



## MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

*Formerly University of Missouri-Rolla*

### Minutes

#### Campus Curricula Committee Meeting

December 5, 2012

12 p.m., Room 117 Fulton Hall

**Attendees:** Lahne Black, Barry Flachsbart, Irina Ivliyeva, Keith Nisbett, Steve Raper, Tom Schuman, Daniel Tauritz, and Jennifer Thorpe.

The committee approved the following meeting dates for Spring 2013.

- January 15, 10:00-11:00 am
- February 6, 12:00-1:00 pm
- March 6, 12:00-1:00 pm
- April 3, 12:00-1:00 pm
- May 8, 12:00-1:00 pm

The following curriculum forms were discussed and approved:

#### **Degree Change Forms:**

DC #0417	DC #0429
DC #0419	DC #0432
DC #0420	DC #0433

#### **Course Change Forms:**

CC #8284	CC #8306
CC #8285	CC #8308
CC #8305	CC #8309

#### **Experimental Course Forms:**

EC #2438	EC #2442
EC #2440	EC #2444

The committee voted to table the items below for further action/clarification to be provided by the academic department responsible for each:

DC #0430, History, Bachelor of Arts/History Teacher Education Program.

CC #8307, Explosives Engineering 411, Research Methods.

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# MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

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*Formerly University of Missouri-Rolla*

The following forms were withdrawn by the academic department responsible for each:  
CC #8280, Computer Engineering 416, Advanced Computer Architecture II.

CC #8281, History 396, History Research Seminar.

CC #8282, Engineering Management 482, Financial Engineering II.

The meeting adjourned at 1:10 p.m.

A handwritten signature in cursive script, reading "Daniel Tauritz", written over a horizontal line.

Daniel Tauritz, Chair  
Missouri S&T Campus Curricula Committee

Effective Year: 2013

Effective Term: Summer ☐ Fall xx ☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

DC # 0417-2012-Emgt-000-00

## Degree Change Form (DC)

This form is to be used for creating or modifying degree programs, emphasis areas, and minors.

Title of degree program, emphasis area, or minor:  
Engineering Management

Department: EMSE

Briefly describe action requested (Attach documentation as appropriate):

Emgt ← Add ~~EMSE~~ 213 (new 3 credit hour course CC submitted with this request) to the current 26 credit hours of required Engineering Management core courses. Concurrent to this change, the Industrial Engineering, Management of Technology and General Emphasis areas will remove 3 credit hours of EMSE technical electives (Separate DC forms submitted with this request). See attached documentation.

Recommended by Department:



(Chair signature)

Date:

2/27/12

Recommended by:



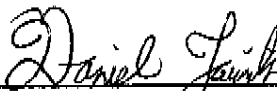
Discipline Specific Curricula Committee

(Chair signature)

Date:

8/26/12

Approved by Curricula Committee:



(Chair signature)

Date:

12/17/2012

Approved by Faculty Senate:

(Chair signature)

Date:

02/27/12

(Revised 9/12/2011)

# Bachelor of Science Engineering Management

## Student Checklist - FS 2013 - Catalog 128 Hours

Freshman Year				
<u>First Semester</u>			<u>Second Semester</u>	
FE 10 Study and Careers in Engineering	1	<input type="radio"/>	IDE 20 Engineering Design with Computer Appli	3 <input type="radio"/>
Chem 1 General Chemistry	4	<input type="radio"/>	Math 15 Calculus II for Engineers	4 <input type="radio"/>
Chem 2 General Chemistry Lab	1	<input type="radio"/>	Phys 23 Engineering Physics I	4 <input type="radio"/>
Chem 4 Intro to Lab Safety	1	<input type="radio"/>	Econ 121/122 - Micro or Macro Economics	3 <input type="radio"/>
Math 14 Calculus I for Engineers	4	<input type="radio"/>	Humanities Elective	3 <input type="radio"/>
Engl 20 Exposition and Argumentation	3	<input type="radio"/>		
Hist 112, 175, 176 or Pol Sci 90	3	<input type="radio"/>		
	17			17
Sophomore Year				
<u>First Semester</u>			<u>Second Semester</u>	
Math 22 - Calculus w/Analytic Geometry III	4	<input type="radio"/>	Math 204 - Differential Equations	3 <input type="radio"/>
Physics 24 - Engineering Physics II	4	<input type="radio"/>	Stat 215/217 - Eng Statistics	3 <input type="radio"/>
IDE 50 - Engineering Mechanics - Statics	3	<input type="radio"/>	IDE 150 - Engineering Mechanics - Dynamics	2 <input type="radio"/>
Eng Mg 213 Complex System Mgt	3	<input type="radio"/>	Eng Mg 147 - Eng Mgt Acct&Fin	3 <input type="radio"/>
Eng Mg 137 - Eng Economics	2	<input type="radio"/>	Eng Mg 134 - Management Eng & Technology	3 <input type="radio"/>
		<input type="radio"/>	Psych 50 - General Psychology	3 <input type="radio"/>
	16			17
Junior Year				
<u>First Semester</u>			<u>Second Semester</u>	
Eng Mg 253 - Operations & Prod Mngt	3	<input type="radio"/>	Eng Mg 266 - Quality Philosophies & Methods	3 <input type="radio"/>
Eng Mg 251 - Marketing Management	3	<input type="radio"/>	Eng Mg 254 - Project Management	3 <input type="radio"/>
IDE 110 - Mechanics of Materials	3	<input type="radio"/>	El Eng 281 - Electrical Circuits	3 <input type="radio"/>
IDE 120 - Mechanics of Materials Lab	1	<input type="radio"/>	English 160 - Technical Writing	3 <input type="radio"/>
Comp Sci 74 - C++ Programming	2	<input type="radio"/>	ME 227 - Thermal Analysis	3 <input type="radio"/>
Com Sci 78 - C++ Lab	1	<input type="radio"/>		
Sp&Med 085 or 181	3	<input type="radio"/>		
	16			15
Senior Year				
<u>First Semester</u>			<u>Second Semester</u>	
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Eng Mg 299 - Senior Design	3 <input type="radio"/>
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Eng Mg Technical Elective	3 <input type="radio"/>
Eng Mg 260 - Gen Mgt - Design & Integration	3	<input type="radio"/>	Eng Mg Technical Elective	3 <input type="radio"/>
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Upper Level H/SS	3 <input type="radio"/>
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Free Elective	3 <input type="radio"/>
	15			15

**Comments:**

Effective Year: 2013

Effective Term: Summer ☐ Fall xx ☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

DC # 0419-2012-Emgt-000-00

## Degree Change Form (DC)

This form is to be used for creating or modifying degree programs, emphasis areas, and minors.

