__B.S. Geological Engineering_____ Option___all_____

Description of Request:

Add Math 333 Linear Algebra to the list of allowable F.E. (Fundamentals of Engineering) electives

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.

Writing Component ☐ YES ☐ NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits

Writing Component ☐ **YES** ☐ **NO**

Assessment Leading to Request

Additional math skills are just as important for the F.E. exam as some other topics.

Anticipated Impacts to "Other" Programs

Possible small increase in Math 333

Anticipated Impact on Library

I have consulted with __Scott Juskiewicz____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _Mary MacLaughlin_____ Date _3/1/12__ Dean _____ Date _____
(Dept. has approved) **(College has approved)**

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty __Mary MacLaughlin_____ Date __3/1/12_____

Updated 10/24/2002

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date__March 1, 2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._Geological Engineering__ College__School of Mines & Engineering__

Program__B.S. Geological Engineering_____ Option___Geotechnical____

Description of Request:

Add GeoE 406 Geomorphology-Photogeology (an existing course) to the list of technical electives that must be taken to satisfy the Geotechnical Option, increasing the total tech electives for this option from 12 to 15. There are currently 16 technical elective credits in the 136-credit Geological Engineering curriculum.

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
The Geotech Option consists of the following courses: ECiv 486 Soil Mechanics (3 cr), GeoE 541 Advanced Engineering Geology (3 cr), GeoE 542 Slope Stability Analysis & Design (3 cr), Min 5200 Finite Element Method in Geomechanics (3 cr)				

Writing Component ☐ **YES** ☐ **NO**

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
Add GeoE 406 Geomorphology-Photogeology (an existing 3-credit course) to the list		

Writing Component ☐ **YES** ☐ **NO**

Assessment Leading to Request

GeoE 406 Geomorphology-Photogeology was a required class for all geological engineers until the retirement of Prof. Mark Sholes. Prof. Smith is now teaching the course regularly, and the content is important for geological engineering students intending to pursue geotechnical-oriented careers.

Anticipated Impacts to "Other" Programs

None

Anticipated Impact on Library

I have consulted with __Scott Juskiewicz____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _Mary MacLaughlin_____ Date _3/1/12__ Dean _____ Date _____
(Dept. has approved) **(College has approved)**

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty __Mary MacLaughlin_____ Date __3/1/12_____

Updated 10/24/2002

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date 2/6/12

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._Geol. Engineering___ College____Mines & Engineering_____

Program___ Geosciences M.S. Degree___ Option____N/A_____

Description of Request:

Create a new 3-credit course at the 500-level called "Isotope Geochemistry". This class has been taught twice previously by C. Gammons as a Special Topics course.

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
Previously taught as GeoE 591 (Special Topics), Section 02				no pre-req

Writing Component ☐ YES X NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
GeoE 534	Isotope Geochemistry	3

Topics include light stable isotopes (H, C, O, N, S), environmental tracers (tritium, CFCs, radon), age-dating (C-14, U-Pb, Ar-Ar), and stable isotopes of heavy metals (Cu, Fe).

Applications to hydrogeology, environmental geochemistry, and economic geology. Students will learn to critically read and understand technical journal articles that present and discuss isotopic data, and will be encouraged to find applications to their own research.

Prerequisites: CHMY 141-143 or equivalent. **(Alternate years, 2nd)**

Writing Component ☐ **YES** **X NO**

Assessment Leading to Request

Need to formalize this into a catalog course.

Anticipated Impacts to "Other" Programs

This class will be a graduate-level elective, mainly for graduate students in Geosciences (including Geology, Hydrogeology and Geochemistry options) and Environmental Engineering.

Anticipated Impact on Library

I have consulted with _____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _____ Date _____ Dean _____ Date _____
(Dept. has approved) **(College has approved)**

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Updated 10/24/2002

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date 2/6/12

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._Geol. Engineering___ College____Mines & Engineering_____

Program___ Geosciences M.S. Degree___ Option____N/A_____

Description of Request:

Create a new 3-credit course at the 500-level called "Montana Geology". This class has been taught twice previously by C. Gammons as a Special Topics course.

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
Previously taught as GeoE 591 (Special Topics), Section 01				no pre-req

Writing Component ☐ YES X NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits	
GeoE 501	Montana Geology	2 or 3	Geo 101 or equivalent.

This course reviews the geology of Montana, from the Precambrian to the present day. Assignments place an emphasis on the interpretation of geologic maps. Lecture material is

enhanced with outside readings and field trips. Students who take this course will have a much better understanding of the geology of Montana and the surrounding region, which has practical benefits for professionals in any of the "geo" fields.

