Minutes of the Campus Curricula Committee Meeting
April 3, 2013
12 pm, Room 117 Fulton Hall

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

The following curriculum forms were discussed and approved:

**Degree Change Forms:**
- DC #0454
- DC #0455
- DC #0456
- DC #0467
- DC #0468
- DC #0471
- DC #0473

**Course Change Forms:**
- CC #8307
- CC #8370
- CC #8371
- CC #8372
- CC #8373
- CC #8374
- CC #8375
- CC #8376
- CC #8377
- CC #8378
- CC #8380
- CC #8381
- CC #8382
- CC #8383
- CC #8384
- CC #8387
- CC #8388
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- CC #8395
- CC #8396
- CC #8397
- CC #8398
- CC #8399
- CC #8400
- CC #8401
- CC #8402
- CC #8403
- CC #8404
- CC #8405
- CC #8408
- CC #8409
- CC #8410
- CC #8411
- CC #8412
- CC #8413
- CC #8425
- CC #8426
- CC #8427
- CC #8443
- CC #8444
- CC #8448
- CC #8449
- CC #8450
- CC #8451
- CC #8452
- CC #8453
- CC #8454
- CC #8455
- CC #8456
- CC #8457
- CC #8458
- CC #8459
- CC #8460
- CC #8461
- CC #8462
- CC #8463
Experimental Course Forms:
EC #2459

The items below were tabled pending further action/clarification to be provided by the academic department responsible for each:
DC #0450, Bachelor of Science in Mechanical Engineering.
DC #0451, Bachelor of Science in Aerospace Engineering
DC #0466, Materials Science and Engineering, Minor in Materials Science and Engineering.
DC #0472, Manufacturing Engineering, Master of Science in Manufacturing Engineering.
CC #8385, Ceramic Engineering 261, Materials Senior Design I.
CC #8386, Ceramic Engineering 262, Materials Senior Design II.
CC #8406, Metallurgical Engineering 216, Mechanical Testing of Materials.
CC #8407, Metallurgical Engineering 218, Microstructural Development Laboratory.
CC #8445, Metallurgical Engineering 261, Materials Senior Design I.
CC #8446, Metallurgical Engineering 262, Materials Senior Design II.
CC #8447, Ceramic Engineering 262, Materials Senior Design II.

The items below were returned to the department due to lack of requested action:
DC #0469, Civil, Architectural and Environmental Engineering, Bachelor of Science in Civil Engineering
DC #0470, Civil, Architectural and Environmental Engineering, Bachelor of Science in Civil Engineering

The meeting adjourned at 1:45 pm

Daniel Tauritz, Chair
Missouri S&T Campus Curricula Committee
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:
Electrical Engineering B.S. Program (General & all 7 Emphasis Areas)

Department: Electrical & Computer Engineering

Briefly describe action requested (Attach documentation as appropriate):
The El Eng Elective D, Elective E, and free elective courses are updated. The El Eng 202 and Cp Eng 202 requirements are changed to allow only 1 credit hour with pass-fail grading (Approved at the Jan. 24, 2013 ECE Faculty Meeting).

The El Eng Elective D footnote (16) from the the catalog will be modified:
El Eng Elective D must be a 300-level El Eng or Cp Eng course with at least a 3-hour lecture component. El Eng and Cp Eng 300, 38X, 390, 391, and 392 may not be used for Elective D.

The El Eng Elective E footnote (17) from the the catalog will be modified:
El Eng Elective E may be any 200 or 300-level El Eng or Cp Eng course except El Eng 202, 28X, 391, and 392 and Cp Eng 202, 300, 390, 391, and 392.

The free elective footnote (18) from the the catalog will be modified:
Students are required .... at least three credit hours. El Eng and Cp Eng 28X, 391, and 392 may not be used for free electives. No more than one credit hour (pass fail only) of El Eng 202 or Cp Eng 202 may be applied to the B.S. degree for free electives.

Recommended by Department: Kellen Emsla (Chair signature) Date: 01/29/13

Recommended by: Discipline Specific Curricula Committee (Chair signature) Date: 02/19/13

Approved by Curricula Committee: (Chair signature) Date: 4/12/2013

Approved by Faculty Senate: (Chair signature) Date: 

01/29/13 (Revised 1/31/2008)
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:
Electrical Engineering B.S. Program (General & all 7 Emphasis Areas)

Department: Electrical & Computer Engineering

Briefly describe action requested (Attach documentation as appropriate):
Update the degree footnotes. The El Eng 217 and El Eng 218 prerequisites have been changed. These courses may be taken with just El Eng 153 and Math 204 each with a grade of "C" or better and passing the El Eng Advancement Exam II. Approved at the April 16, 2012 ECE Faculty Meeting.

The El Eng footnote (9) from the the catalog will be modified (modify list):
Students must earn a passing grade in the El Eng Advancement Exam II (associated with El Eng 153) before they enroll in El Eng 205, 207, 208, 209, 215, 216, 217, 218, 253, 255, or 271, or other courses with El Eng 153 as a prerequisite.

The recommended degree progression in the catalog should apply footnote (9) to El Eng 217 and El Eng 218. Also, El Eng 217 and El Eng 218 should appear in the First Semester Junior year and El Eng 215 and El Eng 216 should appear in the Second Semester Junior year.

Recommended by Department:  
Kellen Emile  
(Chair signature)  
Date: 1/28/13

Recommended by:  
Discipline Specific Curricula Committee  
(Chair signature)  
Date: 2/19/13

Approved by Curricula Committee:  
(Chair signature)  
Date: 4/12/2013

Approved by Faculty Senate:  
(Chair signature)  
Date: ______

01/29/13

(Revised 1/31/2008)
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:
Computer Engineering B.S. Program

Department: Electrical & Computer Engineering

Briefly describe action requested (Attach documentation as appropriate):
The Cp Eng Elective B, Elective C, Elective D, and free elective courses are updated. The Cp Eng 202 and El Eng 202 requirements are changed to allow only 1 credit hour with pass-fail grading (Approved at the Jan. 24, 2013 ECE Faculty Meeting).

The Cp Eng Electives B, C, D footnote (15) from the the catalog will be modified:
Cp Eng Electives B, C, or D must be a 200 or 300-level courses from an approved list of science, mathematics, and engineering courses. This list includes all 200 or 300-level Cp Eng, El Eng, and Cp Sc courses except required Cp Eng courses, required El Eng courses, required Cp Sc courses, Cp Eng 391 and 392, Cp Eng 202, El Eng 391 and 392, El Eng 202, El Eng 28X, Cp Sc 397, and Cp Sc 202.

The Cp Eng Elective B, C, D, footnote (16) from the the catalog will be modified:
Cp Eng Elective B, C, and D cannot include more than three hours of Cp Eng or El Eng 300 or 390.

The free elective footnote (18) from the the catalog will be modified:
Students are required .... at least three credit hours. El Eng and Cp Eng 28X, 391, and 392 may not be used for free electives. No more than one credit hour (pass-fail only) of Cp Eng 202 or El Eng 202 may be applied to the B.S. degree for free electives.

Recommended by Department:  
(Chair signature)  
Date: 1/31/13

Recommended by:  
Discipline Specific Curricula Committee  
(Chair signature)  
Date: 2/19/13

Approved by Curricula Committee:  
(Chair signature)  
Date: 4/12/2013

Approved by Faculty Senate:  
(Chair signature)  
Date:  

01/29/13  
(Revised 1/31/2008)
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:
Bachelor of Science Psychology
Bachelor of Arts Psychology

Department: Psychological Science

Briefly describe action requested (Attach documentation as appropriate):
The department is requesting that the following course be added to our list of Capstone courses for the department degrees.

Psych 377 - Psychology in Media

Catalog revisions:
7. A for BA - Psychology
8. A for BS - Psychology

Recommended by Department: _____________________________
(Chair Signature)
Date: 2/18/13

Recommended by:
Discipline Specific Curricula Committee
(Chair signature)
Date: 2/19/2013

Approved by Curricula Committee: _____________________________
(Chair signature)
Date: 4/12/2013

Approved by Faculty Senate: _____________________________
(Chair signature)
Date: ________

(Revised 9/12/2011)
Effective Year: 2013
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:
Bachelor of Science Psychology
Bachelor of Science Psychology (Secondary Education Emphasis)

Department: Psychological Science

Briefly describe action requested (Attach documentation as appropriate):

Currently, the science and mathematics requirements for the two programs listed above indicate that the student must take Computer Science 53, 73, or 77, or IST 51 (BS in psychology) or Computer Science 53, 73, or 77 (BS in psychology, secondary education emphasis). Given that the computer science courses require a lab, but only one lab is listed as an optional course (CS 77), we wish to clarify the course and lab sequences that are acceptable as well as add one additional lab and course sequence as an option (CS 74 & 78).

Therefore, the requirement for the BS in psychology would include: Computer Science 53 and 54; or 73 and 77; or 74 and 78, or IST 51. The requirement for the BS in psychology (secondary education emphasis) would include: Computer Science 53 and 54; 73 and 77; or 74 and 78.