Title of degree program, emphasis area, or minor:

Industrial Engineering Emphasis Area

Department: EMSE

Briefly describe action requested (Attach documentation as appropriate):

emgt  
emgt

The Industrial Engineering Emphasis area credit hour requirements will change from 21 credit hours to 18 credit hours. This change is being made in order to add a new 3 credit hour course (EMSE 213) to the current 26 credit hours of EMSE required core courses. The 12 credit hours of required courses (EMSE 257, 311, 356 and 382) will not change. The EMSE technical electives will be reduced to 6 credit hours from the current required 9 credit hours. This change enables EMSE to maintain 3 credit hours of Free Electives as a part of the 128 required credit hours.

Recommended by Department: \_\_\_\_\_

(Chair signature)

Date: 2/27/12

Recommended by: \_\_\_\_\_

Discipline Specific Curricula Committee

(Chair signature)

Date: 8/26/12

Approved by Curricula Committee: \_\_\_\_\_

(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate: \_\_\_\_\_

(Chair signature)

Date: \_\_\_\_\_

02/27/12

(Revised 9/12/2011)

# Bachelor of Science Engineering Management

## Student Checklist - FS 2013 - Catalog 128 Hours

### Industrial Engineering Emphasis

Freshman Year			
<u>First Semester</u>		<u>Second Semester</u>	
FE 10 Study and Careers in Engineering	1 <input type="radio"/>	IDE 20 Engineering Design with Computer Appli	3 <input type="radio"/>
Chem 1 General Chemistry	4 <input type="radio"/>	Math 15 Calculus II for Engineers	4 <input type="radio"/>
Chem 2 General Chemistry Lab	1 <input type="radio"/>	Phys 23 Engineering Physics I	4 <input type="radio"/>
Chem 4 Intro to Lab Safety	1 <input type="radio"/>	Econ 121/122 - Micro or Macro Economics	3 <input type="radio"/>
Math 14 Calculus I for Engineers	4 <input type="radio"/>	Humanities Elective	3 <input type="radio"/>
Engl 20 Exposition and Argumentation	3 <input type="radio"/>		
Hist 112, 175, 176 or Pol Sci 90	3 <input type="radio"/>		
<b>17</b>		<b>17</b>	
Sophomore Year			
<u>First Semester</u>		<u>Second Semester</u>	
Math 22 - Calculus w/Analytic Geometry III	4 <input type="radio"/>	Math 204 - Differential Equations	3 <input type="radio"/>
Physics 24 - Engineering Physics II	4 <input type="radio"/>	Stat 215/217 - Eng Statistics	3 <input type="radio"/>
IDE 50 - Engineering Mechanics - Statics	3 <input type="radio"/>	IDE 150 - Engineering Mechanics - Dynamics	2 <input type="radio"/>
Eng Mg 213 Complex System Mgt	3 <input type="radio"/>	Eng Mg 147 - Eng Mgt Acct&Fin	3 <input type="radio"/>
Eng Mg 137 - Eng Economics	2 <input type="radio"/>	Psych 50 - General Psychology	3 <input type="radio"/>
		Eng Mg 134 - Management Eng & Technology	3 <input type="radio"/>
<b>16</b>		<b>17</b>	
Junior Year			
<u>First Semester</u>		<u>Second Semester</u>	
Eng Mg 253 - Operations & Prod Mgt	3 <input type="radio"/>	Eng Mg 266 - Quality Philosophies & Methods	3 <input type="radio"/>
Eng Mg 251 - Marketing Management	3 <input type="radio"/>	Eng Mg 254 - Project Management	3 <input type="radio"/>
IDE 110 - Mechanics of Materials	3 <input type="radio"/>	El Eng 281 - Electrical Circuits	3 <input type="radio"/>
IDE 120 - Mechanics of Materials Lab	1 <input type="radio"/>	English 160 - Technical Writing	3 <input type="radio"/>
Comp Sci 74 - C++ Programming	2 <input type="radio"/>	ME 227 - Thermal Analysis	3 <input type="radio"/>
Com Sci 78 - C++ Lab	1 <input type="radio"/>		
Sp&Med 085 or 181	3 <input type="radio"/>		
<b>16</b>		<b>15</b>	
Senior Year			
<u>First Semester</u>		<u>Second Semester</u>	
Eng Mg 356 - Ind Sys Simulation	3 <input type="radio"/>	Eng Mg 299 - Senior Design	3 <input type="radio"/>
Eng Mg 382 Intro to Ops Research	3 <input type="radio"/>	Eng Mg 257 - Mat Hndl & Plant Layout	3 <input type="radio"/>
Eng Mg 311 - Human Factors	3 <input type="radio"/>	Eng Mg Technical Elective	3 <input type="radio"/>
Eng Mg 260 - Gen Mgt - Design & Integration	3 <input type="radio"/>	Upper Level H/SS	3 <input type="radio"/>
Eng Mg Technical Elective	3 <input type="radio"/>	Free Elective	3 <input type="radio"/>
<b>15</b>		<b>15</b>	

**Comments:**

Effective Year: 2013

Effective Term: Summer ☐ Fall xx☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

DC #0420-2012-Emgt-000-00

## Degree Change Form (DC)

This form is to be used for creating or modifying degree programs, emphasis areas, and minors.

Title of degree program, emphasis area, or minor:

General Emphasis Area

Department: EMSE

Briefly describe action requested (Attach documentation as appropriate):

The General Emphasis area credit hour requirements will change from 21 credit hours to 18 credit hours. This change is being made in order to add a new 3 credit hour course (~~EMSE~~ 213) to the Emgt current 26 credit hours of EMSE required core courses. The 15 credit hours Engineering Area Courses (Engineering Discipline) will remain the same. The EMSE technical electives will be reduced to 3 credit hours from the current required 6 credit hours. This change enables EMSE to maintain 3 credit hours of Free Electives as a part of the 128 required credit hours.