Prerequisites: GEO 101 or equivalent. (1st)

Writing Component ☐ **YES** **X NO**

Assessment Leading to Request

Need to formalize this into a catalog course.

Anticipated Impacts to "Other" Programs

This class will be a graduate-level elective, mainly for M.S. students in Geosciences (including all 6 options: Geology, Hydrogeology, Geological Engineering, Hydrogeological Engineering, Geochemistry, Geophysics) and interested undergraduate students. Students from other programs (e.g., Environmental Engineering, Mining Engineering) are welcome.

Anticipated Impact on Library

I have consulted with _____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _____ Date _____ Dean _____ Date _____
(Dept. has approved) (College has approved)

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Library: This is the approved, revised version of the form.

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._____ College_____

Program___ _____ Option_____

Description of Request:

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.

Writing Component ☐ YES ☐ NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits

Writing Component ☐ **YES** ☐ **NO**

Assessment Leading to Request

Anticipated Impacts to "Other" Programs

Impact on Library

I have consulted with _____, faculty member and librarian, and discussed the online and print resources needed to support the *academic content* in a new course or change(s) in the *academic content* of an existing course, including existing resources and possible acquisitions.

____ No consultation is required since changes are only in the course number, course name, or course pre-requisites.

Date to take effect: _____

APPROVAL

Dept. Head _____ Date _____ Dean _____ Date _____

(Dept. has approved) (College has approved)

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Petroleum Engineering:

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date__March 1, 2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._Geological Engineering__ College__School of Mines & Engineering__

Program__B.S. Geological Engineering_____ Option___Petroleum____

Description of Request:

Change the list of existing Petroleum Engineering courses that must be taken to satisfy the Petroleum Option, increasing the total tech electives for this option from 12 to 16. There are currently 16 technical elective credits in the 136-credit Geological Engineering curriculum.

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
The Petroleum Option consists of the following courses: Pet 201 Elements of Pet Eng (2 cr), Pet 202 Pet Eng Field Trip (1 cr), Pet 304 Rock Properties (3 cr), Pet 348 Well Logging (3 cr), Pet 404 Reservoir Eng (3 cr)				

Writing Component ☐ YES ☐ NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
Add Pet 205 Pet Lab I(1 cr) and Pet 301 Drilling Eng (3 cr) because they are now prerequisites for Pet 348. Replace Pet 404 Reservoir Eng with GeoE 457 Subsurface Methods (3 cr) because the GeoE course is more appropriate for GeoE students.		

Writing Component ☐ **YES** ☐ **NO**

Assessment Leading to Request

Review of the 2011-12 catalog revealed that several of the upper division technical electives required for the Petroleum Option now have new prerequisites (presumably due to the recent ABET visit). The list will now include all of the prerequisites needed for the upper division courses.

Anticipated Impacts to "Other" Programs

Minimal. Slight increase in enrollment in several Petroleum Engineering courses (probably < 5-10 students).

Anticipated Impact on Library

I have consulted with __Scott Juskiewicz____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _Mary MacLaughlin_____ Date _3/1/12__ Dean _____ Date _____
(Dept. has approved) **(College has approved)**

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty __Mary MacLaughlin_____ Date __3/1/12_____

Updated 10/24/2002

SHIH:

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date__March 8, 2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept.__SHIH_____ College__SME_____

Program__B.S. in OSH _ _____ Option_____AHS_____

Description of Request:

Increase credits for AHS 3656 "Human Performance Laboratory Techniques" from 2 to 3. Change free elective credit from 4 to 3 in OSH – AHS curriculum. AHS 3656 will include 2 lectures per week and 1 lab..

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
AHS 3656	Human Perf. Lab. Tech.	2 credits		AHS 3636

Writing Component ☐ **YES** ☐ **NO**

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
AHS 3656	Human Perf. Lab. Tech.	3 credits

Writing Component ☐ **YES** ☐ **NO**

Assessment Leading to Request

Students currently spending more time in course than current credits they are earning, do to newer material in this field being presented in class.

Anticipated Impacts to "Other" Programs

No impact on other academic programs or on the library.

Anticipated Impact on Library

I have consulted with _____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: __Fall 2012_____

APPROVAL

Dept. Head _____ Date _____ Dean _____ Date _____

(Dept. has approved) (College has approved)

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date____March 1, 2012_____

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept.__SHIH_____ College__SME_____

Program___B.S. in OSH_____ Option___OSH_____

Description of Request:

Replace the required course--M 151 Precalculus—with M 151 Precalculus or Free Elective. This will avoid doing a Course Substitution form for students who place into M 171 Calculus.

