Minutes of the Campus Curricula Committee Meeting
August 16, 2016
9:15 a.m., Room 140 Toomey Hall

Attendees: Ilene Morgan, Petra Dewitt, Steve Raper, Barry Flaschbart, Kristy Giacomelli, and Shauntae Ellis.

The following curriculum forms were discussed and approved:

Degree Change Forms:

File #146.12
File #14.3

Course Change Forms:

File #2160.1	File #4310	File #4309	File #4316	File #1772.1
File #519.1	File #4314	File #4321	File #215.1	File #2228.1
File #1040.4	File #4325	File #4317	File #1671.1	
File #797.1	File #363.1	File #4315	File#2544.1	

Experimental Course Forms:

File #4318	File #4307
File #4322	File #4323

File #4311 Chemical Engineering 2111 Introduction to Phase Equilibrium was returned to the department for the form to be submitted as an experimental course.

File #4279 Chemical Engineering 3111,File #4282 Chemical Engineering 3131, File #862.4 Chemical Engineering 4097 and File #4285 Chemical Engineering 4091 were tabled pending the outcome of the degree program.

File#1596.1 Metallurgical Engineering 5150 has been tabled pending the deactivation of Metallurgical Engineering 4160.

File#150.44 Chemical Engineering BS has been tabled until it has all necessary components are submitted.

Office of the Registrar • 103 Parker Hall • 300 West 13th Street • Rolla, MO 65409-0930
Phone: 573-341-4181 • Fax: 573-341-4362 • Email: registrar@mst.edu • Web: http://registrar.mst.edu

The meeting adjourned at 9:42 a.m.

Ilene H. Morgan, Chair
Missouri S&T Campus Curricula Committee

Office of the Registrar • 103 Parker Hall • 300 West 13th Street • Rolla, MO 65409-0930
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Course Inventory Change Request

Date Submitted: 03/30/16 9:57 am

Viewing: CER ENG 3220 : Phase Equilibria

File: 2160.1

Last edit: 08/16/16 9:58 am

Changes proposed by: smiller

Programs referencing this course

CR ENG-BS: Ceramic Engineering BS

GL&GPH-BS: Geology and Geophysics BS

MT ENG-BS: Metallurgical Engineering BS

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Materials Science & Engineering
Discipline	Ceramic Engineering (CER ENG)
Course Number	3220
Title	Phase Equilibria
Abbreviated Course Title	Phase Equilibria

Catalog Description

In Workflow

1. **RMATSENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 03/30/16 10:00 am mjokeefe: Approved for RMATSENG Chair
2. 04/04/16 7:50 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 4:23 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:08 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 9:58 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 10:58 am imorgan: Approved for Campus Curricula Committee Chair

The study of unary, binary and ternary inorganic, phase equilibrium systems with examples for solving practical engineering problems.

Prerequisites

"C" or better grade in Chem **1320 or Met Eng 1210.** ~~1320.~~

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Required for Majors **Yes** ~~No~~

Elective for Majors	No

Justification for change:

Added the Materials Science & Engineering equivalent to the second semester of chemistry prerequisite

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 9:58 am): Changed to Spring 2017

Key: 2160

Preview Bridge

Course Inventory Change Request

Date Submitted: 07/06/16 2:09 pm

Viewing: CER ENG 3240 : Applied Glass Forming

File: 519.1

Last edit: 08/16/16 9:59 am

Changes proposed by: smiller

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Materials Science & Engineering
Discipline	Ceramic Engineering (CER ENG)
Course Number	3240
Title	Applied Glass Forming
Abbreviated Course Title	Applied Glass Forming

Catalog Description

In Workflow

1. **RMATSENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 07/07/16 8:25 am mjokeefe: Approved for RMATSENG Chair
2. 07/07/16 8:26 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 07/07/16 11:51 am
   sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:11 am
   Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 9:59 am
   Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 10:58 am
   imorgan: Approved for Campus Curricula Committee Chair

Examines the properties and behavior of molten glass along with basic forming techniques, including off-hand shaping, molding and casting.

Prerequisites

"C" or better grade in either Cer Eng 2210 or Met Eng 1210. **Freshman standing or sophomore standing only.**

Field Trip

Statement

Credit Hours LEC: 1 LAB: 1 IND: 0 RSD: 0

Total: 2

Required for Majors	No
Elective for Majors	**Yes** ~~No~~

Justification for change:

Course is designed for early undergraduates. The department offers an advanced class in glass science (Cer Eng 5230) for upper level students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 9:59 am): Added as an elective to majors and changed freshmen to freshaman

Key: 519

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/08/16 4:22 pm

Viewing: **CHEM ENG 2100 : Chemical Engineering Material & Energy Balances**

File: 1040.4

Last approved: 05/04/15 3:20 am

Last edit: 08/16/16 10:00 am

Changes proposed by: forcinit

Programs referencing this course

AP MATH-BS: Applied Mathematics BS

CH ENG-BS: Chemical Engineering BS

EV ENG-BS: Environmental Engineering BS

Other Courses referencing this course

In The Prerequisites:

CHEM ENG 2110 : Chemical Engineering Thermodynamics I

CHEM ENG 3100 : Chemical Engineering Fluid Flow

CHEM ENG 3120 : Chemical Engineering Thermodynamics II

Requested Effective Change Date	**Spring 2017** ~~Fall 2015~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	2100

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/08/16 4:24 pm aldahhanm: Approved for RCHEMENG Chair
2. 04/09/16 3:18 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary

Title

Chemical Engineering Material & Energy Balances

Abbreviated Course Title	Chem Eng Mat & Energy Balances

Catalog Description

3. 04/27/16 4:24 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:14 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:00 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 10:59 am imorgan: Approved for Campus Curricula Committee Chair

History

1. May 4, 2015 by luksc (1040.1)

The application of mathematics, physics and chemistry to industrial chemical processes. The use of equations of state, chemical reaction stoichiometry, and the conservation of mass and energy to solve chemical engineering problems.