Recommended by Department:

David Ende

(Chair signature)

Date: 2/27/12

Recommended by:

Stephen A. Papp

Discipline Specific Curricula Committee

(Chair signature)

Date: 8/26/12

Approved by Curricula Committee:

David Ende

(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate:

(Chair signature)

Date: \_\_\_\_\_

02/27/12

(Revised 9/12/2011)

# Bachelor of Science Engineering Management

## Student Checklist - FS 2013 - Catalog 128 Hours

### General Engineering Emphasis

Freshman Year				
<u>First Semester</u>		<u>Second Semester</u>		
FE 10 Study and Careers in Engineering	1	<input type="radio"/>	IDE 20 Engineering Design with Computer Appli	3
Chem 1 General Chemistry	4	<input type="radio"/>	Math 15 Calculus II for Engineers	4
Chem 2 General Chemistry Lab	1	<input type="radio"/>	Phys 23 Engineering Physics I	4
Chem 4 Intro to Lab Safety	1	<input type="radio"/>	Econ 121/122 - Micro or Macro Economics	3
Math 14 Calculus I for Engineers	4	<input type="radio"/>	Humanities Elective	3
Engl 20 Exposition and Argumentation	3	<input type="radio"/>		
Hist 112, 175, 176 or Pol Sci 90	3	<input type="radio"/>		
	17			17
Sophomore Year				
<u>First Semester</u>		<u>Second Semester</u>		
Math 22 - Calculus w/Analytic Geometry III	4	<input type="radio"/>	Math 204 - Differential Equations	3
Physics 24 - Engineering Physics II	4	<input type="radio"/>	Stat 215/217 - Eng Statistics	3
IDE 50 - Engineering Mechanics - Statics	3	<input type="radio"/>	IDE 150 - Engineering Mechanics - Dynamics	2
Eng Mg 213 Complex System Mgt	3	<input type="radio"/>	Eng Mg 147 - Eng Mgt Acct&Fin	3
Eng Mg 137 - Eng Economics	2	<input type="radio"/>	Eng Mg 134 - Management Eng & Technology	3
		<input type="radio"/>	Psych 50 - General Psychology	3
	16			17
Junior Year				
<u>First Semester</u>		<u>Second Semester</u>		
Eng Mg 253 - Operations & Prod Mngt	3	<input type="radio"/>	Eng Mg 266 - Quality Philosophies & Methods	3
Eng Mg 251 - Marketing Management	3	<input type="radio"/>	Eng Mg 254 - Project Management	3
IDE 110 - Mechanics of Materials	3	<input type="radio"/>	EI Eng 281 - Electrical Circuits	3
IDE 120 - Mechanics of Materials Lab	1	<input type="radio"/>	English 160 - Technical Writing	3
Comp Sci 74 - C++ Programming	2	<input type="radio"/>	ME 227 - Thermal Analysis	3
Com Sci 78 - C++ Lab	1	<input type="radio"/>		
Sp&Med 085 or 181	3	<input type="radio"/>		
	16			15
Senior Year				
<u>First Semester</u>		<u>Second Semester</u>		
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Eng Mg 299 - Senior Design	3
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Eng Mg Emphasis Requirement	3
Eng Mg 260 - Gen Mgt - Design & Integration	3	<input type="radio"/>	Eng Mg Technical Elective	3
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Upper Level H/SS	3
Eng Mg Emphasis Requirement	3	<input type="radio"/>	Free Elective	3
	15			15

**Comments:**



2013  
**Effective Year: 2012**  
**Effective Term: Summer** ☐ **Fall** ☒ **Spring** ☐  
 (Creating or modifying a degree program must be effective for a Fall term)

DC # 0429-2012-Emgt-000-00

## Degree Change Form (DC)

This form is to be used for creating or modifying degree programs, emphasis areas, and minors.

### Title of degree program, emphasis area, or minor:

Change of "Free Elective Footnote" paragraph, page 139 of current catalog

Change of Footnote <sup>and</sup> 3 in current catalog - Free Electives

BS IN ENG MGT

**Department: EMSE**

### Briefly describe action requested (Attach documentation as appropriate):

The second sentence of the Free Elective Footnote paragraph currently states: "Each student is required to take six hours of free electives in consultation with his/her academic advisor."

The second sentence should be changed to: "Each student is required to take three hours of free electives in consultation with his/her academic advisor." The remaining sentences in the paragraph should remain the same.

The first sentence of Footnote <sup>and</sup> 3 currently states the following: "Each student is required to take six hours of free electives in consultation with his/her academic advisor."

The first sentence should be changed to the following: "Each student is required to take three hours of free electives in consultation with his/her academic advisor."

The remaining sentences/statements of the Footnote <sup>and</sup> 3 will remain the same.

Recommended by Department:

*David E. Smith*

(Chair signature)

Date: 3/28/12

Recommended by:

*Steve Raper*

Discipline Specific Curricula Committee

(Chair signature)

Date: 8/26/12

Approved by Curricula Committee:

*Daniel Smith*

(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate:

(Chair signature)