Recommended by Department: ________________________________ Date: 2/8/13
(Nancy Stone)
(Chair signature)

Recommended by: ________________________________ Date: 2/19/2013
Discipline Specific Curricula Committee
(Chair signature)

Approved by Curricula Committee: ________________________________ Date: 4/12/2013
(Chair signature)

Approved by Faculty Senate: ________________________________ Date: ______
(Chair signature)
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:
Information Science and Technology B.S., Minor in Digital Supply Chain Management

Department: Business and Information Technology

The Minor in Digital Supply Chain Management requires 15 hours of course work, as follows:
1) One of the following courses:
   BUS 360 Business Operations
   ME 253 Manufacturing
2) ERP 347 Supply Chain Management Systems in an ERP Environment
3) One of the following courses:
   ERP 342 Customer Relationship Management in ERP Environment
   ME 360 / AE 360 Probabilistic Engineering Design
4) Two of the following courses*:
   ERP 345 Use of Business Intelligence
   ERP 346 Enterprise Resource Planning Systems Design and Implementation
   ME 308 Rapid Product Design and Optimization
   ME 356 Design for Manufacture
   ME 357 / EMgt 354 Integrated Product and Process Design
   ME 363 Principles and Practice of Computer Aided Design

* Non Business & Information Technology students must select ERP 346 as one of the two electives.

Briefly describe action requested (Attach documentation as appropriate):
Approve creation of this Minor. See attached document.

Recommended by Department: ___________________________ Date: 2/19/13
(Chair signature)

Recommended by: ___________________________ Date: 3/7/13
Discipline Specific Curricula Committee (Chair signature)

Approved by Curricula Committee: ___________________________ Date: 4/12/2013
(Chair signature)

Approved by Faculty Senate: ___________________________ Date: __________
(Chair signature)

02/19/13 (Revised 9/12/2011)
Undergraduate Minor: Digital Supply Chain Management, Additional Information

Overview
Success in today’s marketplace requires that organizations deliver products and services that provide easily identified value for their customers. This minor draws on strengths within two departments to integrate source (strategic procurement and supply management), production (manufacturing and service operations), and delivery processes (demand fulfillment), with a focus on the use of information technologies as the critical enabler of supply chain efficiencies and responsiveness.

The Digital Supply Chain Management Minor is designed to give the student the tools and ideas that help shape and define the various components of value creation. Students can gain knowledge and skills in the full spectrum of supply chain activities: supplier relationships, purchasing management, operations and inventory management, logistics and transportation, quality management, and information technology.

Contributing Faculty
Dr. Craig Claybaugh (Business and Information Technology)
Dr. Cassie Eirod (Business and Information Technology)
Dr. Bih-Ru Lea (Business and Information Technology)
Dr. Frank Liou (Manufacturing Engineering)
Dr. Vincent Yu (Business and Information Technology)
Effective Year: 2013  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:
B.S. in Mechanical Engineering, Manufacturing Processes Emphasis Area

Department: Mech & Aero Engineering

Briefly describe action requested (attach documentation as appropriate):
Modify the description for the emphasis area as documented on the accompanying page.

Recommended by Department: ____________________________ Date: 1/10/2013
(Chair signature)

Recommended by DSCC: ____________________________ Date: 2/11/2013
(Chair signature)

Approved by Curricula Committee: ____________________________ Date: 4/12/2013
(Chair signature)

Approved by Faculty Senate: ____________________________ Date: __________
(Chair signature)

Revised November 2012
Manufacturing Emphasis Area Modification

Modify the catalog description of the Manufacturing Processes emphasis area as follows:

p. 193-194 of 2011-2013 Undergraduate Catalog:
Delete words with strikethrough marking. Add words in bold.

Students desiring to obtain a Bachelor of Science in Mechanical Engineering with an Emphasis Area in Manufacturing Processes must satisfy all requirements of the Bachelor of Science in Mechanical Engineering with the following modifications, with the additional stipulation that four courses must be taken as follows:

a. Mc Eng 253 is required.
b. One of the Mc Eng technical electives must be One course from the following Manufacturing/Automation courses: Mc Eng 353, 355, 349, and 306.
c. One of the Mc Eng technical electives must be One course from the following Design courses: Mc Eng 363, 308, 356, and 302.
d. Two courses 1) Mc Eng 357 or Mc Eng 308, and 2) Mc Eng 358 are required in lieu of Mc Eng 261. One course from the following list: Mc Eng 308, 358
e. The Math/Stat elective must be either Stat 213 or 215.

Modify the suggested sequence for the senior year as follows:

SENIOR YEAR
First Semester Credit
Mc Eng 242-Mech Eng Systems .................2
Mc Eng 279-Auto Control of Dynamic Systems ...3
Mc Eng 208-Machine Design I ..................3
Mc Eng 357 or Mc Eng 308 .......................3
Mc Eng Technical Elective † ........................3
Manufacturing Technical Elective † ............3
Manufacturing Technical Elective † ............3
Elective Literature ........................................3

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Second Semester
Eng Mg 124-Principles of Engineering Management ..1
Eng Mg 137-Economic Analysis of Engr Projects ....2
Mc Eng 358—Integrated Product Dev ................3
Mc Eng 261—Engineering Design .................3
Mc Eng 280-Control System Lab ..................1
Mc Eng Technical Elective † ........................3
Manufacturing Technical Elective † ............3
Electives-Hum or Soc Sci ............................3

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Replace footnote f with the following:

Old footnote f:
One of the technical electives must be from the following Manufacturing/Automation courses: Mc Eng 353, Mc Eng 355, Mc Eng 349, Mc Eng 306. One of the technical electives must be from the following Design courses: Mc Eng 363, Cm Eng 308, Mc Eng 356, Mc Eng 302.

New footnote f:
The 9 hours of Manufacturing technical electives must be selected as follows:
One course from the following Manufacturing/Automation courses: Mc Eng 353, 355, 349, and 306.
One course from the following Design courses: Mc Eng 363, 356, and 302.
One course from the following list: McEng 308, 358
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: Mining and Nuclear Engineering
2. Discipline and Course Number: Present: Proposed: Exp Eng 411
3. Course Title: Present:
   Proposed: Research Methods
   Abbreviated Course Title:
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. Catalog Description (300 Character Spaces or Less.)
   Present: Mining 411
   Proposed: Foundations, dimensions, and methods for designing and investigating research problems.
   Focus on fundamental and applied research, research methods, literature review, experimental design and experimentation, dissertation composition, concepts of originality and intellectual property.
   dissertation

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: Graduate Standing

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

9. Justification: We would like to co-list with Mining 411 research methods. It has become apparent that the masters of explosives engineering by research students need to take the class and we will be also including this for our PhD in explosives engineering in application as a required class. Dr. Baird (mining and explosives) has currently reworked min 411 and will teach onsite and distance.

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) Mining 411  2)  3)
   4)  5)  6)

Recommended by Department (Chair signature) Date: 10/24/12
Recommended by Discipline Specific Curricula Committee (Chair signature) Date: 10/29/12
Approved by Curricula Committee: (Chair signature) Date: 4/12/2013
Approved by Faculty Senate: (Chair signature) Date: 

(Revised 1/29/09)
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: Electrical & Computer Engineering

2. Discipline and Course Number: Present: Cp Eng 202  Proposed:

3. Course Title: Present: Cooperative Engineering Training  Proposed:

Abbreviated Course Title:

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

4. Catalog Description (40 Words or Less)

Present: 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.

Proposed: 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 supervisor's evaluation. Not more than one hour of credit may be applied to the B.S. degree. Pass-fail grading option only.

5. If course requires field trip check box: ☐

6. Credit Hours:

Present: Lecture: 0-6  Lab: 0  Total: 0-6

Proposed: Lecture: 1  Lab: 0  Total: 1

7. Prerequisites:

Present: none listed

Proposed: Consent of the ECE Department required.

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

9. Justification: Note Credit is IND.

Modification to Undergraduate Cp Eng Requirements per ECE Faculty 1/24/2013.

Revision of departmental requirements for coop credit. Accompanying DC form.

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

(Kris Enderle  (Chair signature)

Recommended by Discipline Specific Curricula Committee

(Sanjay K. Roy (Chair signature)

Approved by Curricula Committee:

(Daniel J. Feinberg (Chair signature)

Approved by Faculty Senate:

(Chair signature)

Date: 1/29/13

Date: 3/19/13

Date: 4/12/2013

Date:
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: Electrical & Computer Engineering

2. Discipline and Course Number: Present: EE 202 Proposed:

3. Course Title: Present: Cooperative Engineering Training Proposed:

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

4. Catalog Description (40 Words or Less)
Present: 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.

Proposed: 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 supervisor's evaluation. Not more than one hour of credit may be applied to the B.S. degree. Pass-fail grading option only.

5. If course requires field trip check box: □

6. Credit Hours:
Present: Lecture: 0-6 Lab: Total: 0-6
Proposed: Lecture: 1 Lab: 0 Total: 1

7. Prerequisites:
Present: none listed
Proposed: Consent of the ECE Department required.

8. Required for Majors: □ Elective for Majors: ☑

9. Justification: Note Credit is IND.
Modification to Undergraduate EE Requirements per ECE Faculty 1/24/2013. Revision of departmental requirements for coop credit. Accompanying DC form.

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 ____________________________ Date: 1/29/13
(Chair signature)

Recommended by Discipline Specific Curricula Committee ____________________________ Date: 04/16/13
(Chair signature)

Approved by Curricula Committee: ____________________________ Date: 4/12/2013
(Chair signature)

Approved by Faculty Senate: ____________________________ Date: ________
(Chair signature)
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:** Electrical & Computer Engineering

2. **Discipline and Course Number:**
   - Present: El Eng 205
   - Proposed:

3. **Course Title:**
   - Present: Electromechanics
   - Proposed:
   - Abbreviated Course Title:
     - (24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. **Catalog Description** (40 Words or Less)
   - Present: Magnetics and magnetically coupled circuits, rotating magnetic fields, stepper motors, DC machines, induction machines, synchronous machines, and brushless DC machines.
   - Proposed:

5. **If course requires field trip check box:** □

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

7. **Prerequisites:**
   - Present: Physics 24 with a grade of "C" or better, El Eng 153 with a grade of "C" or better, passing grade on the El Eng Advancement Exam II. El Eng 208 is a corequisite.
   - Proposed: Physics 24 with a grade of "C" or better; El Eng 153 with a grade of "C" or better; passing grade on the El Eng Advancement Exam II.