Prerequisites

Chem **1320 or Geology 3410;** ~~1320;~~ Math 1215 **or Math 1221;** ~~(or 1221);~~ preceded **or** ~~or~~ accompanied by **Physics** ~~Phys~~ 1135.

Field Trip Statement

Credit Hours Total: 3	LEC: 2	LAB: 1	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

Justification for change:

Environmental Engineering students take ChE 2100 but their vast majority takes Geo 3410 instead of Chem 1320. Adding "or Geo 3410" (under prerequisites) facilitates the enrollment of Env. Eng. students in our class.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:00 am): Changed to Spring 2017

Key: 1040

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/08/16 11:57 am

Viewing: **CHEM ENG 4220 : Biochemical Reactor Laboratory**

File: 797.1

Last edit: 08/16/16 10:07 am

Changes proposed by: forcinit

Programs referencing this course

CH ENG-BS: Chemical Engineering BS

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	4220
Title	Biochemical Reactor Laboratory
Abbreviated Course Title	Bioreactor Laboratory

Catalog Description

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. Ishelton
11. Peoplesoft

Approval Path

1. 04/08/16 2:15 pm aldahhanm: Approved for RCHEMENG Chair
2. 04/08/16 2:20 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 4:25 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:32 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:07 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 10:59 am imorgan: Approved for Campus Curricula Committee Chair

Introduction to the unit operations involved with the production of biochemicals. The experiments emphasize the isolation of proteins and enzymes from tissue and bacteria cells. This is a communications emphasized course.

Prerequisites

Chem Eng 3200 and preceded or accompanied by Chem Eng **4210; or preceded or accompanied by Chem Eng 5250 and Chem Eng** 4210.

Field Trip

Statement

Credit Hours LEC: **1** ~~0~~ LAB: **2** ~~3~~ IND: 0 RSD: 0

Total: 3

Required for Majors	**Yes** ~~No~~
Elective for Majors	No

Justification for change:

This is a mandatory course for Biochemical Engineering Emphasis majors. The new prerequisite is needed to reflect the changes in the proposed new curriculum (see attached DC form). The credit hours for this class in the new curriculum remain at 3 but one credit hour is used for lectures.
I changed the phrasing of the prerequisites and I added Chem 4210 in the second sentence.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

kleb6b (12/23/15 1:42 pm): Clarify prereq?
kleb6b (04/08/16 9:16 am): Rollback: Rollback
smetg6 (08/16/16 10:07 am): Changed to Spring 2017

Key: 797
Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 04/07/16 2:49 pm

Viewing: **CHEM ENG 5220 : Intermediate Engineering Thermodynamics**

File: 4310

Last edit: 08/16/16 10:07 am

Changes proposed by: forcinit

Programs referencing this course

CH ENG-MS: Chemical Engineering MS

Requested Effective Change Date	Spring 2017
Department	Chemical and Biochemical Engineering
Discipline	Chemical Engineering (CHEM ENG)
Course Number	5220
Title	Intermediate Engineering Thermodynamics
Abbreviated Course Title	Intermediate Thermo

Catalog Description

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/08/16 3:15 am aldahhanm: Approved for RCHEMENG Chair
2. 04/08/16 6:47 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 4:25 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:33 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:09 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:00 am imorgan: Approved for Campus Curricula Committee Chair

Review thermodynamic principles for pure fluids and mixtures. Emphasis on applications for the chemical industry and use of fundamental relations and equations of state.

Prerequisites

Senior or graduate standing.

Field Trip

Statement

Credit Hours LEC: 3 LAB: 0 IND: 0 RSD: 0

Total: 3

Required for Majors	Yes
Elective for Majors	No

Justification for new course:

We currently offer two undergraduate thermo classes and an advanced thermodynamics class, which consists of a combination of classical and statistical thermodynamics. The new thermo class falls in between these two categories and it is focused on topics of industrial relevance. The class will be mandatory for M.S. students without thesis and a tech elective for undergraduate students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:07 am): Changed to Spring 2017

Key: 4310

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 04/21/16 10:17 am

Viewing: **ELEC ENG 5345 : PLC Motion Control**

File: 4314

Last edit: 04/25/16 7:00 am

Changes proposed by: martins

Requested Effective Change Date	Spring 2017
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	5345
Title	PLC Motion Control
Abbreviated Course Title	PLC Motion Control

Catalog Description

In Workflow

1. **RELECENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/22/16 9:16 pm Daryl Beetner (daryl): Approved for RELECENG Chair
2. 04/25/16 7:00 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 4:27 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:34 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:09 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:00 am imorgan: Approved for Campus Curricula Committee Chair

Factory automation motion control integrated with programmable logic controllers, servo control, variable-speed drive control, PackML state model, sizing motors and drives, machine safety, and experience with commercial hardware/software. Laboratory exercises on small-scale standard applications such as coordinated motion of multiple axes and camming.

Prerequisites

Elec Eng 3340.

Field Trip Statement

Credit Hours LEC: 2 LAB: 1 IND: 0 RSD: 0 Total: 3

Required for Majors	No
Elective for Majors	Yes

Justification for new course:

Motion control in automation is becoming increasingly important knowledge and this course satisfies demand from companies that hire our graduates and from distance students. The equipment acquired for the laboratory part of this course was funded through industry donations, matched by the campus.

Semesters previously offered as an experimental course

SP 2015 and SP 2016

Co-Listed Courses:

Course Reviewer Comments

daryl (04/19/16 6:19 pm): Rollback: Sandy, the current course description doesn't seem to fit into the word limit. Is it possible to shorten?