Date: \_\_\_\_\_

# Bachelor of Science Engineering Management

## Student Checklist - FS 2013 - Catalog 128 Hours

Freshman Year			
<u>First Semester</u>		<u>Second Semester</u>	
FE 10 Study and Careers in Engineering	1 <input type="radio"/>	IDE 20 Engineering Design with Computer Appli	3 <input type="radio"/>
Chem 1 General Chemistry	4 <input type="radio"/>	Math 15 Calculus II for Engineers	4 <input type="radio"/>
Chem 2 General Chemistry Lab	1 <input type="radio"/>	Phys 23 Engineering Physics I	4 <input type="radio"/>
Chem 4 Intro to Lab Safety	1 <input type="radio"/>	Econ 121/122 - Micro or Macro Economics	3 <input type="radio"/>
Math 14 Calculus I for Engineers	4 <input type="radio"/>	Humanities Elective	3 <input type="radio"/>
Engl 20 Exposition and Argumentation	3 <input type="radio"/>		
Hist 112, 175, 176 or Pol Sci 90	3 <input type="radio"/>		
<b>17</b>		<b>17</b>	
Sophomore Year			
<u>First Semester</u>		<u>Second Semester</u>	
Math 22 - Calculus w/Analytic Geometry III	4 <input type="radio"/>	Math 204 - Differential Equations	3 <input type="radio"/>
Physics 24 - Engineering Physics II	4 <input type="radio"/>	Stat 215/217 - Eng Statistics	3 <input type="radio"/>
IDE 50 - Engineering Mechanics - Statics	3 <input type="radio"/>	IDE 150 - Engineering Mechanics - Dynamics	2 <input type="radio"/>
Eng Mg 213 Complex System Mgt	3 <input type="radio"/>	Eng Mg 147 - Eng Mgt Acct&Fin	3 <input type="radio"/>
Eng Mg 137 - Eng Economics	2 <input type="radio"/>	Eng Mg 134 - Management Eng & Technology	3 <input type="radio"/>
	<input type="radio"/>	Psych 50 - General Psychology	3 <input type="radio"/>
<b>16</b>		<b>17</b>	
Junior Year			
<u>First Semester</u>		<u>Second Semester</u>	
Eng Mg 253 - Operations & Prod Mngt	3 <input type="radio"/>	Eng Mg 266 - Quality Philosophies & Methods	3 <input type="radio"/>
Eng Mg 251 - Marketing Management	3 <input type="radio"/>	Eng Mg 254 - Project Management	3 <input type="radio"/>
IDE 110 - Mechanics of Materials	3 <input type="radio"/>	EI Eng 281 - Electrical Circuits	3 <input type="radio"/>
IDE 120 - Mechanics of Materials Lab	1 <input type="radio"/>	English 160 - Technical Writing	3 <input type="radio"/>
Comp Sci 74 - C++ Programming	2 <input type="radio"/>	ME 227 - Thermal Analysis	3 <input type="radio"/>
Com Sci 78 - C++ Lab	1 <input type="radio"/>		
Sp&Med 085 or 181	3 <input type="radio"/>		
<b>16</b>		<b>15</b>	
Senior Year			
<u>First Semester</u>		<u>Second Semester</u>	
Eng Mg Emphasis Requirement	3 <input type="radio"/>	Eng Mg 299 - Senior Design	3 <input type="radio"/>
Eng Mg Emphasis Requirement	3 <input type="radio"/>	Eng Mg Technical Elective	3 <input type="radio"/>
Eng Mg 260 - Gen Mgt - Design & Integration	3 <input type="radio"/>	Eng Mg Technical Elective	3 <input type="radio"/>
Eng Mg Emphasis Requirement	3 <input type="radio"/>	Upper Level H/SS	3 <input type="radio"/>
Eng Mg Emphasis Requirement	3 <input type="radio"/>	Free Elective	3 <input type="radio"/>
<b>15</b>		<b>15</b>	

**Comments:**

*change sec attacked*

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courses. Any courses outside of engineering and science must be at least three credit hours.

### FRESHMAN YEAR

First Semester	Credit
FE 10-Study and Careers in Engineering	1
Chem 1-General Chemistry	4
Chem 2-General Chemistry Lab	1
Chem 4-Intro to Lab Safety	1
Math 14-Calc I for Eng <sup>1</sup>	4
English 20-Expo & Argument	3
Hist 112, 175, 176, or Pol Sc 90	3
	17

### Second Semester

IDE 20-Intro to Engr Design	3
Math 15-Calc II for Eng <sup>1</sup>	4
Phys 23-Eng Physics I <sup>1</sup>	4
Econ 121 or 122-Princ of Micro or Macro	3
Humanities Elective <sup>2</sup>	3
	17

### SOPHOMORE YEAR

First Semester	Credit
Math 22-Calc w/Analytic Geometry III <sup>1</sup>	4
Physics 24-Eng Physics II <sup>1</sup>	4
CE 50-Statics <sup>1</sup> <i>Complex Sys. Mngt</i>	3
Eng Mg 134-Managing Engineering & Technology <sup>1</sup>	3
Eng Mg 137-Economic Analysis <sup>1</sup>	2
	16

### Second Semester

Math 204-Diff Equat <sup>1</sup>	3
Stat 215-Eng Stat or Stat 217-Intro to Prob <sup>1</sup>	3
Cmp Sc 74-Intro to Prog Meth <sup>1</sup>	3
Cmp Sc 78-Prog Method Lab <i>Eng Mg 137 Mngt Sys Tech</i>	1
IDE 150-Eng Mech-Dyn	2
Eng Mg 147-Eng Mgt Acct&Fin <sup>1</sup>	3
Psych 50-Gen Psych	3
	17

### JUNIOR YEAR

First Semester	Credit
Eng Mg 253-Operations & Prod Mgt <sup>1</sup>	3
CE 110-Mechanics of Materials	3
CE 120-Materials Testing	1
Eng Mg 251-Marketing Mgt <sup>1</sup> <i>eng. programing</i>	3
Eng Mg 254-Project Mgt <sup>1</sup> <i>eng. prog.</i>	3
Sp&MS 85 or 181	3
	16

### Second Semester

Eng Mg 266-Quality Phil & Methods <sup>1</sup>	3
Mc Eng 227-Thermal Analysis	3
El Eng 281-Electrical Circuits	3
English 160-Technical Writing	3
Emphasis Area Required Course	3
Eng Mg 254-Project Mgt <sup>1</sup>	15

### SENIOR YEAR

First Semester	Credit
Emphasis Area Required Course	3
Emphasis Area Required Course	3
Eng Mg 260-Gen Mgt Design & Integ <sup>1</sup>	3
Eng Mg Technical Elective	3
Emphasis Area Required Course	3
Emphasis Area Required Course	15

### Second Semester

Eng Mg Technical Elective	3
Eng Mg Technical Elective	3
Eng Mg 299-Senior Design <sup>1</sup>	3
Upper Level Hum/SS	3
Emphasis Area Required Course	3
PRCB Elective	15

## Example Emphasis Area Programs for Engineering Management Students

One unique aspect of the Engineering Management degree is the student's ability to select an established emphasis area or create a specialized emphasis. Two examples of established emphasis areas are shown below.