8. **Required for Majors:** □
   **Elective for Majors:** □

9. **Justification:** The laboratory is no longer a corequisite for the lecture.

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

Signed: [Signature]  
Date: 1/29/13

Recommended by Discipline Specific Curricula Committee

Signed: [Signature]  
Date: 2/14/13

Approved by Curricula Committee:

Signed: [Signature]  
Date: 4/12/13

Approved by Faculty Senate:

Signed: [Signature]  
Date: [Signature]

(Revised 1/31/08)
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: Electrical & Computer Engineering
2. Discipline and Course Number: Present: El Eng 207 Proposed:
3. Course Title: Present: Power System Design and Analysis Proposed:
   Abbreviated Course Title:
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. Catalog Description (40 Words or Less)
   Present: Power system components and transmission lines, three-phase balanced power system
   theory, analysis and design including economic and reliability considerations, and fault
   analysis. A power system design project using a graphical power flow program is included.
   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: El Eng 153 with a grade of "C" or better and passing grade on the El Eng Advancement
   Exam II. Co-req El Eng 209.
   Proposed: El Eng 153 with a grade of "C" or better; passing grade on the El Eng Advancement
   Exam II.
8. Required for Majors: □ Elective for Majors: ☑
9. Justification: The laboratory is no longer a corequisite for the lecture.

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 ___________________________ Date: 1/12/13
   (Chair signature)
   Recommended by Discipline Specific Curricula Committee ___________________________ Date: 1/12/13
   (Chair signature)
   Approved by Curricula Committee: ___________________________ Date: 4/12/2013
   (Chair signature)
   Approved by Faculty Senate: ___________________________ Date: __________
   (Chair signature)
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: Electrical & Computer Engineering
2. Discipline and Course Number: Present: El Eng 208 Proposed:
3. Course Title: Present: Electromechanics Laboratory Proposed:
Abbreviated Course Title:
(24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. Catalog Description (40 Words or Less)
Present: Experiments with power measurement, transformers, magnetically coupled circuits, rotating magnetic fields, stepper motors, DC machines, induction machines, synchronous machines, and brushless DC machines.
Proposed: Experiments with power measurement, transformers, magnetically coupled circuits, rotating magnetic fields, stepper motors, DC machines, induction machines, synchronous machines, and brushless DC machines. Credit will only given for one of El Eng 208 or 209.

5. If course requires field trip check box: □
6. Credit Hours:
   Present: Lecture: □ Lab: 1 Total: 1
   Proposed: Lecture: □ Lab: □ Total: □
7. Prerequisites:
   Present: El Eng 153 with a grade of "C" or better, passing grade on the El Eng Advancement Exam II. El Eng 205 is a corequisite.
   Proposed: El Eng 153 with a grade of "C" or better; passing grade on the El Eng Advancement Exam II. Preceded or accompanied by El Eng 205.
8. Required for Majors: □ Elective for Majors: □
9. Justification: Modification to Undergraduate EE Requirements per ECE Faculty 1/24/2013. Several experiments in El Eng 208 and El Eng 209 are similar.

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: 1/29/13
Recommended by Discipline Specific Curricula Committee __________________ (Chair signature) Date: 02/19/13
Approved by Curricula Committee: __________________ (Chair signature) Date: 4/12/2013
Approved by Faculty Senate: __________________ (Chair signature) Date: ____________

(Revised 1/31/08)
Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes
(Chack 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: Electrical & Computer Engineering

2. Discipline and Course Number: Present: El Eng 209 Proposed:

3. Course Title: Present: Power System Design and Analysis Laboratory Proposed:

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

4. Catalog Description (40 Words or Less)

Present: Computer-aided analysis of voltage regulation, power flow, compensation, and economic analysis. Individual projects are required.

Proposed: Computer-aided analysis of voltage regulation, power flow, compensation, and economic analysis. Individual projects are required. Credit will only be given for one of El Eng 208 or 209.

5. If course requires field trip check box: □

6. Credit Hours: Present: Lecture: 0 Lab: 1 Total: 1
Proposed: Lecture: Lab: Total:

7. Prerequisites:

Present: El Eng 153 with a grade of "C" or better, passing grade on the El Eng Advancement Exam II. El Eng 207 is a corequisite.

Proposed: El Eng 153 with a grade of "C" or better; passing grade on the El Eng Advancement Exam II. Preceded or accompanied by El Eng 207.

8. Required for Majors: □ Elective for Majors: □

9. Justification: Modification to Undergraduate EE Requirements per ECE Faculty 1/24/2013. Several experiments in El Eng 208 and El Eng 209 are similar.

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: 1/16/13

Recommended by Discipline Specific Curricula Committee

(Chair signature) Date: 2/19/13

Approved by Curricula Committee:

(Chair signature) Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)
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: Electrical & Computer Engineering
2. Discipline and Course Number: Present: EE 215
    Proposed: EE 215
3. Course Title: Present: Discrete Linear Systems
    Proposed: Discrete Linear Systems

Abbreviated Course Title:
(24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. Catalog Description (40 Words or Less)
Present: Analysis methods for discrete-time signals and systems in the time and frequency domains including signal models, and Fourier transforms. Continuous-time topics are included as introductory material.
Proposed:

5. If course requires field trip check box: □
6. Credit Hours:
   Present: Lecture: 3  Lab: 0  Total: 3
   Proposed: Lecture: 3  Lab: 0  Total: 3
7. Prerequisites:
   Present: Elec Eng 153 with a grade of "C" or better; passing the Elec Eng Advancement Exam II. Students should enroll in Elec Eng 215 and corequisite of Elec Eng 216.
   Proposed: Elec Eng 153 with a grade of "C" or better; passing the Elec Eng Advancement Exam II.
8. Required for Majors: □  Elective for Majors: □
9. Justification: Modification to Undergraduate EE Requirements per ECE Faculty 1/24/2013.

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: [Signature]
Date: 1/22/13
Recommended by Discipline Specific Curricula Committee: [Signature]
Date: 2/1/13
Approved by Curricula Committee: [Signature]
Date: 4/12/13
Approved by Faculty Senate: [Signature]
Date: ______
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: Electrical & Computer Engineering

2. Discipline and Course Number: Present: EE 216

3. Course Title: Present: Discrete Linear Systems Laboratory
   Proposed:

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

4. Catalog Description (40 Words or Less)
   Present: Software tools for signal and system representation and for time and frequency-domain systems analysis.
   Proposed:

5. If course requires field trip check box: □

6. Credit Hours: Present: Lecture: 0 Lab: 1 Total: 1
   Proposed: Lecture: Lab: Total:

7. Prerequisites:
   Present: Elec Eng 153 with a grade of "C" or better; passing the Elec Eng Advancement Exam II. Preceded or accompanied by El Eng 215 and corequisite of Elec Eng 216.
   Proposed: Elec Eng 153 with a grade of "C" or better; passing the Elec Eng Advancement Exam II. Preceded or accompanied by El Eng 215.

8. Required for Majors: □ Elective for Majors: □

9. Justification: Modification to Undergraduate EE Requirements per ECE Faculty 1/24/2013.

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: [Signature]
   Date: 11/28/13

   Recommended by Discipline Specific Curricula Committee: [Signature]
   Date: 02/17/13

   Approved by Curricula Committee: [Signature]
   Date: 4/12/2013

   Approved by Faculty Senate: [Signature]
   Date: [ ]

(Revised 1/31/08)
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: Electrical & Computer Engineering
2. Discipline and Course Number: Present: EE 218  Proposed:
3. Course Title: Present: Continuous Linear Systems Laboratory  Proposed:
Abbreviated Course Title:
(24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. Catalog Description (40 Words or Less)
Present: Laboratory and software tools for the analysis of linear and non-linear systems. Topics include spectral analysis, transforms, and applications.
Proposed:

5. If course requires field trip check box: ☐
6. Credit Hours: Present:  Lecture: 0  Lab: 1  Total: 1
Proposed:
7. Prerequisites:
Present: Elec Eng 215, Elec Eng 216, and Math 204 each with a grade of "C" or better.
Corequisite of Elec Eng 217.
Proposed: Math 204 with a grade of "C" or better; Elec Eng 153 with a grade of "C" or better;
passing the Elec Eng Advancement Exam II. Preceded or accompanied by Elec Eng 217.
8. Required for Majors: ☒  Elective for Majors: ☐
9. Justification: Modification to Undergraduate EE Requirements per ECE Faculty 1/24/2013.