Key: 4314

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 08/19/16 10:36 am

Viewing: **EXP ENG 6464 : Advanced Blast Vibration Analysis and Prediction**

File: 4325

Last edit: 08/26/16 11:36 am

Changes proposed by: pworsey

Requested Effective Change Date	Spring 2017
Department	Mining & Nuclear Engineering
Discipline	Explosives Engineering (EXP ENG)
Course Number	6464
Title	Advanced Blast Vibration Analysis and Prediction
Abbreviated Course Title	Adv. Vibration Analysis

Catalog Description

In Workflow

1. **RMINNUCL Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 08/23/16 1:02 pm Shauntae Ellis (smetg6): Approved for RMINNUCL Chair
2. 08/23/16 1:09 pm Shauntae Ellis (smetg6): Approved for CCC Secretary

3. 08/26/16 8:11 am sraper: Approved for Engineering DSCC Chair
4. 08/26/16 10:17 am Shauntae Ellis (smetg6): Approved for Pending CCC Agenda post
5. 08/26/16 11:30 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/26/16 11:37 am imorgan: Approved for Campus Curricula Committee Chair

Advanced Blast Vibration prediction methodologies. Includes typical methods including scaled distance, linear regression, signature hole analysis, and modern improved signature hole analysis. Structural response and damage criteria for blast vibrations including considerations for frequency spectra and amplitude.

Prerequisites

Exp Eng 5612.

Field Trip Statement

None

Credit Hours LEC: 3 LAB: 0 IND: 0 RSD: 0

Total: 3

Required for Majors	No
Elective for Majors	No

Justification for new course:

Requesting permanent course number after two successful offerings.

Semesters previously offered as an experimental course

Spring 2014
Fall 2015

Co-Listed Courses:

Course Reviewer Comments

imorgan (08/26/16 11:34 am): This was approved in principle at the August 2016 CCC meeting. The form had to be redone for technical reasons.

imorgan (08/26/16 11:36 am): I just put a period at the end of the prerequisite.

Key: 4325

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/07/16 3:21 pm

Viewing: **GEO ENG 5556 : Renewable Energy Systems**

File: 363.1

Last edit: 08/16/16 10:24 am

Changes proposed by: pattyr

Programs referencing this course

GE ENG-BS: Geological Engineering BS

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geological Engineering (GEO ENG)
Course Number	5556
Title	Renewable Energy Systems
Abbreviated Course Title	Renewable Energy Systems

Catalog Description

In Workflow

1. **RGEOSENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. Ishelton
11. Peoplesoft

Approval Path

1. 04/07/16 3:53 pm ikuenobe: Approved for RGEOSENG Chair
2. 04/08/16 6:47 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 4:25 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:37 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:10 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:00 am imorgan: Approved for Campus Curricula Committee Chair

Introduction to the theory and performance prediction of typical renewable energy systems such as, but not limited to, those based on energy from the sun, wind and water, and geothermal. The use of environmental data, including stochastic modeling, for renewable energy system (including wind turbine, photovoltaic, and geothermal) design is addressed.

Prerequisites

Math 3304, Physics 2135, and preceded or accompanied by **Geo Eng 4115** ~~Stat 3117~~ or **any Probability and Statistics class.** ~~Geo Eng 4115.~~ Junior or senior **standing** ~~status~~ is required.

Field Trip

Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0

Required for Majors: No

Elective for Majors: **Yes** ~~No~~

Justification for change:

Several probability and statistics classes are offered. By making this change it will allow students more flexibility in their class selections.

Semesters previously offered as an experimental course:

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:10 am): Changed to Spring 2017

smetg6 (08/16/16 10:24 am): Added elective for majors

Key: 363

Preview Bridge

New Course Proposal

Date Submitted: 04/06/16 3:42 pm

Viewing: **MECH ENG 6481 : Advanced Topics in Decision and Control**

File: 4309

Last edit: 08/16/16 10:14 am

Changes proposed by: nisbett

Requested Effective Change Date	Spring 2017
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	6481
Title	Advanced Topics in Decision and Control
Abbreviated Course Title	Decision and Control

Catalog Description

In Workflow

1. RMECHENG Chair
2. CCC Secretary
3. Engineering DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/06/16 5:30 pm drallmei: Approved for RMECHENG Chair
2. 04/07/16 8:09 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 04/27/16 4:25 pm sraper: Approved

for Engineering DSCC Chair
4. 07/14/16 9:44 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:14 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:00 am imorgan: Approved for Campus Curricula Committee Chair

This course will deal with latest topics in the areas of decision and control. Course may be repeated if topics vary.

Prerequisites

Aero Eng 5481 or Mech Eng 5481 or equivalent.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			
Elective for Majors	Yes			

Justification for new course:

The field of Decision and Control is continually adapting, and this course is to provide an avenue to cover current topics as they emerge.

Semesters previously offered as an experimental course

Spring 2010 (15 enrolled)
Fall 2011 (12 enrolled)
Fall 2013 (15 enrolled)

Co-Listed Courses:

Aero Eng 6481 - Course Not Found

Course Reviewer Comments

smetg6 (08/16/16 10:11 am): Changed to Spring 2017
smetg6 (08/16/16 10:14 am): Changed to Spring 2017

Key: 4309
Preview Bridge

New Course Proposal

Date Submitted: 06/27/16 3:10 pm

Viewing: **MET ENG 3410 : Applied Metal Forming**

File: 4321

Last edit: 08/16/16 10:13 am

Changes proposed by: smiller

Requested Effective Change Date	Spring 2017
Department	Materials Science & Engineering
Discipline	Metallurgical Engineering (MET ENG)
Course Number	3410
Title	Applied Metal Forming
Abbreviated Course Title	Applied Metal Forming

Catalog Description

In Workflow

1. RMATSENG Chair
2. CCC Secretary
3. Engineering DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 06/28/16 7:30 am mjokeefe: Approved for RMATSENG Chair
2. 06/28/16 8:12 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/28/16 11:19 am

sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:41 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:13 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:01 am imorgan: Approved for Campus Curricula Committee Chair

Introduction to the art and science of blacksmithing. Students to use forges to heat steel for shaping it. Techniques for shaping, cutting, chiseling, twisting, etc. Knowledge of hand and power tools and their use. Safety in the shop will be emphasized. History of blacksmithing will also be covered. Includes a lab portion which will work on projects.