### Management of Technology

Eng 356 Ind Sys Simulation	Credit 3
Eng Mg 315-Managerial Decision Making	3
Eng Mg 320-Technical Entrepreneurship	3
Eng Mg 327-Legal Environment	3
Eng Mg-Technical Electives	6
(In consultation with your advisor)	

### Industrial Engineering

	Credit
Eng Mg 257-Mat Handling/Plant Layout	3
Eng Mg 311-Human Factors	3
Eng Mg 356-Ind Sys Sim	3
Eng Mg 382-Intro Oper Res	3
Eng Mg Technical Electives	6
(In consultation with your advisor)	

### General

	Credit
Engineering Area Courses (Engineering Discipline)	15
Eng Mg-Technical Elective	6

**NOTE:** All electives must be chosen in consultation with the student's advisor. Students must satisfy the common engineering freshman year course requirements in addition to the sophomore, junior, and senior year requirements listed above with a minimum of 128 hours.

<sup>1</sup> Must have a grade of "C" or better in these courses for graduation. Math 8 and 21 may be substituted for Math 14 and 15, respectively.

<sup>2</sup> Humanities and Social Science electives must be approved by the student's advisor. Students must comply with the general education requirements with respect to selection and depth of study. These requirements are specified in the current catalog.

<sup>3</sup> Each student is required to take six hours of free electives in consultation with his/her academic advisor. Credits which do not count towards this requirement are deficiency courses (such as algebra and trigonometry), and extra credits in required courses. Any courses outside of engineering and science must be at least three credit hours.

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- <sup>4)</sup> Students are required to select an emphasis area and maintain a minimum 2.0 GPA for these courses.
- <sup>5)</sup> All Engineering Management students must take the Associate Engineering Manager Certification exam prior to graduation. A passing grade on this examination is not required to earn a B.S. degree. This requirement is part of the Missouri S&T assessment process as described in Assessment Requirements found elsewhere in this catalog. Students must sign a release form giving the University access to their Associate Engineering Manager Certification score.

### Engineering Management Courses

- 101 Special Topics** (Variable 0.0-6.0) This course is designed to give the department an opportunity to test a new course. Variable title.
- 124 Principles of Engineering Management** (LEC 1.0) This course is an introduction to engineering management principles and concepts and will address issues that are relevant to today's successful engineering managers. Topics covered include management practices; communications; working in teams; project management; ethics and societal issues; and life long learning.
- 131 Accounting II** (LEC 3.0) Accounting for the partnership and the corporation, consideration of cost and departmental accounting. Prerequisite: Eng Mg 130.
- 134 Managing Engineering And Technology** (LEC 3.0) Introduces the management functions of planning, organizing, motivating, and controlling. Analyzes the application of these functions in research, design, production, technical marketing, and project management. Studies evolution of the engineering career and the transition to engineering management. Prerequisite: A grade of "C" or better is required in this course to meet Engineering Management degree requirements.
- 137 Economic Analysis of Engineering Projects** (LEC 2.0) Engineering project analysis from an engineering economics perspective. Topics include: interest, equivalent worth, comparing alternatives, rate of return methods, depreciation and taxes, inflation and price changes, benefit-cost analysis and risk analysis. Prerequisite: Math 15.
- 147 Engineering Accounting and Finance** (LEC 3.0) This course is designed to introduce the fundamentals of accounting and finance and provide the student with tools used in making financial decisions within a technically based enterprise. Prerequisite: Eng Mgt 137.
- 201 Special Topics** (Variable 0.0-6.0) This course is designed to give the department an opportunity to test a new course. Variable title.
- 202 Cooperative Engineering Training** (IND 0.0-6.0) On-the-job experience gained through cooperative education with industry, with credit arranged through departmental cooperative advisor. Grade received depends on quality of reports submitted and work supervisors evaluation.
- 208 Engineering Economy** (LEC 3.0) Techniques for capital investment decision making; time-value of money and the concept of equivalence, multiple alternatives, replacement criteria, and cost of capital depreciation.
- 209 Engineering Economy And Management** (LEC 3.0) Engineering economy topics include equivalence; present worth, annual and rate of return analysis; depreciation and taxes. Engineering management topics include planning, organizing, motivation, controlling and their applications in design and manufacturing.
- 224 Competition Team Design** (LAB 1.0) Students will participate in a significant design activity as part of one of the experiential learning design team projects. Design activity will be reported and assessed at the end of the semester through a design report and oral presentation. Prerequisite: Sophomore (or greater) standing and membership in an experiential learning design team.
- 230 Management Accounting Systems** (LEC 3.0) The course is designed to introduce the theory and practice of accounting, and to study the flows of accounting information through the business firm. Topics are the fundamentals of accounting, technology of accounting information systems, and accounting system applications. Prerequisite: A grade of "C" or better is required in this course to meet Engineering Management degree requirements.
- 233 Competition Team Leadership** (LEC 1.0) Students will participate in open lecture on team based management and leadership as it pertains to ongoing project activities. Project activity reports will be generated using real project data and assessed at the end of the semester through a project master plan and oral presentation. Prerequisite: Sophomore (or greater) standing and leadership role in an experiential learning design team or nomination by an experiential learning team advisor.
- 242 Competition Team Communication** (LEC 0.5 and LAB 0.5) Communication skills, both technical and promotional, will be covered. Students will practice both communication skills in written, oral and media-based modes. Specific activities will include writing a proposal for funding, developing a promotional media piece and speaking to external groups about a SDELC team. Assessment will be made on each of the deliverables. Prerequisite: Sophomore (or greater) standing and membership in an experiential learning design team.
- 251 Marketing Management** (LEC 3.0) Study of basic functions of marketing in the technological enterprise, including product selection and development, market research, market development, selection of distribution channels and advertising, marketing strategy. Prerequisite:

Effective Year: 2013

DC # 0432-2012-BIT-000-00

Effective Term: Summer ☐ Fall ☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

## Degree Change Form (DC)

This form is to be used for creating or modifying degree programs, emphasis areas, and minors.

**Title of degree program, emphasis area, or minor:**

Minor in Sustainable Business

**Department:** Business and Information Technology

**Briefly describe action requested (Attach documentation as appropriate):**

The minor in Sustainable Business is being changed to add BUS 340 to the list of required courses and to move BUS 315 to the list of elective courses. All other required and elective courses remain the same.