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
M 151	Precalculus	4 hrs	Algebra and Trigonometry	M 121 or good test scores

Writing Component ☐ YES ☐ NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
M 151	Precalculus or Free Elective	4 hrs

Writing Component ☐ **YES** ☐ **NO**

Assessment Leading to Request

A few new OSH students are able to take calculus without taking precalculus. In those cases we have been submitting a Course Substitution form. This can be avoided by putting a free elective in the first semester of our curriculum and relying on advisors to channel students into whatever math class they are ready for.

Anticipated Impacts to "Other" Programs

No impact on other academic programs or on the library.

Anticipated Impact on Library

I have consulted with _____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _____ Date _____ Dean _____ Date _____
(Dept. has approved) (College has approved)

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Updated 10/24/2002

TLC: Montana Tech THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date_2/3/12___

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept._TLC_____ College_____

Program___ _____ Option_____

Description of Request:

Offer a 1 credit professional technical elective for General Engineering Students that tutor in the TLC.

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
N/A				

Writing Component ☐ YES ☐ NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
MT 301	Tutoring in Engineering	1

Writing Component ☐ YES x NO

Assessment Leading to Request

Recruiting upper level general engineering students to tutor engineering core classes has been a difficult task. I have asked current engineering tutors what would entice higher level engineering students to become tutors in the TLC. The majority suggested that if tutors could earn professional technical credits for tutoring, more students would apply.

Bruce Madigan, General Engineering Department Head, was contacted about approving this course as a professional elective. He agrees that it would be a beneficial addition to the students' professional elective choices. Tutoring students in core engineering classes such as Statics, Dynamics, Fluids, Thermodynamics, and Engineering Economics promotes the retention of core engineering concepts, prepares the tutor for the FE exam, and fosters communication and teaching skills.

This course is Pass/Fail. In order to earn a passing grade, the student must tutor a minimum of 5 hours per week. Only 1 credit hour may be used toward a technical elective. If the course is taken more than, once, the remaining credits will be free electives. Consent of instructor is required to take this course.

If this professional elective is successful in the General Engineering Department, there is potential for other departments to offer a similar option.

Anticipated Impacts to "Other" Programs

N/A

Anticipated Impact on Library

I have consulted with _____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _____ Date _____ Dean _____ Date _____
(Dept. has approved) (College has approved)

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Updated 10/24/2002

Montana Tech
THE UNIVERSITY OF MONTANA

Curriculum Change Request Form

Date 3/27/12

Protocol: Department requesting change should email completed forms to next approval step. Their typed

name and date on the form and email record indicates approval. The form is then forwarded through the approval sequence to CRC chair.

Dept. TLC College_____

Program_____ Option_____

Description of Request:

Change Course Title of College Success to titles that attract specific cohorts of students.

Current Course Program Information:

Course #	Name	Credits	Catalog Description	Pre-req.
MT 101	College Success	2	This course is designed to teach students how to have a successful college experience both academically and personally. The focus will be on the development of practical knowledge and skills to assist students towards that goal. Topics include communication skills, critical thinking skills, test taking, time planning, study techniques, community and campus resources, and managing the personal and relationship issues that face many college students. Students may use this course as free elective toward any undergraduate degree.	

Writing Component ☐ YES ☐ NO

Proposed Change (Attach syllabus for new course.)

Course #	Name	Credits
MT 101	Montana Tech Success: Instructor's Choice"	2

Writing Component ☐ **YES** **x NO**

Assessment Leading to Request

The Dean's council approved to group students into STEM, non-STEM, and COT sections of MT 101. By grouping the students, the instructors can choose topics that are interesting to that specific cohort. The study skills, life skills, communication skills, etc that are the main objectives of the class, will be taught indirectly through the more interesting topics.

By changing the course name, we hope that the new names(s) will be more enticing and will attract the specific cohort of students.

Anticipated Impacts to "Other" Programs

N/A

Anticipated Impact on Library

I have consulted with _____, faculty member and librarian, and discussed the online and print resources needed to support this curriculum change, including existing resources and possible future acquisitions.

Please Attach Supporting Documentation as Needed.

Date to take effect: _____
APPROVAL
Dept. Head _____ Date _____ Dean _____ Date _____
(Dept. has approved) (College has approved)

Graduate School_____ Date _____ CRC _____Date _____

(Required of Graduate Changes.)

Faculty _____ Date _____

Updated 10/24/2002