Prerequisites

Chem 1100.

Field Trip

Statement

Credit Hours LEC: 1 LAB: 1 IND: 0 RSD: 0

Total: 2

Required for Majors	No
Elective for Majors	Yes

Justification for new course:

Course has been successfully taught to full classes for two semesters and has full enrollment for this Fall semester. In addition, course is an excellent experience for all students and has been highly endorsed by industry.

Semesters previously offered as an experimental course

FS15, Sp16, scheduled for FS16

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:13 am): Changed to Spring 2017

Key: 4321

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 05/16/16 4:41 pm

Viewing: **MIN ENG 6712 : Managing Social and Environmental Risks in Mining (Intro to Responsible Mining)**

File: 4317

Last edit: 08/16/16 10:27 am

Changes proposed by: jrussell

Requested Effective Change Date	Spring 2017
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	6712
Title	Managing Social and Environmental Risks in Mining (Intro to Responsible Mining)
Abbreviated Course Title	Soc & Enviro Risk Mining
Catalog Description	

In Workflow

1. **RMINNUCL Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 05/17/16 12:02 pm
   reflori: Approved for RMINNUCL Chair
2. 05/17/16 12:09 pm
   Kaylon Buckner (kleb6b):

Approved for CCC Secretary
3. 06/07/16 9:47 am sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:53 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:27 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:01 am imorgan: Approved for Campus Curricula Committee Chair

This course is an introduction to responsible mining. It focuses on industry and NGO programs around sustainability and reporting in mining, financial community response, community of interest engagement and participation, and safety and crisis response and managment

Prerequisites

Min Eng 4742 or Min Eng 5742.

Field Trip

Statement

Credit Hours LEC: 3 LAB: 0 IND: 0 RSD: 0

Total: 3

Required for Majors	No
Elective for Majors	Yes

Justification for new course:

Requested by Mining Department

Semesters previously offered as an experimental course

This course has been successfully taught FS 2014 and FS 2015

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:27 am): Changed to Spring 2017

Key: 4317

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 05/16/16 2:32 pm

Viewing: **MIN ENG 6912 : Simulation of Mining Systems**

File: 4315

Last edit: 08/16/16 10:27 am

Changes proposed by: kabp3

Requested Effective Change Date	Spring 2017
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	6912
Title	Simulation of Mining Systems
Abbreviated Course Title	Sim Mining Sys

Catalog Description

In Workflow

1. RMINNUCL Chair
2. CCC Secretary
3. Engineering DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 05/17/16 12:02 pm
   reflori: Approved for RMINNUCL Chair
2. 05/17/16 12:09 pm
   Kaylon Buckner (kleb6b):

Approved for CCC Secretary
3. 06/07/16 9:47 am sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:54 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:27 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:01 am imorgan: Approved for Campus Curricula Committee Chair

Overview of stochastic simulation. Model formulation using general purpose process simulation software. Model verification and validation. Simulation experimentation.

Prerequisites

Graduate standing or Stat 5643.

Field Trip

Statement

Credit Hours LEC: 3 LAB: 0 IND: 0 RSD: 0

Total: 3

Required for Majors	No
Elective for Majors	Yes

Justification for new course:

Converting experimental course to a class with a unique number.

Semesters previously offered as an experimental course

FS2011, FS2013

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:27 am): Changed to Spring 2017

Key: 4315

Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 05/16/16 2:42 pm

Viewing: **MIN ENG 6923 : Geostatistics**

File: 4316

Last edit: 08/16/16 10:28 am

Changes proposed by: kabp3

Requested Effective Change Date	Spring 2017
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	6923
Title	Geostatistics
Abbreviated Course Title	Geostatistics

Catalog Description

In Workflow

1. **RMINNUCL Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 05/17/16 12:03 pm
   reflori: Approved for RMINNUCL Chair
2. 05/17/16 12:09 pm
   Kaylon Buckner (kleb6b):

Approved for CCC Secretary
3. 06/07/16 9:47 am sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:55 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:28 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:01 am imorgan: Approved for Campus Curricula Committee Chair

Definition of geostatistical data; theory of random fields; autocorrelation and measures of spatial variability including semivariograms, variograms and covariance functions; and spatial prediction and validation. Case studies in mineral resource estimation and environmental pollutant prediction will be presented.

Prerequisites

Graduate standing or consent of instructor.

Field Trip

Statement

Credit Hours LEC: 3 LAB: 0 IND: 0 RSD: 0

Total: 3

Required for Majors	No
Elective for Majors	Yes

Justification for new course:

Assigning permanent number to experimental course.

Semesters previously offered as an experimental course

SP2012, SP2014

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:28 am): Changed to Spring 2017

Key: 4316

Preview Bridge

Course Inventory Change Request

A deleted record cannot be edited

Course Deactivation Proposal

Date Submitted: 04/15/16 2:04 pm

Viewing: **MUSIC 4010 : Symphonic Bands**

File: 215.1

Last edit: 04/15/16 2:04 pm

Changes proposed by: denises

Requested Effective Change Date	Fall **2016** ~~2014~~
Department	Arts, Languages, & Philosophy
Discipline	Music (MUSIC)
Course Number	4010
Title	Symphonic Bands
Abbreviated Course Title	Symphonic Bands
Catalog Description	

In Workflow

1. **RPHILOSO Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/25/16 8:55 pm audram: Approved for RPHILOSO Chair
2. 04/27/16 7:02 am Kaylon Buckner (kleb6b):

Approved for CCC Secretary
3. 04/27/16 8:09 am dewittp: Approved for Arts & Humanities DSCC Chair
4. 07/14/16 9:56 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:29 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 9:41 am imorgan: Approved for Campus Curricula Committee Chair

An auditioned ensemble. Students perform music for wind ensemble and large bands. Music from 1400-present is performed in a concert setting.

Prerequisites

Consent of instructor - audition only.