The new requirements are:

- 1) BUS 110 - Management and Organizational Behavior
- 2) BUS 330 - Foundations of Sustainable Business
- 3) BUS 340 - Introduction to Business Innovation for Sustainability
- 4) and two courses from the following:
  - ERP 348 - Strategic Enterprise Management Systems
  - EnvE 360 - Environmental Law and Regulations
  - EnvE 365 - Sustainability, Population, Energy, Water, and Materials
  - Psych 315 - Environmental Psychology
  - Econ 340 - Environmental and Natural Resource Economics
  - Econ 355 - Energy Economics
  - Pol Sci 350 - The Politics of the Third World
  - Hist 361 - American Environmental History
  - BUS 315 - Introduction to Teambuilding and Leadership in a Business Setting

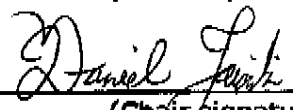
At least 6 hours of the minor course work must be taken in residence at Missouri S&T.

Recommended by Department:   
(Chair signature)

Date: 10/24/12

Recommended by:   
Discipline Specific Curricula Committee (Chair signature)

Date: 10/25/2012

Approved by Curricula Committee:   
(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate: \_\_\_\_\_  
(Chair signature)

Date: \_\_\_\_\_

Effective Year: FS2013

Effective Term: Summer ☐ Fall ☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

DC #0433.2012.CpE-00000

## Degree Change Form (DC)

This form is to be used for creating or modifying degree programs, emphasis areas, and minors.

**Title of degree program, emphasis area, or minor:**

Minor in Computer Engineering

**Department:** Electrical & Computer Engineering

**Briefly describe action requested (Attach documentation as appropriate):**

Create a Minor in Computer Engineering with the requirements noted below.

The Cp Eng Minor will be noted on the student's transcript.

The catalog description for the CpE Eng Minor is given in the attached document.

Minor was approved by the Cp Eng Curriculum Committee on August 31, 2012.

Recommended by Department:	<u>Kelvin Enslin</u> (Chair signature)	Date: <u>29 Oct 2012</u>
Recommended by Discipline Specific Curricula Committee:	<u>Joseph Rapp</u> (Chair signature)	Date: <u>31 Oct 12</u>
Approved by Curricula Committee:	<u>Daniel Lantz</u> (Chair signature)	Date: <u>12/7/2012</u>
Approved by Faculty Senate:	_____ (Chair signature)	Date: _____

The catalog description for the minor will be added as follows.

#### Computer Engineering Minor Curriculum

A minor in Computer Engineering will require the following:

Pass the El Eng Advancement Exam I (El Eng 151 Final) with a C or better\*

Pass the Cp Eng Advancement Exam (Cp Eng 111) with a C or better\*\*

~~Pass Cp Eng 213 with a C or better,~~

~~Pass El Eng 121 or Cp Eng 215 with a C or better~~

~~Pass Cp Eng 319 or Cmp Sc 365 with a C or better~~

Pass 3 hours of <sup>additional</sup> ~~3xx~~ Cp Eng or El Eng or Cmp Sc coursework ~~with a C or better~~, excluding special problems and undergraduate research. Transfer courses cannot be used to satisfy this requirement. The course choice for this requirement is subject to the approval of the minor advisor.

\*One opportunity will be given to pass the El Eng Advancement Exam I if a student has prior course or experience in circuits. Otherwise, the student must pass El Eng 151.

\*\*One opportunity will be given to pass the Cp Eng Advancement Exam if a student has prior course or experience in digital circuits. Otherwise, the student must pass Cp Eng 111.

A C or better in the following courses:

Final

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # *P284-2012-Sys E-*  
*378-32***Course Change Form (CC)**

This form is for creating or modifying permanent courses.

**Course Changes** (Check all changes.)

New Course ☐ Course Deletion ☐ Credit Hours ☐ Prerequisites ☒  
 Course Title ☐ Catalog Description ☐ Course Number ☐ Co-listing ☐

**Course Information** (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)

1. Department: EMSE

2. Discipline and Course Number: Present: SysEng 378 Proposed:

3. Course Title: Present: Introduction to Neural Networks & Applications  
Proposed:**Abbreviated Course Title:**

(24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. Catalog Description (300 Character Spaces or Less.)

Present: Introduction to artificial neural network architectures, adaline, madaline, back propagation, BAM, and Hopfield memory, counterpropagation networks, self organizing maps, adaptive resonance theory, are the topics covered. Students experiment with the use of artificial neural networks in engineering through semester projects.

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours:	Present:	Lecture: 3	Lab:	Total: 3
	Proposed:	Lecture:	Lab:	Total:

7. Prerequisites:

Present: Math 204 or 229.

Proposed: Math 204 or 229, and graduate standing.

8. Required for Majors: ☒ Elective for Majors: ☐

9. Justification: Simplify prerequisites, present list is redundant.

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

11. List all co-listed courses, initiated by Dept. Chair, if signature does not appear below.

1) ECE368 *\*12* 2) 3)  
 4) 5) 6)

Recommended by Department *DeD Emble*

(Chair signature)

Date: 9/13/12Recommended by Discipline Specific Curricula Committee *Alphon Raper*

(Chair signature)

Date: 9/26/12Approved by Curricula Committee: *David Jank*

(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate: \_\_\_\_\_

(Chair signature)

Date: \_\_\_\_\_

(Revised 1/29/09)



Effective Year: 2013

Effective Term: Summer ☐Fall ☒Spring ☒

CC File # 8285-2012-Emgt-

481-32

**Course Change Form (CC)**

This form is for creating or modifying permanent courses.

**Course Changes** (Check all changes.)New Course ☐Course Deletion ☐Credit Hours ☐Prerequisites ☒Course Title ☐Catalog Description ☐Course Number ☐Co-listing ☐**Course Information** (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Eng. Mgmt. &amp; Sys. Eng.

2. Discipline and Course Number: Present : EMgt 481

Proposed:

3. Course Title: Present: Financial Engineering

Proposed:

Abbreviated Course Title:

(24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. Catalog Description (40 Words or Less)

**Present:** An introduction to financial engineering, with an emphasis on financial derivatives, including the future markets, the pricing of forwards and futures, forward rate agreements, interest and exchange rate futures, swaps, the options markets, option strategies, the binomial and Black-Scholes models for option valuation, the option Greeks, and volatility smiles.