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: 4/12/13

Recommended by Discipline Specific Curricula Committee
(Chair signature)  Date: 4/12/13

Approved by Curricula Committee:
(Chair signature)  Date: 4/12/2013

Approved by Faculty Senate:
(Chair signature)  Date: 

(R255)

01/29/13

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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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Geological Sciences and Engineering
2. Discipline and Course Number: Present: GE352 Proposed:
3. Course Title: Present: International Engineering and Design Proposed:
   - Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes):
4. Catalog Description (350 character spaces or less.)
   - Present:
   - Proposed:
5. If course requires field trip check box: x
6. Credit Hours:  
   - Present: Lecture 3 Lab 0 Total 3
   - Proposed: Lecture Lab Total
7. Prerequisites:
   - Present: Senior standing, Instructor approval
   - Proposed: Senior standing, Instructor approval, GE311, GE347
8. Required for Majors:  
   - Elective for Majors:  
9. Justification: GE311/GE347 are the lab/lecture called "Introduction to International Engineering & Design".
10. Semesters previously offered as an experimental course (101, 201, 301, 401):
11. List all co-listed courses, initialiaed by Dept. Chair, if signature does not appear below.
   1) CerE352 3)  
   2) MetE352 4)  
   5)  
   4-5-13

Recommended by Department:  
(Chair signature)  
Date:  
Recommended by DSCC:
(Chair signature)  
Date:  
Approved by Curricula Committee:
(Chair signature)  
Date:  
Approved by Faculty Senate:
(Chair signature)  
Date:  

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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: Mining and Nuclear Engineering

2. Discipline and Course Number: Present: Min Eng 411 Proposed: Min Eng 411

3. Course Title: Present: Research Methods 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: Foundations, dimensions, and methods for designing and investigating research problems in Mining Eng. Focus on fundamentals and applied research, research methods, literature review, experimental design and experimentation, dissertation composition, concepts of originality and intellectual property

   Proposed: Foundations, dimensions, and methods for designing and investigating research problems. Focus on fundamentals and applied research, research methods, literature review, experimental design and experimentation, dissertation composition, concepts of originality and intellectual property.

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: Graduate Standing
   Proposed:

8. Required for Majors: [ ] Elective for Majors: [ ]

9. Justification: We would like to co-list with Exp Eng 411 research methods (new). Above catalog description changed to remove redundancy and match

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) ExpEng 411

   2) 

   3) 

   4) 

   5) 

   Recommended by Department
   (Chair signature) Date: 2-7-2013

   Recommended by Discipline Specific Curricula Committee
   (Chair signature) Date: 02/18/13

   Approved by Curricula Committee:
   (Chair signature) Date: 6/12/2013

   Approved by Faculty Senate:
   (Chair signature) Date: 

(Revised 1/29/09)
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: Civil, Architectural and Envir
2. Discipline and Course Number: Present: ArchEng 204 Proposed:
3. Course Title: Present: Architectural Design II Proposed:
   Abbreviated Course Title: ArchE 204
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. Catalog Description (300 Character Spaces or Less.)
   Present: A continuation of Architectural Design I with an increased focus on problems and
   associated with detail development, principles of acoustic design and building construction as a form
   determinant.
   Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours: 
   Present: 1 Lab: 2 Total: 3
   Proposed: Lecture: Lab: Total:

7. Prerequisites:
   Present: ArchE 203
   Proposed: Art 203

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

9. Justification:

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: 2/5/13
Recommended by Discipline Specific Curricula Committee ☑ (Chair signature) Date: 3/11/13
Approved by Curricula Committee: ☑ (Chair signature) Date: 4/12/2013
Approved by Faculty Senate: ☑ (Chair signature)

(Revised 1/29/09)
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:** Civil, Architectural and Envir
   - Arch Eng
2. **Discipline and Course Number:** Present: 203
   - Proposed:
3. **Course Title:** Present: Architectural Design I
   - Proposed:
   - **Abbreviated Course Title:** ArchE 203
   - **Catalog Description** (300 Character Spaces or Less.)
   - Present: Introduction to the interaction between architecture and the engineering disciplines. Theories of building and site design, technology as an integral component of design, plan and spatial organization, structural clarity, formal composition, and environmental context are considered as principle...
   - Proposed:

5. **If course requires field trip check box:** □

6. **Credit Hours:**
   - Present: Lecture: Lab: Total:
   - Proposed: Lecture: Lab: Total:

7. **Prerequisites:**
   - Present: Sophmore Standing
   - Proposed:

8. **Required for Majors:** ☒
    - Elective for Majors: □

9. **Justification:** All mentions of "ArchE 203" in the undergraduate catalog need to be replaced with "Art 203".

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)
**Recommended by Discipline Specific Curricula Committee**
- (Chair signature)
**Approved by Curricula Committee:**
- (Chair signature)
**Approved by Faculty Senate:**
- (Chair signature)

Date: 2/5/13
Date: 3/11/13
Date: 4/12/2013

(Revised 1/29/09)
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: Electrical & Computer Engineering
2. Discipline and Course Number: Present: EE 217 Proposed:
3. Course Title: Present: Continuous Linear Systems Proposed:
   Abbreviated Course Title: (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. Catalog Description (40 Words or Less)
   Present: Analysis methods for continuous-time signals and systems in the time and frequency domains
   including signal models, Fourier transforms, and Laplace transforms. Examples of control and
   communications systems are included.
   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: Elec Eng 215, Elec Eng 216, and Math 204 each with a grade of "C" or better. Students
   should enroll in Elec Eng 217 and corequisite of Elec Eng 218.
   Proposed: Math 204 with a grade of "C" or better; Elec Eng 153 with a grade of "C" or better;
   passing the Elec Eng Advancement Exam II.
8. Required for Majors: ☑ Elective for Majors: ☐
9. Justification: Modification to Undergraduate EE Requirements per ECE Faculty 1/24/2013.

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: __/24/13

   Recommended by Discipline Specific Curricula Committee ___________________________ (Chair signature)
   Date: __/27/13

   Approved by Curricula Committee: ___________________________ (Chair signature) Date: __/12/2013

   Approved by Faculty Senate: ___________________________ (Chair signature) Date: __/31/08

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01/29/13

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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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 103  Proposed:
3. Course Title: Present: Introduction to Glass Science & Technology
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: A study of the atomic-level structure of oxide glasses and the relationships between composition, properties and structure of glass-forming systems. Simple rate processes will be introduced to explain temperature-dependent properties. Prerequisite: Cer-Eng 102.
   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: ENG
   Present: Cer 102
   Proposed: Pass prerequisite course with "C" or better grade in Cer Eng 102
8. Required for Majors: □  Elective for Majors: □
9. Justification: Encourage student success through a better understanding of core material
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)  3)  5)
   2)  4)  6)

Recommended by Department
[Signature]
Date: 2/20/13

Recommended by DSCC
[Signature]
Date: 3/11/13

Approved by Curricula Committee:
[Signature]
Date: 4/12/13

Approved by Faculty Senate:
[Signature]
Date: 

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2017

Effective Year: 2013  Effective Term: Summer □ Fall □ Spring □

CC File #: 8388-2013-CER ENG-122-32

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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Cer122  Proposed:

3. Course Title: Present: Ceramic Materials Laboratory II - Glass & Ceramic Processing
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
   Present: Laboratory experience in design, processing, and characterization of glasses and ceramics. Glasses are formulated, melted and characterized to correlate composition and properties. Clay-based ceramics are formulated to meet performance specifications, prepared by slip casting/extrusion, and fired. Prerequisite: Cer Eng 111.
   Proposed:

5. If course requires field trip check box: □

6. Credit Hours: Present: Lecture 0  Lab 2  Total 2
   Proposed: Lecture Lab Total

7. Prerequisites:
   Present: Cer 111
   Proposed: Pass prerequisite course with "C" or better
   Grade in Cer Eng 111

8. Required for Majors: □  Elective for Majors: □

9. Justification: Encourage student success through a better understanding of core material

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)  3)  5)
    2)  4)  6)

Recommended by Department

(Chair signature)

Date: 2/20/12

Recommended by DSCC

(Chair signature)

Date: 3/11/13

Approved by Curricula Committee:

(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: ________

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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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Cer 222  Proposed:  Cer 225

3. Course Title: Present: Applied Glass Forming  Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: Examines the properties and behavior of molten glass along with basic forming techniques, including off-hand shaping, molding and casting. Prerequisite: Cer Eng 104 or Met Eng 125; freshmen, sophomores, or junior only or by instructor permission.
   Proposed:

5. If course requires field trip check box: [ ]

6. Credit Hours: Present: Lecture / Lab / Total 2  Proposed: Lecture / Lab / Total

7. Prerequisites:
   Present: Cer 104 or Met 125
   Proposed: Pass prerequisite course with "C" or better  grade in either CerEng 104 or Met Eng 125

8. Required for Majors: [ X ]  Elective for Majors: [ ]

9. Justification: Encourage student success through a better understanding of core material

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)  3)  5)  2)  4)  6)

   Recommended by Department  [Signature]  Date: 2/10/13

   Recommended by DSCC  [Signature]  Date: 3-11-13

   Approved by Curricula Committee:  [Signature]  Date: 4/12/2013

   Approved by Faculty Senate:  [Signature]  Date: 

(Revised December 2013)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 231 Proposed:
3. Course Title: Present: Ceramic Processing Lab I
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: The first half of a two-semester sequence that gives students practical knowledge of the methods and techniques used in the fabrication of ceramics. Prerequisite: G-Eng 122.
   Proposed:
5. If course requires field trip check box: □
6. Credit Hours: Present: Lecture 0 Lab 2 Total 2
   Proposed: Lecture Lab Total
7. Prerequisites: ENG
   Present: Cer 122
   Proposed: Pass prerequisite course with "C" or better grade in Cer Eng 122
8. Required for Majors: ☑ Elective for Majors: □
9. Justification: Encourage student success through a better understanding of core material
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) 3) 5)
   2) 4) 6)

Recommended by Department: Wayne Huelin
(Chair signature) Date: 4/20/13

Recommended by DSRC
(Chair signature) Date: 3/11/13

Approved by Curricula Committee: Daniel Jones
(Chair signature) Date: 4/12/2013

Approved by Faculty Senate:
(Chair signature) Date: 

(Revised December 2013)
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 [X]
Course Title [ ] Catalog Description [ ] Course Number [ ] Co-listing [ ]

Course Information (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 242 Proposed:
3. Course Title: Present: Ceramic Processing Lab II Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: The second half of a two-semester sequence that gives students practical knowledge of the methods and techniques used in the fabrication of ceramics. Prerequisite: Cer 231
   Proposed:

5. If course requires field trip check box: [ ]

6. Credit Hours: Present: Lecture [ ] Lab [ ] Total 2 Proposed: Lecture [ ] Lab [ ] Total

7. Prerequisites:
   Present: Cer 231 Proposed: Pass prerequisite course with "C" or better grade in Cer Eng 231

8. Required for Majors: [X] Elective for Majors: [ ]

9. Justification: Encourage student success through a better understanding of core material

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

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

   1) 3) 5)
   2) 4) 6)

Recommended by Department ____________________ Date: 2/10/13
(Chair signature)

Recommended by DSCC ____________________ Date: 3-11-13
(Chair signature)

Approved by Curricula Committee: ____________________ Date: 4/12/2013
(Chair signature)

Approved by Faculty Senate: ____________________ Date:
(Chair signature)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)
1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 251 Proposed:
3. Course Title: Present: Phase Equilibria Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: The study of unary, binary and ternary inorganic, phase equilibrium systems with examples for solving practical engineering problems. Prerequisite: Chem 3.
   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: Chem 3 Proposed: Pass prerequisite course with "C" or better grade in Chem 3
8. Required for Majors: □ Elective for Majors: □
9. Justification: Encourage student success through a better understanding of core material
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) □ 3) □ 5) □ 2) □ 4) □ 6) □

Recommended by Department ____________________________ Date: 7/26/13
(Chair signature)

Recommended by DSSC ____________________________ Date: 5/11/13
(Chair signature)

Approved by Curricula Committee: ____________________________ Date: 4/12/13
(Chair signature)

Approved by Faculty Senate: ____________________________ Date: ____________________________
(Chair signature)

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Cer 369

3. Course Title: Present: Glass Science & Engineering

   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
   Present: The development, manufacturing methods, applications, and properties of flat, fiber, container, chemical, and special purpose glasses. Composition/property relationships for glasses and nucleation-crystallization processes for glass-ceramics are also covered. Prerequisite: Cer Eng 103.

   Proposed:

5. If course requires field trip check box:

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

   Proposed: Lecture 3 Lab 0

7. Prerequisites:
   Present: Cer 103

   Proposed: Pass prerequisite course with "C" or better grade in Cer Eng 103

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

9. Justification: Encourage student success through a better understanding of core material

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: Wayne Hults
   (Chair signature) Date: 2/10/13

Recommended by DSCC: Patricia C. Raper
   (Chair signature) Date: 2/10/13

Approved by Curricula Committee: 
   (Chair signature) Date: 4/12/13

Approved by Faculty Senate:
   (Chair signature) Date:

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 284
   Proposed: Cer 284
3. Course Title: Present: Electrical Properties of Ceramics
   Proposed: Electrical Properties of Ceramics
4. Catalog Description (360 character spaces or less.)
   Present: The application of ceramic chemistry and physics to the development and evaluation of electronic, dielectric, magnetic, and optical properties. Emphasis is placed on the relationships between properties and crystal structure, defects, grain boundary nature, and microstructure. Prerequisite: Physics 107.
   Proposed: The application of ceramic chemistry and physics to the development and evaluation of electronic, dielectric, magnetic, and optical properties. Emphasis is placed on the relationships between properties and crystal structure, defects, grain boundary nature, and microstructure. Prerequisite: Physics 107.
5. If course requires field trip check box: □
6. Credit Hours: Present: Lecture 3 Lab 1 Total 4
   Proposed: Lecture Lab Total
7. Prerequisites:
   Present: Physics 107
   Proposed: Pass prerequisite course with "C" or better in Physics 107
8. Required for Majors: □
   Elective for Majors: □
9. Justification: Encourage student success through a better understanding of core material
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 ___________________________ Date: 4/12/2013

(Chair signature)

Recommended by DSCC ___________________________ Date: 4/12/2013

(Chair signature)

Approved by Curricula Committee: ___________________________ Date: 4/12/2013

(Chair signature)

Approved by Faculty Senate: ___________________________ Date: ___________________________

(Chair signature)
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 [X]
- Course Title [ ]
- Catalog Description [ ]
- Course Number [ ]
- Co-listing [ ]

Course Information (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Cer 306 Proposed:

3. Course Title: Present: Mechanical Properties of Ceramics Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: This course will treat the theory and testing practice related to design based on the mechanical properties of ceramics. The course also includes a laboratory consisting of experiments for the characterization of the mechanical properties of ceramics. Prerequisite: Civ-Eng 110.
   Proposed:

5. If course requires field trip check box: [ ]

6. Credit Hours: Present: Lecture 3 Lab 1 Total 4 Proposed: Lecture Lab Total

7. Prerequisites:
   Present: Civ Eng 110
   Proposed: Pass prerequisite course with "C" or better grade in Civ Eng 110

8. Required for Majors: [X] Elective for Majors: [ ]

9. Justification: Encourage student success through a better understanding of core material

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) 3) 5)
   2) 4) 6)

Recommended by Department ____________________________ Date: 3/10/13
(Chair signature) ____________________________

Recommended by DSCC ____________________________ Date: 3-11-13
(Chair signature) ____________________________

Approved by Curricula Committee: ____________________________ Date: 4/12/2013
(Chair signature) ____________________________

Approved by Faculty Senate: ____________________________ Date: ____________________________
(Chair signature) ____________________________
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 369 □ Proposed:
3. Course Title: Present: Glass Science & Engineering □ Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: The development, manufacturing methods, applications, and properties of flat, fiber, container, chemical, and special purpose glasses. Composition/property relationships for glasses and nucleation-crystallization processes for glass-ceramics are also covered. Prerequisite: Cer Eng 103.

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: Cer 103 □

   Proposed: Pass prerequisite course with "C" or better grade in Cer Eng 103
8. Required for Majors: □
   Elective for Majors: □
9. Justification: Encourage student success through a better understanding of core material
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

Wayne Hudson
(Chair signature) Date: 2/20/13

Recommended by DSCC

(Chair signature) Date: 3-11-13

Approved by Curricula Committee:

(Chair signature) Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature) Date: 4/12/2013
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 371  Proposed: Cer ENG
3. Course Title: Present: Dielectric & Electrical Properties of Oxides
               Proposed:
               Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: The processes occurring in inorganic materials under the influence of an electric field are considered from
            basic principles. Emphasis is placed on application to real systems. Prerequisite: Cer-Eng 284.
   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: ENG
                   Present: Cer 284
                   Proposed: Pass prerequisite course with "C" or better grade in Cer ENG 284
8. Required for Majors: ☒  Elective for Majors: ☐
9. Justification: Encourage student success through a better understanding of core material
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)  3)  5)  
   2)  4)  6)  

Recommended by Department: Wayne Hule Date: 3/10/13
(Chair signature)

Recommended by DSIC: Date: 3/11/13
(Chair signature)

Approved by Curricula Committee: Date: 4/12/2013
(Chair signature)

Approved by Faculty Senate: Date:
(Chair signature)
(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 315   Proposed: Met 315

3. Course Title: Present: Metallurgical Process Design Principles

Proposed:
Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
Present: Application of mass, component and energy balances for metallurgical design. The fundamentals of engineering economic analysis will be examined and experimental design techniques will be introduced. Students will be prepared for the selection and planning of the subsequent design project. Prerequisite: Senior standing in Mt Eng.
Proposed:

5. If course requires field trip check box: ☐

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

7. Prerequisites:
   Present:
   Proposed:

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

9. Justification: Course no longer offered - replaced by Met 261/262

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)       3)       5)       2)       4)       6)

Recommended by Department:  
(Chair signature)
Date: 2/20/13

Recommended by DSCC:  
(Chair signature)
Date: 3-1-13

Approved by Curricula Committee:  
(Chair signature)
Date: 4/12/2013

Approved by Faculty Senate:  
(Chair signature)
Date:  

(Revised December 2013)
Effective Year: 2013  Effective Term: Summer □  Fall ☑  Spring □

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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department:  Materials Science & Engineering

2. Discipline and Course Number: Present: Met 316  Proposed:

3. Course Title:  Present: Metallurgical Design Project
Proposed:
Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
Present: Student groups will undertake selected projects, which will represent a capstone design experience utilizing
skills, understanding and data from previous courses. The faculty supervised open-ended design projects will involve a
variety of tasks appropriate to the metallurgical engineer. Prerequisite: Met Eng 315.
Proposed:

5. If course requires field trip check box: ☑

6. Credit Hours: Present: Lecture 2  Lab 0  Total 2
Proposed: Lecture  Lab  Total

7. Prerequisites:
Present:
Proposed:

8. Required for Majors: ☑  Elective for Majors: ☑

9. Justification:  Course no longer offered - replaced by Met 261/262

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)  3)  5)  2)  4)  6)

Recommended by Department:  
(Chair signature)  Date: 2/5/13

Recommended by DSCC:  
(Chair signature)  Date: 2/19/13

Approved by Curricula Committee:  
(Chair signature)  Date: 4/12/2013

Approved by Faculty Senate:  
(Chair signature)  Date: 

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Met 318
3. Course Title: Present: Principles for Microstructural Design
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: This course will introduce the basics of microstructural principles that can be used to design advanced materials. It will help students learn about the basic principles and microstructural design approaches. Prerequisites: At least junior standing, Met Eng 215, Met Eng 217 or equivalent.
   Proposed:

5. If course requires field trip check box: □
6. Credit Hours: Present: Lecture 2 Lab 0 Total 2
   Proposed: Lecture Lab Total
7. Prerequisites:
   Present:
   Proposed:
8. Required for Majors: □
   Elective for Majors: □
9. Justification: Course 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) 3) 5)
    2) 4) 6)

Recommended by Department

Wayne Ksl

(Chair signature)