Field Trip

Statement

Credit Hours	LEC: 0	LAB: 1	IND: 0	RSD: 0
Total: 1				

Required for Majors	No
Elective for Majors	No

Justification for change:

It has not been used as an option for our music minor degree.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 215

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/06/16 11:16 am

Viewing: **PET ENG 4311 : Reservoir Characterization**

File: 1671.1

Last edit: 08/16/16 10:29 am

Changes proposed by: pattyr

Programs referencing this course

GEOL-MI: Geology Minor

PE ENG-BS: Petroleum Engineering BS

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	4311
Title	Reservoir Characterization
Abbreviated Course Title	Reservoir Characteriz

Catalog Description

In Workflow

1. **RGEOSENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/06/16 12:21 pm ikuenobe: Approved for RGEOSENG Chair
2. 04/07/16 8:09 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 4:25 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 9:58 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:29 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:01 am imorgan: Approved for Campus Curricula Committee Chair

The integration and extrapolation of Geologic, Geophysical, and Petroleum Engineering data for flow model construction.

Prerequisites

Pet Eng **3520 and** ~~3520,~~ Pet Eng **3310.** ~~3310; Geology 4611 or Geology 4511.~~

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	No			

Elective for Majors **Yes** ~~No~~

Justification for change:

Removing the Geology prerequisites since they are not required for our Petroleum Engineering students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

smetg6 (08/16/16 10:29 am): Changed to Spring 2017

Key: 1671

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/25/16 3:07 pm

Viewing: PHILOS 3223 : Bioethics

File: 2544.1

Last edit: 08/16/16 10:30 am

Changes proposed by: dittmerj

Programs referencing this course

- ETHICS-MI: Ethics Minor
- HUM ENG-MI: Humanitarian Engineering and Science Minor
- PHILTCH-MI: Philosophy of Technology Minor
- SCTCPL-MI: Science, Tech,& Politics Minor

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Arts, Languages, & Philosophy
Discipline	Philosophy (PHILOS)
Course Number	3223
Title	Bioethics
Abbreviated Course Title	Bioethics

Catalog Description

In Workflow

1. **RPHILOSO Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/25/16 8:57 pm audram: Approved for RPHILOSO Chair
2. 04/27/16 7:02 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 8:11 am dewittp: Approved for Arts & Humanities DSCC Chair
4. 07/14/16 10:01 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:30 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:02 am imorgan: Approved for Campus Curricula Committee Chair

This course covers several areas of ethical interest in biotechnology, medicine, and medical care. Topics may include stem-cell research, cloning, genetic engineering, reproductive issues, pharmaceutical ethics, privacy, physician-assisted suicide, patient rights, human and animal experimentation, and resource allocation.

Prerequisites

Sophomore standing or above. ~~Introductory level (below 2000) Philosophy course.~~

Field Trip

Statement

Credit Hours LEC: 3 LAB: 0 IND: 0 RSD: 0

Total: 3

Required for Majors	No
Elective for Majors	**Yes** ~~No~~

Justification for change:

Maintains rigor of course but streamlines process of enrollment.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

dewittp (04/27/16 8:11 am): Changed Fall 2016 to Spring 2017.

smetg6 (08/16/16 10:30 am): Added that is an elective for majors

Key: 2544

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/25/16 3:08 pm

Viewing: PHILOS 3225 : Engineering Ethics

File: 1772.1

Last edit: 08/16/16 10:31 am

Changes proposed by: dittmerj

Programs referencing this course

- CMP SC-BS: Computer Science BS
- ECON-BS: Economics BS
- ETHICS-MI: Ethics Minor
- HUM ENG-MI: Humanitarian Engineering and Science Minor
- SCTCPL-MI: Science, Tech,& Politics Minor

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Arts, Languages, & Philosophy
Discipline	Philosophy (PHILOS)
Course Number	3225
Title	Engineering Ethics
Abbreviated Course Title	Engineering Ethics

Catalog Description

In Workflow

1. **RPHILOSO Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/25/16 8:57 pm audram: Approved for RPHILOSO Chair
2. 04/27/16 7:03 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 8:12 am dewittp: Approved for Arts & Humanities DSCC Chair
4. 07/14/16 10:03 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:31 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:02 am imorgan: Approved for Campus Curricula Committee Chair

Engineering ethics, examines major ethical issues facing engineers in the practice of their profession: the problem of professionalism and a code of ethics; the process of ethical decision-making in different working environments; the rights, duties, and conflicting responsibilities of engineers.

Prerequisites

Sophomore standing or above. ~~An introductory (below 2000) level philosophy course.~~

Field Trip

Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0

Required for Majors: No

Elective for Majors: **Yes** ~~No~~

Justification for change:

Maintains rigor of course but streamlines process of enrollment.

Semesters previously offered as an experimental course:

Co-Listed Courses:

Course Reviewer Comments

dewittp (04/27/16 8:12 am): Changed Fall 2016 to Spring 2017

smetg6 (08/16/16 10:31 am): Added that it is an elective for majors

Key: 1772

Preview Bridge

Course Inventory Change Request

Date Submitted: 04/25/16 3:08 pm

Viewing: PHILOS 3235 : Business Ethics

File: 2281.1

Last edit: 08/16/16 10:32 am

Changes proposed by: dittmerj

Programs referencing this course

- CMP SC-BS: Computer Science BS
- ECON-BS: Economics BS
- ETHICS-MI: Ethics Minor
- HUM ENG-MI: Humanitarian Engineering and Science Minor
- PRE LAW-MI: Pre Law Minor

Requested Effective Change Date	**Spring 2017** ~~Fall 2014~~
Department	Arts, Languages, & Philosophy
Discipline	Philosophy (PHILOS)
Course Number	3235
Title	Business Ethics
Abbreviated Course Title	Business Ethics

Catalog Description

In Workflow

1. **RPHILOSO Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. lshelton
11. Peoplesoft

Approval Path

1. 04/25/16 8:57 pm audram: Approved for RPHILOSO Chair
2. 04/27/16 7:03 am Kaylon Buckner (kleb6b): Approved for CCC Secretary

3. 04/27/16 8:13 am dewittp: Approved for Arts & Humanities DSCC Chair
4. 07/14/16 10:04 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:32 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 11:02 am imorgan: Approved for Campus Curricula Committee Chair

Develop ethical concepts relevant to deciding the moral issues that arise in business. Topics include: Economic systems, government regulations, relations to external groups and environment, advertising, product safety and liability, worker safety and rights, rights and responsibilities of business professionals.