**Proposed:**5. If course requires field trip check box: ☐

6. Credit Hours:

Present:

Lecture: 3

Lab: 0

Total: 3

Proposed:

Lecture:

Lab:

Total:

7. Prerequisites:

**Present:** Eng Mgt 308, Eng Mgt 352; Eng Mgt 480 or Sys Eng 480 or equivalent.**Proposed:** Eng Mgt 137 or 3088. Required for Majors: ☐Elective for Majors: ☐

9. Justification: EMgt 352 is no longer offered.

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

11. List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.

1) Sys Eng 481

2)

3)

4)

5)

6)

Recommended by Department



(Chair signature)

Date: 9/13/12

Recommended by Discipline Specific Curricula Committee



(Chair signature)

Date: 9/26/12

Approved by Curricula Committee:



(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate:

(Chair signature)

Date:

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8305-2012-Pet Eng-366-32

**Course Change Form (CC)**

This form is for creating or modifying permanent courses.

**Course Changes** (Check all changes.)New Course ☐Course Deletion ☐Credit Hours ☐Prerequisites ☒Course Title ☐Catalog Description ☐Course Number ☐Co-listing ☐**Course Information** (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)

1. Department: GSE

2. Discipline and Course Number: Present : Pet Eng 366

Proposed:

3. Course Title: Present: Mechanical Earth Modeling

Proposed:

Abbreviated Course Title:

(24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. Catalog Description (300 Character Spaces or Less.)

Present:

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours:

Present:

Lecture: 3

Lab: 0

Total: 3

Proposed:

Lecture:

Lab:

Total:

7. Prerequisites:

Present: Pet Eng 232 or Geology 220 or Min Eng 232

Proposed: Pet Eng 232 and Geology 220

8. Required for Majors: ☒ Elective for Majors: ☐

9. Justification: Min Eng 232 is not offered anymore. Both Pet Eng 232 and Geology 220 provide crucial introductions to this class.

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

11. List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.

1)

2)

3)

4)

5)

6)

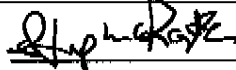
Recommended by Department



(Chair signature)

Date: 10-2-12

Recommended by Discipline Specific Curricula Committee



(Chair signature)

Date: 10-25-12

Approved by Curricula Committee:



(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate:

(Chair signature)

Date: \_\_\_\_\_

Effective Year: 2013

Term: Summer ☐Fall ☒Spring ☒

CC File # 8306-2012-Pet Eng-232-32

## Course Change Form (CC)

This form is for creating or modifying permanent courses.

### Course Changes (Check all changes.)

New Course ☐Course Deletion ☐Credit Hours ☐Prerequisites ☒Course Title ☐Catalog Description ☐Course Number ☐Co-listing ☐

### Course Information (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)

1. Department: GSE

2. Discipline and Course Number: Present : Pet Eng 232

Proposed:

3. Course Title: Present: Well Logging

Proposed:

Abbreviated Course Title:

(24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. Catalog Description (300 Character Spaces or Less.)

Present:

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours:

Present:

Lecture: 3

Lab: 0

Total: 3

Proposed:

Lecture:

Lab:

Total:

7. Prerequisites:

Present: Physics 24 or 25

Proposed: Physics 24 or 25;  
Pet Eng 2418. Required for Majors: ☒ Elective for Majors: ☐

9. Justification: Too many sophomores who do not understand fundamentals of rock properties take the class and are struggling.

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

11. List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.

1)

2)

3)

4)

5)

6)

Recommended by Department



(Chair signature)

Date: 10-2-12

Recommended by Discipline Specific Curricula Committee



(Chair signature)

Date: 10-25-12

Approved by Curricula Committee:



(Chair signature)

Date: 12/5/2012

Approved by Faculty Senate:

(Chair signature)

Date: \_\_\_\_\_

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8308-2012 - TCom -  
325-10

## Course Change Form (CC)

This form is for creating or modifying permanent courses.

### Course Changes (Check all changes.)

New Course ☒ Course Deletion ☐ Credit Hours ☐ Prerequisites ☐  
Course Title ☐ Catalog Description ☐ Course Number ☐ Co-listing ☐

### Course Information (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)

1. Department: English and Tech Com 301  
2. Discipline and Course Number: Present: Tech Com ~~3XX~~ Proposed: Tech Com 325  
3. Course Title: Present:  
Proposed: Help Authoring  
Abbreviated Course Title: Help Authoring  
(24 Spaces or Less. Only needed for New Courses or Title Changes.)  
4. Catalog Description (300 Character Spaces or Less.)  
Present:

Proposed: Students will acquire the technological and rhetorical skills necessary for creating effective online help systems, including context-sensitive help for computer applications.

5. If course requires field trip check box: ☐

6. Credit Hours:	Present:	Lecture:	Lab:	Total:
	Proposed:	Lecture: 3	Lab: 0	Total: 3

7. Prerequisites:  
Present:

Proposed: One semester of college writing or technical writing.

8. Required for Majors: ☐ Elective for Majors: ☒

9. Justification:

10. Semesters previously offered as an experimental course (101, 201, 301, 401): SP09, SP10, SP11

11. List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.

1) 2) 3)

4) 5) 6)

Recommended by Department

(Chair signature)

Date: 10/23/12

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: 10/29/12

Approved by Curricula Committee:

(Chair signature)

Date: 12/7/2012

Approved by Faculty Senate:

(Chair signature)

Date: \_\_\_\_\_

(Revised 1/29/09)

Effective Year: 20 ~~12~~ <sup>13</sup>  
 Term: Summer ☐ Fall ☒ Spring ☒

CC File # 8309-2012 - ChemE -  
 Y33-32

## Course Change Form (CC)

This form is for creating or modifying permanent courses.

### Course Changes (Check all changes.)

New Course ☐ Course Deletion ☐ Credit Hours ☐ Prerequisites ☒  
 Course Title ☐ Catalog Description ☐ Course Number ☐ Co-listing ☐

### Course Information (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Chemical and Biochemical Eng  
 2. Discipline and Course Number: Present: ChE 433 Proposed: ChE 433  
 3. Course Title: Present: Advanced Transport Phenomena  
 Proposed: Advanced Transport Phenomena

#### Abbreviated Course Title:

(24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. Catalog Description (300 Character Spaces or Less.) unchanged  
 Present:

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours: Present: 3 Lecture: 3 Lab: 0 Total: 3  
 Proposed: 3 Lecture: 3 Lab: 0 Total: 3

7. Prerequisites:

Present: none

Proposed: ChE 335

8. Required for Majors: ☐ Elective for Majors: ☒  
 9. Justification: graduate students are taking ChE 433  
with none or inadequate background