Date: 2/23/13

Recommended by DSCC

Date: 3/11/13

Approved by Curricula Committee:

Date: 4/10/2013

Approved by Faculty Senate:

Date: ________________________

(Chair signature)

(Revised December 2012)
Effective Year: 2013  Effective Term: Summer  Fall  Spring

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** (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. **Department:** Materials Science & Engineering
2. Discipline and Course Number: Present: Met 332  Proposed:
3. **Course Title:** Present: Metals Treatment Laboratory  Proposed:
   
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. **Catalog Description** (360 character spaces or less.)
   Present: The students plan and perform experiments that illustrate heat treating processes and their effects on the properties and structure of commercial alloys. Prerequisite: Accompanied or preceded by M&Eng 331.  Proposed:
5. If course requires field trip check box: □
6. **Credit Hours:** Present: Lecture ○ Lab  □ Total  □  Proposed: Lecture Lab Total
7. **Prerequisites:**
   Present: 
   Proposed:
8. **Required for Majors:** □  Elective for Majors: □
9. **Justification:** Course 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)  2)  3)  4)  5)  6)

   **Recommended by Department**
   (Chair signature)

   **Recommended by DSCC**
   (Chair signature)

   **Approved by Curricula Committee:**
   (Chair signature)

   **Approved by Faculty Senate:**
   (Chair signature)

   Date: 4/12/2013  Date: 2/11/13  Date: 4/12/2013  Date:

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 354 Proposed:

3. Course Title: Present: Electrical Systems and Controls for Materials Proposed:

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

4. Catalog Description (360 character spaces or less.)

   Present: This course will cover analysis of alternating and direct current circuits as experienced in the materials industry. Current, voltage, and power relationships in single and three-phase electrical power systems. Introduction to continuous and batch instrumentation including programmable logic controllers (PLCs) and computer interfacing for materials applicat

   Proposed:

5. If course requires field trip check box: □

6. Credit Hours: Present: Lecture 2 Lab 1 Total 3

   Proposed: Lecture Lab Total

7. Prerequisites:

   Present:

   Proposed:

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

9. Justification: Course 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)  
    2)  
    3)  
    4)  
    5)  
    6)  

Recommended by Department ____________________________ Date: 2/20/13

(Chair signature) ____________________________

Recommended by DSCC ____________________________ Date: 3/11/13

(Chair signature) ____________________________

Approved by Curricula Committee: ____________________________ Date: 4/12/13

(Chair signature) ____________________________

Approved by Faculty Senate: ____________________________ Date: ____________________________

(Chair signature) ____________________________

(Revised December 2012)
Course Change Form (CC)
This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)
- New Course [ ]
- Course Deletion [x]
- Credit Hours [ ]
- Prerequisites [ ]
- Course Title [ ]
- Catalog Description [ ]
- Course Number [ ]
- Co-listing [ ]

Course Information (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: **Materials Science & Engineering**

2. Discipline and Course Number: Present: **Met 365** Proposed:

3. Course Title: Present: **Microfabrication Materials and Processes**

   Proposed:
   - Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)

   Present: **An overview course on the materials and processes used to fabricate Integrated circuits, microelectromechanical systems (MEMS), interconnect substrates and other microelectronic components from starting material to final product. The emphasis will be on the influence of structure and processing on the electrical, mechanical, thermal, and optical proper**

   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:

   Proposed:

8. Required for Majors: [x] Elective for Majors: [ ]

9. Justification: **Course no longer offered**

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

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

   1) 3) 5)

   2) 4) 6)

   Recommended by Department: ____________________________ Date: 2/22/13

   (Chair signature)

   Recommended by DSCC: ____________________________ Date: 3-11-13

   (Chair signature)

   Approved by Curricula Committee: ____________________________ Date: 4/4/2013

   (Chair signature)

   Approved by Faculty Senate: ____________________________ Date:

   (Chair signature)

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)
1. Department: Materials Science & Engineering ENG
2. Discipline and Course Number: Present: Met 385 Proposed:
3. Course Title: Present: Mechanical Metallurgy Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: Elastic and plastic behavior of metallic single crystals and polycrystalline aggregates. Resulting changes in mechanical properties are considered. Included are applications to metal fabrication. Prerequisites: Met-Eng 215, 216, Civ-Eng-110.
   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:
   Proposed:
8. Required for Majors: ☒ Elective for Majors: ☐
9. Justification: Course 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) 3) 5)  
   2) 4) 6)  

Recommended by Department [Signature] Date: 2/22/13
Recommended by DSCC [Signature] Date: 7/11/13
Approved by Curricula Committee: [Signature] Date: 4/12/2013
Approved by Faculty Senate: [Signature] Date: 

(Revised December 2012)
Effective Year: 2013  Effective Term: Summer ☐ Fall ☒ Spring ☐

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** (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: **Materials Science & Engineering**

2. Discipline and Course Number: Present: **MET 403**  Proposed:

3. Course Title: Present: **High Temperature and Corrosion Resistant Alloys**
   Proposed:
   - Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
   Present: Fabrication and use of nickel, titanium, and refractory metal based alloys for use at high temperatures or in chemically corrosive environments. Properties and strengthening mechanisms of these alloys. Theory of high temperature oxidation and corrosion and design of alloys to prevent them. Prerequisites: MET Eng 217, 218.
   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: 
   Proposed:

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

9. Justification: Course no longer offered

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)  3)  5) 
   2)  4)  6) 

   Recommended by Department
   (Chair signature)
   Date: 2/2/12

   Recommended by DSCC
   (Chair signature)
   Date: 3-11-13

   Approved by Curricula Committee:
   (Chair signature)
   Date: 4/12/2013

   Approved by Faculty Senate:
   (Chair signature)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Met 125  Proposed:
3. Course Title: Present: Chemistry of Materials  Proposed:

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

4. Catalog Description (350 character spaces or less.)
   Present: Basic Inorganic Chemistry of Materials. Topics will include chemical properties, structure and bonding of solids, energy, enthalpy, entropy, thermochemistry, kinetics and rate processes. Application of chemistry principles to materials engineering through flowsheeting, reactor design, materials/metals processing and the environment.
   Prerequisite: Chem 1.
   Proposed: Basic Inorganic Chemistry of Materials. Topics will include chemical properties, structure and bonding of solids, energy, enthalpy, entropy, thermochemistry, kinetics and rate processes. Application of chemistry principles to materials engineering through flowsheeting, reactor design, materials/metals processing and the environment.
   Prerequisite: Chem 1 with "C" or better.

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: Chem 1
   Proposed: Chem 1 with "C" or better grade in Chem 1

8. Required for Majors: □ Elective for Majors: □

9. Justification: New department standard to improve student success

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)

Recommended by DSAC
(Chair signature)

Approved by Curricula Committee:
(Chair signature)

Approved by Faculty Senate:
(Chair signature)

Date: 3/11/13

Date: 4/12/2013

Date: __________________

(Revised December 2012)
CC File # 8409-2013-MET ENG-202-32

Effective Year: 2013   Effective Term: Summer ☐ Fall ☒ Spring ☐

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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 202 Proposed:

3. Course Title: Present: Extractive Metallurgy Lab Proposed:

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

4. Catalog Description (360 character spaces or less.)
Present: A series of laboratory experiments designed to illustrate the principles of pyrometallurgy, hydrometallurgy, and electrometallurgy. Prerequisites: Preceded or accompanied by Met Eng 203, or an equivalent training program approved by SAT.

Proposed: A series of laboratory experiments designed to illustrate the principles of pyrometallurgy, hydrometallurgy, and electrometallurgy. Prerequisites: Preceded or accompanied by Met Eng 203.

5. If course requires field trip check box: ☐

6. Credit Hours: Present: Lecture ☐ Lab 1 Total 1 Proposed: Lecture Lab Total

7. Prerequisites:
Present: Met 203 prior or concurrent, Chem 4 prior or concurrent Proposed: Met 203 prior or concurrent

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

9. Justification: New department standard to improve student success

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) 3) 5)
   2) 4) 6)

Recommended by Department ____________________________ Date: 2/26/13
(Chair signature)

Recommended by DSCC ____________________________ Date: 3-11-13
(Chair signature)

Approved by Curricula Committee: ____________________________ Date: 4/18/13
(Chair signature)

Approved by Faculty Senate: ____________________________ Date: __________________
(Chair signature)

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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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 203

3. Course Title: Present: Introduction to Extractive Metallurgy

4. Catalog Description (360 character spaces or less.)
   - Present: Production and refining of metals by pyrometallurgy, hydrometallurgy, and electrometallurgy. Emphasis on heat and mass balance calculations for the unit processes of metals extraction. Introduction to the principles of combustion, heat utilization and recovery. Prerequisite: Mt Eng 125.
   - Proposed: Production and refining of metals by pyrometallurgy, hydrometallurgy, and electrometallurgy. Emphasis on heat and mass balance calculations for the unit processes of metals extraction. Introduction to the principles of combustion, heat utilization and recovery. Prerequisite: Mt Eng 125 with "C" or better.

5. If course requires field trip check box: [ ]

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

7. Prerequisites:
   - Present: Met 281, or Cer 299, or Ch Eng 143
   - Proposed: Met 225 with "C" or better and grade in Mt Eng 125

8. Required for Majors: [ ]

9. Justification: New department standard to improve student success

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) 3) 5)  

   2) 4) 6)  

Recommended by Department

Recommended by DSCC

Approved by Curricula Committee:

Approved by Faculty Senate:
Effective Year: 2014  Effective Term: Summer [ ] Fall [ ] Spring [x]

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 [x]
- Course Title [ ]
- Catalog Description [ ]
- Course Number [ ]
- Co-listing [ ]

Course Information (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 204  Proposed:

3. Course Title: Present: Transport Phenomena in Metallurgy  Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: The application of the principles of fluid flow and heat transfer to the solution of practical problems in metallurgical engineering. Prerequisite: Civ Eng 50.
   Proposed: The application of the principles of fluid flow and heat transfer to the solution of practical problems in metallurgical engineering. Prerequisite: Civ Eng 50 with "C" or better.