Prerequisites

Sophomore standing or above. ~~An introductory (below 2000) level philosophy course.~~

Field Trip

Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0

Required for Majors: No

Elective for Majors: **Yes** ~~No~~

Justification for change:

Maintains rigor of course but streamlines process of enrollment.

Semesters previously offered as an experimental course:

Co-Listed Courses:

Course Reviewer Comments

dewittp (04/27/16 8:13 am): Changed Fall 2016 to Spring 2017

smetg6 (08/16/16 10:32 am): Added that it is an elective for majors

Key: 2281

Preview Bridge

Program Change Request

Date Submitted: 07/08/16 5:09 pm

Viewing: BIO SC-BA : Biological Sciences BA

File: 146.12

Last approved: 07/14/15 2:44 pm

Last edit: 08/16/16 10:33 am

Changes proposed by: shannonk

Catalog Pages Using this Program

Biological Sciences

Start Term	Fall **2017** ~~2015~~
Program Code	BIO SC-BA
Department	Biological Sciences
Title	

In Workflow

1. **RBIOLSCI Chair**
2. **CCC Secretary**
3. **Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. kristyg

Approval Path

1. 07/08/16 6:39 pm huangy: Approved for RBIOLSCI Chair
2. 07/12/16 1:14 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 07/26/16 11:45 pm imorgan: Approved for Sciences DSCC Chair
4. 07/28/16 10:59 am Shauntae Ellis (smetg6): Approved for Pending CCC Agenda post
5. 08/16/16 9:55 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda

6. 08/16/16 9:57 am Shauntae Ellis (smetg6): Rollback to CCC Meeting Agenda for Campus Curricula Committee Chair
7. 08/16/16 10:33 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
8. 08/17/16 10:55 am imorgan: Approved for Campus Curricula Committee Chair

History

1. Aug 1, 2014 by shannonk
2. Jul 14, 2015 by pantaleoa

Biological Sciences BA

Program Requirements and Description

Bachelor of Arts
Biological Sciences
Degree Requirements

Specific requirements for the B.A. degree in biological sciences include a minimum of 120 semester hours of credit, including 30 hours of biology core courses. **A "C" or better is required for all Biological Science courses.**

Core Courses		
BIO SCI 1201	Introduction To Biological Science	1
BIO SCI 1113	General Biology	3
or BIO SCI 1213	Principles of Biology	
BIO SCI 1219	General Biology Lab	2

BIO SCI 1223	Biodiversity	3
BIO SCI 1229	Biodiversity Lab	1
BIO SCI 2213	Cell Biology	3
BIO SCI 2219	Cell Biology Laboratory	1
BIO SCI 2223	General Genetics	3
BIO SCI 2233	**Evolution**	**3**
BIO SCI 2263	Ecology	3
BIO SCI 4010	Seminar	1
Advanced courses, 2000 level or higher (at least one with laboratory and one 3000 or 4000 level)		9
Chemistry		
CHEM 1310 & CHEM 1319 & CHEM 1320 & CHEM 1100	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
CHEM 2210 & CHEM 2220	Organic Chemistry I and Organic Chemistry II	8
Mathematics & Physical Science		
Various courses in mathematics, physics, and/or geology chosen in consultation with academic advisor. (Note: Proficiency in College Algebra must be demonstrated by a grade of "C" or better in a College Algebra course or by examination)		9
Computer Science/Statistics (Select one of the following:)		3-4
COMP SCI 1570 & COMP SCI 1580	Introduction To Programming and Introduction To Programming Laboratory	
or COMP SCI 1971 & COMP SCI 1981	Introduction To Programming Methodology and Programming Methodology Laboratory	
STAT 3111	Statistical Tools For Decision Making	
STAT 5425	Introduction to Biostatistics	
General Requirements for BA		
English Composition		6
ENGLISH 1120	Exposition And Argumentation	
One additional composition course		
Western Civilizations		6
HISTORY 1100	Early Western Civilization	
HISTORY 1200	Modern Western Civilization	
Foreign Language (three semesters of a foreign language)		12
Humanities (including one class in each of literature, philosophy, and fine arts)		12

Social Sciences (including classes in two of the following three subjects: economics, political science, psychology)	12

Elective credits: In consultation with his or her advisor, each student will elect sufficient additional courses to complete a minimum of 120 credit hours.

Bachelor of Arts
Biological Sciences
Pre-Medicine Emphasis Area
Degree Requirements

The student will fulfill the requirements for a bachelor of arts in biological sciences as outlined above. The following classes are also required:

CHEM 2219 & CHEM 2229	Organic Chemistry I Lab and Organic Chemistry II Lab	2
2 semesters of Physics and labs:		8-10
PHYSICS 1145 & PHYSICS 1119	College Physics I and General Physics Laboratory	
or PHYSICS 1111 & PHYSICS 1119	General Physics I and General Physics Laboratory	
PHYSICS 2145 & PHYSICS 2119	College Physics II and General Physics Laboratory	
or PHYSICS 2111 & PHYSICS 2119	General Physics II and General Physics Laboratory	

The following classes are highly recommended:

BIO SCI 3333	Human Anatomy and Physiology I	3
BIO SCI 3339	Human Anatomy Physiology I Lab	1
BIO SCI 3343	Human Anatomy and Physiology II	3
BIO SCI 3349	Human Anatomy and Physiology II Laboratory	1
CHEM 4610	General Biochemistry	3

Bachelor of Arts
Biological Sciences
Secondary Education Emphasis Area
Degree Requirements

You may earn a B.A. degree in biological sciences from Missouri S&T and certification to teach at the secondary level in the schools of Missouri with this emphasis area. This program can be completed in four academic years, and student teaching is arranged with public schools within 30 miles of the Rolla campus.