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

11. List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.

1) 2) 3)

4) 5) 6)

Recommended by Department Matthew M. Decker  
 (Chair signature)

Date: 10/17/12

Recommended by Discipline Specific Curricula Committee 82029 Rafe  
 (Chair signature)

Date: 10/29/12

Approved by Curricula Committee: Donal Smith  
 (Chair signature)

Date: 12/7/2012

Approved by Faculty Senate: \_\_\_\_\_  
 (Chair signature)

Date: \_\_\_\_\_

Effective Year: 2013

Effective Term: Summer ☐ Fall ☐ Spring ☒EC File # 2438-Sp2013-  
Geo E-301

## Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Geological Sciences and Eng

Discipline and Course Number: <sup>Geo Eng</sup> GE301

Course Title: Hydrologic <sup>F</sup>low <sup>R</sup>reaction and <sup>T</sup>ransport <sup>M</sup>odeling

Abbreviated Title (24 spaces or less): Hydrologic modeling

Instructor(s): Shadab Anwar

Credit Hours: Lecture: 3 Lab: 0 Total: 3

Prerequisites: ~~Phys, Calculus~~, Civ Eng 215; GeoEng 275, 335


Semester(s) previously taught: 0

### Brief Course Description: (40 words or less)

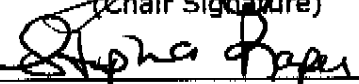
This course is an introduction to advanced modeling techniques for simulating flow, transport, and reaction processes in porous media under different hydrologic conditions. Emphasis is placed on both theoretical and practical modeling considerations. Computer demonstrations are incorporated. Practical applications are emphasized.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.

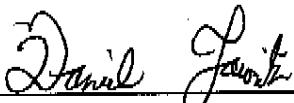
- |    |    |    |
|----|----|----|
| 1) | 2) | 3) |
| 4) | 5) | 6) |

Department Chair:   
(Chair Signature)

Date: Sept 26/12

Discipline Specific Curricula Committee:   
(Chair signature)

Date: 10-25-12

Curricula Committee:   
(Chair Signature)

Date: 12/12/2012

Effective Year: 2013

Effective Term: Summer ☐ Fall ☐ Spring ☒EC File # 2440-Sp 2013-Pet Eng  
401

## Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Geological Sci. & Eng.

Discipline and Course Number: Pet Eng 401

Course Title: Advanced Mechanical Earth Modeling

Abbreviated Title (24 spaces or less): ~~Adv MEM~~ Advanced MEM

Instructor(s): Dr. Andreas Eckert

Credit Hours: Lecture: 3 Lab: 0 Total: 3

Prerequisites: 1 ~~Pet Eng 366 and~~ A grade of C or better in both  
Pet Eng 338 ~~with grade C or better~~

Semester(s) previously taught:

Brief Course Description: (40 words or less)

This course focuses on the work processes necessary to simulate realistic in-situ stresses for sub-surface engineering applications using advanced Finite Element modeling techniques. Concepts such as stress initialization, spherical model geometry and coupled geomechanical-fluid flow ~~simulations~~ are discussed and exemplary models studied. *simulations*

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.

1) 2) 3)

4) 5) 6)

Department Chair: *Adolph Jor* (Chair Signature)

Date: 10-2-12

Discipline Specific Curricula Committee: *Stephen Dyer* (Chair signature)

Date: 10-25-12

Curricula Committee: *David J. Smith* (Chair Signature)

Date: 12/7/2012

Effective Year: 2013

EC File # 2442-SP2013-EE-401

Effective Term: Summer ☐ Fall ☐ Spring ☒

## Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Electrical and Computer Eng.

Discipline and Course Number: EE 401

Course Title: Power Transmission and Distribution

Abbreviated Title (24 spaces or less): Power T&D

Instructor(s): Mehdi Ferdowsi

Credit Hours: Lecture: 3 Lab: 0 Total: 3

Prerequisites: EE 207

Semester(s) previously taught: none

Brief Course Description: (40 words or less) Topics include:

high voltage transmission line electric design, conductors, corona, R1 and TV noise, insulators, clearances, DC characteristics, feeders voltage drop, capacitors.

and

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.

- |    |    |    |
|----|----|----|
| 1) | 2) | 3) |
| 4) | 5) | 6) |

Department Chair: Kelvi Eushman  
(Chair Signature)

Date: 10/15/12

Discipline Specific Curricula Committee: Sh. Rafi  
(Chair signature)

Date: 10-25-10

Curricula Committee: Daniel Faint  
(Chair Signature)

Date: 12/7/2012



Effective Year: 2013

Effective Term: Summer ☐ Fall ☐ Spring ☒

EC File # 2444-Sp 2013-

MIN 301

## Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Mining and Nuclear Engineering

Discipline and Course Number: MIN <sup>ENG</sup> 301

Course Title: Mining Industry Economics II

Abbreviated Title (24 spaces or less): <sup>Mining Industry Econ II</sup> ~~Min Ind Economics II~~

Instructor(s): Stewart Gillies

Credit Hours: Lecture: 3 Lab: 0 Total: 3

Prerequisites: Econ 121 Micro Economics (3 credits) OR Econ 122 Macro Economics (3 credits) plus the course ~~Min 270 Mining Industry Economics (3 credits)~~ <sup>check</sup>

Semester(s) previously taught:

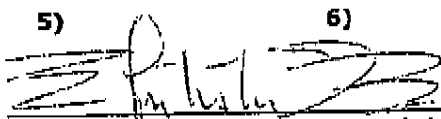
Brief Course Description: (40 words or less)

Mining industry and national economies. Social and economic significance of mined commodities. Marketing of mined commodities. Mine financing, project loans, leasing and innovative approaches to mine financing. Mining feasibility studies, government influence and policy, mining industry foreign investment, investment strategies, mining taxation and cost prediction. Case studies.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.

1) Econ 301 2) 3)  
4) <sup>StG</sup> 5) 6)

Department Chair:



(Chair Signature)

Date: 10/20/12

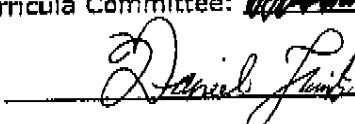
Discipline Specific Curricula Committee:



(Chair signature)

Date: 10/29/12

Curricula Committee:



(Chair Signature)

Date: 12/7/2012

(Revised 10/12/2010)

10/19/12