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: Civ Eng 50
   Proposed: Civ Eng 50 with "C" or better grade in Civ Eng 52

8. Required for Majors: [x]  Elective for Majors: [ ]

9. Justification: New department standard to improve student success

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)  2)  3)  4)  5)  6)

   Recommended by Department
   (Chair signature)  Date: 4/2/13

   Recommended by DSCC
   (Chair signature)  Date: 3/11/13

   Approved by Curricula Committee
   (Chair signature)  Date: 4/10/2013

   Approved by Faculty Senate
   (Chair signature)  Date:  

(Revised: December 2013)
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 [x]
- Course Title [ ]
- Catalog Description [ ]
- Course Number [ ]
- Co-listing [ ]

Course Information (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 215 Proposed:

3. Course Title: Present: Fundamentals of Materials Behavior Proposed:

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

4. Catalog Description (360 character spaces or less.)

   Present: An introduction to crystal defects and deformation; mechanical testing; creep; fracture mechanics and fatigue

   Prerequisites: Met Eng 121 and Civ Eng 110.

   Proposed: An introduction to crystal defects and deformation; mechanical testing; creep; fracture mechanics and fatigue. Prerequisites: Met Eng 121 and Civ Eng 110 with a "C" or better.

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: Met 121 and Civ Eng 110

   Proposed: Met 121 and Civ Eng 110 with "C" or better grade in both Met Eng 121 and Civ Eng 110

8. Required for Majors: [ ] Elective for Majors: [ ]

9. Justification: New department standard to improve student success

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: [Signature] Date: 2/26/13

   Recommended by D5CC: [Signature] Date: 3-11-13

   Approved by Curricula Committee: [Signature] Date: 4/12/2013

   Approved by Faculty Senate: [Signature] Date:
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  (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Met217    Proposed:    
3. Course Title: Present: Metals Microstructural Development    Proposed:    
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: Fundamentals of microstructural developments as relating to solid solutions, solidification and transformations; phase diagrams; case studies. Prerequisite: Met Eng 131.
   Proposed: Fundamentals of microstructural developments as relating to solid solutions, solidification and transformations; phase diagrams; case studies. Prerequisite: Met Eng 121 with a "C" or better, accompanied or preceded by Cer Eng 259.
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: Met 121
   Proposed: Met 121 with "C" or better, accompanied or preceded by Cer E 259
8. Required for Majors: ☑    Elective for Majors: ☐
9. Justification: New department standard to improve student success
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) 3) 5)  
2) 4) 6)  

Recommended by Department ___________________________ Date: 2/22/13

Recommended by DSCC ___________________________ Date: 3-11-13

Approved by Curricula Committee: ___________________________ Date: 4/12/2013

Approved by Faculty Senate: ___________________________ Date: ___________________________
**Course Change Form (CC)**

This form is for creating or modifying permanent courses.

**Course Changes**
(Any changes must be checked.)
- 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:** Mining and Nuclear Engineering
2. **Discipline and Course Number:** Present: Mi Eng 476
   Proposed: Mi Eng 476
3. **Course Title:**
   Proposed: Sustainability in Mining
   Abbreviated Course Title: Sustainability in Mining
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. **Catalog Description**
   (300 Character Spaces or Less.)
   Present:

5. **If course requires field trip check box:** □

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

7. **Prerequisites:**
   Present:
   Proposed: Mi Eng 376 or instructor consent.

8. **Required for Majors:** □
    **Elective for Majors:** □

9. **Justification:**
   This course is a core requirement of the Master of Engineering degree program in Mining Engineering.

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)

   Recommended by Department
   (Chair signature) Date: 11/14/12

   Recommended by Discipline Specific Curriculum Committee
   (Chair signature) Date: 12/19/12

   Approved by Curricula Committee:
   (Chair signature) Date: 4/12/2013

   Approved by Faculty Senate:
   (Chair signature) Date: ____________

(Revised 1/29/09)
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:** Mining and Nuclear Engineering
2. **Discipline and Course Number:**
   - Present: 
   - Proposed: Mi Eng 424
3. **Course Title:**
   - Present: Underground Mine Design
   - Proposed: Underground Mine Design

   **Abbreviated Course Title:** Under-Mine Des

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

4. **Catalog Description** (300 Character Spaces or Less.)
   - Proposed: This course will focus on the determinants of underground mine design, geomechanical mine design for underground mining; mine optimization; mine environmental systems; and underground mine design and optimization.

5. **If course requires field trip check box:** □

6. **Credit Hours:**
   - Present: 
   - Proposed: Lecture: 3

7. **Prerequisites:**
   - Present: 
   - Proposed: Mi Eng 324 or Equivalent

8. **Required for Majors:** □
   - Elective for Majors: □

9. **Justification:** This course is a core requirement of the Master of Engineering degree program in Mining Engineering.

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) 

   **Recommended by Department:** [Signature]
   **Date:** 11-14-12

   **Recommended by Discipline Specific Curriculum Committee:**
   - [Signature]
   **Date:** 12-19-12

   **Approved by Curriculum Committee:**
   - [Signature]
   **Date:** 4/12/2013

   **Approved by Faculty Senate:**
   - [Signature]
   **Date:** 

   **(Revised 1/29/09)**

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Course Change Form (CC)

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**Course Changes**
(All changes are required.

- **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:** Mining and Nuclear Engineering
2. **Discipline and Course Number:**
   - **Present:**
   - **Proposed:** Mi Eng 426
3. **Course Title:**
   - **Present:**
   - **Proposed:** Surface Mine Design
   - **Abbreviated Course Title:** Surf Mine Des
   - **Surface Mine Design**
   - **(24 Spaces or Less. Only needed for New Courses or Title Changes.)**
4. **Catalog Description**
   - **Present:**

   **Proposed:** This course will focus on the determinants of surface mine design, geomechanical and geometrical mine design for open pit and strip mining; mine layouts optimization; mine environmental systems; and research directions in surface mine design and optimization.

5. **If course requires field trip check box:** □
6. **Credit Hours:**
   - **Present:**
   - **Proposed:**
   - **Lecture:** 3
   - **Lab:** 0
   - **Total:** 3
7. **Prerequisites:**
   - **Present:**
   - **Proposed:** Mi Eng 326 or Equivalent
8. **Required for Majors:** ☑
   - **Elective for Majors:** □
9. **Justification:** This course is a core requirement of the Master of Engineering degree program in Mining Engineering.

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)  

   **Recommended by Department:**
   - (Chair signature)

   **Recommended by Discipline Specific Curricula Committee:**
   - (Chair signature)

   **Approved by Curricula Committee:**
   - (Chair signature)

   **Approved by Faculty Senate:**
   - (Chair signature)

   Date: 11-14-12
   Date: 12-18-12
   Date: 4-12-2013

   (Revised 1/29/09)
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 [X]
- Course Title [ ]
- Catalog Description [ ]
- Course Number [ ]
- Co-listing [ ]

Course Information (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 221 Proposed:

3. Course Title: Present: Principles of Materials Processing
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
   Present: An introduction to various methods of processing of metals and influences of processing on design. Includes: casting, welding, shaping, inspection and testing. Prerequisite: Met-Eng 121.
   Proposed: An introduction to various methods of processing of metals and influences of processing on design. Includes: casting, welding, shaping, inspection and testing. Prerequisite: Met Eng 121 with a "C" or better.

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: Met 121
   Proposed: Met 121 with "C" or better grade in Met Eng 121

8. Required for Majors: [X] Elective for Majors: [ ]

9. Justification: New department standard to improve student success

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) 3) 5)
   2) 4) 6)

Recommended by Department _____________________________ (Chair signature) Date: 3/20/13

Recommended by DSCC _____________________________ (Chair signature) Date: 3/11/13

Approved by Curricula Committee: _____________________________ (Chair signature) Date: 4/12/2013

Approved by Faculty Senate: _____________________________ (Chair signature) Date: ________
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Cer 259 Proposed:
3. Course Title: Present: Thermodynamics of Materials Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: Basic thermodynamic concepts are applied to materials. Calculations involving enthalpy, entropy, and Gibbs' free energy are studied. Inter-relationships among properties are emphasized. Fundamental concepts of phase equilibria are presented. Prerequisite: Met Eng 125 or Chem 3.
   Proposed: Basic thermodynamic concepts are applied to materials. Calculations involving enthalpy, entropy, and Gibbs' free energy are studied. Inter-relationships among properties are emphasized. Fundamental concepts of phase equilibria are presented. Prerequisite: Met Eng 125 or Chem 3 with "C" or better.

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: Met 125 or Chem 3 Proposed: Met 125 or Chem 3 with "C" or better

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

9. Justification: New department standard to improve student success

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

11. List all co-listed courses, initial by Dept. Chair, if signature does not appear below.
   1) 
   2) 
   3) 
   4) 
   5) 
   6) 

Recommended by Department: ___________________________ (Chair signature) Date: 2/22/13
Recommended by DSCC: ___________________________ (Chair signature) Date: 3/11/13
Approved by Curricula Committee: ___________________________ (Chair signature) Date: 4/12/2013
Approved by Faculty Senate: ___________________________ (Chair signature) Date: ___________________________
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Cer 291 Proposed:

3. Course Title: Present: Characterization of Inorganic Solids
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
   Present: X-ray diffraction analysis is emphasized including lattice parameter determination, qualitative and
   quantitative analysis methods, and sources of error. In addition, the basic principles of other common characterization
   techniques including electron microscopy, thermal analysis, and energy dispersive spectroscopy are discussed.
   