Students interested in this emphasis area should consult with the advisor for biological sciences education majors in the biological sciences department.

In order to successfully complete this emphasis area, students must have at least a 22 ACT, maintain a cumulative GPA of at least 2.5, and attain at least a 2.5 GPA average for all biology courses. Current Missouri S&T or transfer students who wish to pursue this emphasis area must meet both these GPA requirements to be accepted into the program. Students must also meet all requirements listed under the teacher education program in this catalog. Students who do not meet all the teacher certification requirements will not be eligible for the secondary education emphasis area, even if they have completed all required course work.

A degree in this emphasis area requires 131 credit hours. The required courses are provided below. A minimum grade of "C" is required by the department in all biological sciences courses counted toward this degree.

Humanities: 18 semester hours		
ENGLISH 1120	Exposition And Argumentation	3
ENGLISH 1160	Writing And Research	3
or ENGLISH 3560	Technical Writing	
SP&M S 1185	Principles Of Speech	3
At least one course in each of the following: Literature, Philosophy and Fine Arts		9
Social Sciences: 15 semester hours		
HISTORY 3530	**History of Science**	**3**
HISTORY 1100	Early Western Civilization	3
HISTORY 1200	Modern Western Civilization	3
~~HISTORY 2530~~	~~Course HISTORY 2530 Not Found~~	~~3~~
POL SCI 1200	American Government	3
PSYCH 1101	General Psychology	3
Mathematics/Physical Science: 9 semester hours		
MATH 1103	Fundamentals Of Algebra	3
PHYSICS 1145	College Physics I	3
GEOLOGY 1110	Physical And Environmental Geology	3
Computer Science/Statistics: 3 semester hours		
3 semester hours of Computer Science or Statistics		3
Chemistry: 17 semester hours		
CHEM 1310 & CHEM 1319 & CHEM 1320 & CHEM 1100	General Chemistry I and General Chemistry Laboratory and General Chemistry II and Introduction To Laboratory Safety & Hazardous Materials	9
CHEM 2210 & CHEM 2220	Organic Chemistry I and Organic Chemistry II	8

Biological Sciences: 27 semester hours		
BIO SCI 1201	Introduction To Biological Science	1
BIO SCI 1213 & BIO SCI 1219	Principles of Biology and General Biology Lab	5
BIO SCI 1223 & BIO SCI 1229	Biodiversity and Biodiversity Lab	4
BIO SCI 1173	Introduction to Environmental Sciences	3
BIO SCI 2213 & BIO SCI 2219	Cell Biology and Cell Biology Laboratory	4
BIO SCI 2223	General Genetics	3
BIO SCI 2233	Evolution	3
BIO SCI 2263	Ecology	3
BIO SCI 4010	Seminar	1
Education: 42 semester hours		
EDUC 1040	Perspectives In Education	2
EDUC 1104	Teacher Field Experience	2
EDUC 1164	Aiding Elementary, Middle And Secondary Schools	2
EDUC 1174	School Organization & Adm For Elementary & Secondary Teachers	2
EDUC 2216	Course EDUC 2216 Not Found	3
~~EDUC 2251~~	~~Historical Foundation Of American Education~~	~~3~~
EDUC 3280	Teaching Methods And Skills In The Content Areas	6
EDUC 4298	Student Teaching Seminar	1
EDUC 4299	Student Teaching	12
ENGLISH 3170	**Teaching And Supervising Reading and Writing**	**3**
PSYCH 2300	Educational Psychology	3
PSYCH 3311	Psychological & Educational Development Of The Adolescent	3
PSYCH 4310	Psychology Of The Exceptional Child	3

Justification for request

Evolution is a requirement for our other degrees, and by oversight had not been added as a requirement for the BA.

History 2530 is no longer taught, and is replaced by History 3530 for the BA with

Teacher Certification.

Supporting Documents

Course Reviewer Comments

kleb6b (07/12/16 1:14 pm): Minor revisions, updated effective term

imorgan (07/26/16 11:20 am): Based on DESE requirements, Educ 2251 has been replaced by English 3170.

smetg6 (08/16/16 9:55 am): Changed to Spring 2017

smetg6 (08/16/16 9:57 am): Rollback: Need to review

smetg6 (08/16/16 10:33 am): Changed start term to Fall 2017

Key: 146

Program Change Request

Date Submitted: 04/08/16 8:55 am

Viewing: CH ENG-MS : Chemical Engineering MS

File: 14.3

Last approved: 08/04/14 12:00 pm

Last edit: 07/11/16 3:03 pm

Changes proposed by: forcinit

Catalog Pages Using this Program

Chemical & Biochemical Engineering

Start Term	Fall **2017** ~~2014~~
Program Code	CH ENG-MS
Department	Chemical and Biochemical Engineering

Title

Chemical Engineering MS

Program Requirements and Description

All students, except for those in their first semester and in their last semester for PhD candidates, need to register for 1 credit hour of CHEM ENG 6015 Lecture Series. Lecture Series can be used for a total of 3 hours towards the students 6000 level requirement.

The master of science thesis program consists of a minimum of 30 semester hours, including 18-24 hours of coursework, in which **CHEM ENG 5100**, CHEM ENG 5110, ~~CHEM ENG 6120, CHEM ENG 6110,~~ and CHEM ENG 6100 are required. In addition, a thesis from research that is equivalent to 6-12 credit hours in the major area must be prepared and defended.

A master of science non-thesis program consists of 30 semester hours of coursework, including **CHEM ENG 5100**, **CHEM ENG 5150**, **CHEM ENG 5110**, **CHEM ENG 5220** and ~~CHEM ENG 5110, CHEM ENG 6120, CHEM ENG 6110, and CHEM ENG 6100 and~~ a minimum of **24** ~~18~~ hours of

In Workflow

1. **RCHEMENG Chair**
2. **CCC Secretary**
3. **Engineering DSCC Chair**
4. **Pending CCC Agenda post**
5. **CCC Meeting Agenda**
6. **Campus Curricula Committee Chair**
7. **FS Meeting Agenda**
8. Faculty Senate Chair
9. Registrar
10. kristyg

Approval Path

1. 04/08/16 2:14 pm aldahhanm: Approved for RCHEMENG Chair
2. 04/08/16 2:18 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 04/27/16 4:24 pm sraper: Approved for Engineering DSCC Chair
4. 07/14/16 10:43 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 08/16/16 10:34 am Shauntae Ellis (smetg6): Approved for CCC Meeting Agenda
6. 08/17/16 10:55 am imorgan: Approved for Campus Curricula Committee Chair

coursework within the department. **The program of study must include nine credit hours of 6000 level courses.**

History

1. Aug 4, 2014 by pantaleoa

Justification for request

We deleted Chem Eng 6120 & Chem Eng 6110 because they are not core course requirements for an MS degree.
We added Chem Eng 5100, 5150, 5110 and 5220 because they are required courses for an MS degree without thesis.A separate CC form for 5220 has been submitted.

Supporting Documents

Course Reviewer Comments

pantaleoa (04/07/16 2:57 pm): Updated effective term added the first sentence to be included in CIM that was not previously included.
pantaleoa (04/07/16 3:01 pm): Modified first sentence to reflect change submitted by department that was not previously part of the CIM form.
kristyg (04/07/16 4:15 pm): Rollback: One more small change needs to be made to the MS program.
kleb6b (04/08/16 8:06 am): Rollback: Rollback
kleb6b (04/08/16 8:13 am): Rollback: Rollback
kleb6b (07/11/16 3:03 pm): Update Effective Term

Key: 14
Preview Bridge

Experimental Course

Viewing: **EDUC 2001.001 : Introduction to STEM Education**

File: 4318.4

Last approved: 08/17/16 9:44 am

Last edit: 06/06/16 9:19 am

History

1. Aug 17, 2016 by Mandy Sue Welch (welchms)

Requested Effective Change Date	Spring 2017
Department	History and Political Science
Discipline	Education (EDUC)
Course Number	2001
Topic ID	001
Experimental Title	Introduction to STEM Education
Experimental Abbreviated Course Title	Intro to STEM Ed
Instructors	TBD

Experimental Catalog Description

Provides an overview of attributes found in a STEM learning environment. Participants will learn specific instructional strategies used to deliver integrative STEM education in the elementary school classroom.

Prerequisites

Field Trip Statement

Credit Hours Total: 3 LEC: 3 LAB: 0 IND: 0 RSD: 0

Justification for change:

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4318

Preview Bridge

Experimental Course

Viewing: **ENGLISH 2001.001 : Graphic Novel**

File: 4322.3

Last approved: 08/17/16 9:44 am

Last edit: 07/15/16 8:14 am

History

1. Aug 17, 2016 by kswenson

Requested Effective Change Date	Spring 2017
Department	English and Technical Communication
Discipline	English (ENGLISH)
Course Number	2001
Topic ID	001
Experimental Title	Graphic Novel
Experimental Abbreviated Course Title	Graphic Novel
Instructors	Rachel Schneider

Experimental Catalog Description

The graphic novel is not only a distinct narrative form, but also an important cultural object which engages complex questions of identity and culture. This class studies the graphic novel as literature and as a popular art form.

Prerequisites

English 1120 and one semester of college literature.

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

N/A

Co-Listed Courses:

Course Reviewer Comments

Key: 4322

Preview Bridge

Experimental Course

Viewing: EXP ENG 6001.002 : High Speed Imaging Methods in Explosives Engineering

History

1. Aug 17, 2016 by Paul Worsey (pworsey)

File: 4307.2

Last approved: 08/17/16 9:44 am

Last edit: 05/17/16 12:07 pm

Requested Effective Change Date	Fall 2016
Department	Mining & Nuclear Engineering
Discipline	Explosives Engineering (EXP ENG)
Course Number	6001
Topic ID	002
Experimental Title	High Speed Imaging Methods in Explosives Engineering
Experimental Abbreviated Course Title	High Speed Imaging
Instructors	Dr. Vilem Petr

Experimental Catalog Description

A wide range of material will be covered including: detonation and shock wave physics, an introduction to high-speed imaging, lighting and selecting lenses for the best results, triggering strategies, and analysis of high-speed imagery.

Prerequisites

Graduate standing. Exp Eng 5612 or equivalent. Successful background check.

Field Trip Statement

Credit Hours	LEC: 2	LAB: 1	IND: 0	RSD: 0
Total: 3				

Justification for change:

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4307

Preview Bridge

Experimental Course

Viewing: PET ENG 4001.001 : Well Plugging and Abandonment

History

1. Aug 17, 2016 by caolila

File: 4323.2

Last approved: 08/17/16 9:44 am

Last edit: 07/20/16 3:19 pm

Requested Effective Change Date	Fall 2016
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	4001
Topic ID	001
Experimental Title	Well Plugging and Abandonment
Experimental Abbreviated Course Title	Well Plg & Abd
Instructors	Dr. Shari Dunn-Norman

Experimental Catalog Description

Plugging and abandonment procedures and methods applied to aging or uneconomic oil and gas wells for final well closure. Special considerations of temporary abandonment. Includes consideration of final well economics, regulatory framework and environmental considerations.

Prerequisites

Pre Req: PET ENG 3330, PET ENG 4410, PET ENG 4590, Civ Eng 2210, and Civ Eng 3330, and Pre Req or Co Req: PET ENG 4210

Field Trip Statement

No field trip requirement.

Credit Hours LEC: 3 LAB: 0 IND: 0 RSD: 0

Total: 3

Justification for change:

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

Key: 4323

Preview Bridge