   Prerequisite: Cer Eng 102 or Mt

   Proposed: X-ray diffraction analysis is emphasized including lattice parameter determination, qualitative and
   quantitative analysis methods, and sources of error. In addition, the basic principles of other common characterization
   techniques including electron microscopy, thermal analysis, and energy dispersive spectroscopy are discussed.
   
   Prerequisite: Cer Eng 102 or Mt 121 with a "C" or better.

5. If course requires field trip check box: [ ]

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

7. Prerequisites:
   Present: Cer 102 or Met 121, or a similar introductory course on structure of solids

   Proposed: Cer 102 or Met 121, or a similar introductory course on structure of solids, with "C" or better.

8. Required for Majors: [x] Elective for Majors: [ ]

9. Justification: New department standard to improve student success

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) [ ] 3) [ ] 5) [ ]
   2) [ ] 4) [ ] 6) [ ]

Recommended by Department: [Signature] Date: 2/28/13

Recommended by DSCC: [Signature] Date: 3/11/13

Approved by Curricula Committee: [Signature] Date: 4/12/13

Approved by Faculty Senate: [Signature] Date: 

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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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)
1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Met 307 Proposed:
3. Course Title: Present: Metals Casting Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: An advanced course in the materials and methods used in modern metals casting processes. Application of metallurgical principles to the casting of metals. Design of castings and metals casting mold features using commercial casting process simulation software. Prerequisite: Met Eng 221 or Mech Eng 153.
   Proposed: An advanced course in the materials and methods used in modern metals casting processes. Application of metallurgical principles to the casting of metals. Design of castings and metals casting mold features using commercial casting process simulation software. Prerequisite: Met Eng 221 or Mech Eng 153 with "C" or better.
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: Met 221 or MechE 153 Proposed: Met 221 or MechE 153 with "C" or better
8. Required for Majors: □ Elective for Majors: □
9. Justification: New department standard to improve student success
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) 3) 5) 2) 4) 6)

Recommended by Department [Signature] Date: 7/30/13
Recommended by DSCC [Signature] Date: 3-11-13
Approved by Curricula Committee: [Signature] Date: 4/12/13
Approved by Faculty Senate: [Signature] Date: 

(Revised December 2012)
Course Change Form (CC)
This form is for creating or modifying permanent courses.

**Course Changes** (Check all changes.)
- [ ] New Course
- [ ] Course Deletion
- [X] Credit Hours
- [X] Prerequisites

**Course Information** (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. **Department:** Materials Science & Engineering

2. **Discipline and Course Number:** Present: **Met 329**
   Proposed: **Met 329**

3. **Course Title:** Present: Material Selection, Fabrication & Failure
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. **Catalog Description** (360 character spaces or less.)
   Present: Factors governing the selection of materials for specific needs, fabrication, heat treatment, surface treatment, and other aspects in the production of a satisfactory component. Failure analysis and remedies. Lecture plus assigned problems. Prerequisites: Met 217, 218, 221
   Proposed: Factors governing the selection of materials for specific needs, fabrication, heat treatment, surface treatment, and other aspects in the production of a satisfactory component. Failure analysis and remedies. Lecture plus assigned problems. Prerequisites: Met 217, 218, and 221 with "C" or better.

5. **If course requires field trip check box:** [ ]

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

7. **Prerequisites:**
   Present: Met 217, Met 218, and Met 221
   Proposed: Met 217, Met 218, and Met 221 with "C" or better

8. **Required for Majors:** [X]
   Elective for Majors: [ ]

9. **Justification:** New department standard to improve student success

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:**

**Recommended by DSCC:**

**Approved by Curricula Committee:**

**Approved by Faculty Senate:**

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Date: **3/11/13**

Date: **4/12/2013**

Date: **6/20/13**
CC File #: 8451-2013-MET ENG-331-32

Effective Year: 2013, Effective Term: Spring

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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering

2. Discipline and Course Number: Present: Met 331, Proposed:

3. Course Title: Present: Steels and Their Treatment, Proposed:

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

4. Catalog Description (360 character spaces or less.)

Present: Industrially important ferrous alloys are described and classified. The selection of proper heat treatments to facilitate fabrication and to yield required service properties in steels suitable for various applications is considered.

Proposed: Industrially important ferrous alloys are described and classified. The selection of proper heat treatments to facilitate fabrication and to yield required service properties in steels suitable for various applications is considered.

Prerequisites: Met Eng 217 and Met Eng 218.

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: Met 217 and Met 218

Proposed: Met 217 and Met 218 with "C" or better grade in both MET ENG 217 and MET ENG 218

8. Required for Majors: X, Elective for Majors: □


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) 3) 5)
2) 4) 6)

Recommended by Department: Wayne Haug
(Chair signature)
Date: 2/12/13

Recommended by DSCC: David Foll
(Chair signature)
Date: 3/11/13

Approved by Curricula Committee: David Foll
(Chair signature)
Date: 4/12/2013

Approved by Faculty Senate:
(Chair signature)

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
   
2. Discipline and Course Number: Present: Met 355 Proposed:
   
3. Course Title: Present: Process Metallurgy Applications Proposed:
   
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
   
4. Catalog Description (360 character spaces or less.)
   
   Present: Application of thermodynamics to process metallurgy. Equilibrium calculations with stoichiometry and heat balance restrictions, phase transformations, and solution thermodynamics. Use of thermodynamic software to solve complex equilibria in metallurgical applications. Prerequisite: Cer-Eng-259.
   
   Proposed: Application of thermodynamics to process metallurgy. Equilibrium calculations with stoichiometry and heat balance restrictions, phase transformations, and solution thermodynamics. Use of thermodynamic software to solve complex equilibria in metallurgical applications. Prerequisite: Cer-Eng-259 with "C" or better.
   
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: Cer 259
   Proposed: Cer 259 with "C" or better
   
8. Required for Majors: ☑ Elective for Majors: ☐

9. Justification: New department standard to improve student success

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: [Signature]
   Date: 2/20/13

   Recommended by DSCC: [Signature]
   Date: 3-11-13

   Approved by Curricula Committee: [Signature]
   Date: 4/1/2013

   Approved by Faculty Senate: [Signature]
   Date: 

(Revised December 2013)
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 [X]
- Course Title [ ]
- Catalog Description [ ]
- Course Number [ ]
- Co-listing [ ]

Course Information (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Materials Science & Engineering
2. Discipline and Course Number: Present: Met 381
   Proposed:
3. Course Title: Present: Corrosion and his Prevention
   Proposed:
   Abbreviated Course Title (24 Spaces or less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present: A study of the theories of corrosion and its application to corrosion and its prevention. Prerequisites: Chem 243 or Cer Eng 269. (Co-listed with Chem Eng 381)
   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: Chem 243 or Cer 259
   Proposed: Pass Chem 243 or Cer 259 with "C" or better
   grade in Chem 243 or Cer Eng 259
8. Required for Majors: [X] Elective for Majors: [ ]
9. Justification: Encourage student success through a better understanding of core material
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) ChemE 381
   2) ChemE 381
   3) ChemE 381
   4) ChemE 381
   5) ChemE 381

Recommended by Department
[Chair signature] Date: 1-28-13

Recommended by DSCC
[Chair signature] Date: 3-11-13

Approved by Curricula Committee:
[Chair signature] Date: 4-7-13

Approved by Faculty Senate: [Chair signature] Date: 

(Revised December 2012)
Course Change Form (CC)
This form is for creating or modifying permanent courses.

Course Changes  (Check all changes.)
   New Course  [ ]  Course Deletion [X]  Credit Hours [X]  Prerequisites [X]
   Course Title [X]  Catalog Description [X]  Course Number [X]  Co-listing [X]

Course Information  (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)
1. Department:  Eng Mg & Sys Eng
2. Discipline and Course Number:  Present: Eng Mg 257  Proposed:
3. Course Title:  Present: Materials Handling and Plant Layout
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):
4. Catalog Description (360 character spaces or less.)
   Present:  The design and objectives of materials handling equipment including diversity of application in industry from the viewpoint of efficient movement of materials and products from the receiving areas to the shipping areas. ... Cost comparison of various systems will be made.  (Co-listed with Eng Mg 257)
   Proposed:  The design and objectives of materials handling equipment including diversity of application in industry from the viewpoint of efficient movement of materials and products from the receiving areas to the shipping areas. The layout of a plant to include materials handling equipment is considered throughout. Cost comparison of various systems will be made.
5. If course requires field trip check box:  [ ]
6. Credit Hours:  Present: Lecture 2 Lab 1 Total 3
   Proposed: Lecture  Lab  Total
7. Prerequisites:
   Present:  None
   Proposed:
8. Required for Majors:  [ ]  Elective for Majors:  [X]
9. Justification:  Dropping the co-list with McEng 256, which is being deleted with a separate form.
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)  [ ]
   3)  [ ]
   5)  [ ]
   2)  [ ]
   4)  [ ]
   6)  [ ]

Recommended by Department:  [ ]  Date:  2/19/13
   (Chair signature)

Recommended by DSCC:  [ ]  Date:  2/11/13
   (Chair signature)

Approved by Curricula Committee:  [ ]  Date:  4/12/2013
   (Chair signature)

Approved by Faculty Senate:  [ ]  Date:  
   (Chair signature)

(Revised December 2012)
Effective Year: 2013  Effective Term: Summer ☐ Fall ☑ Spring ☐

**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** (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: **Mech & Aero Engineering**
2. Discipline and Course Number: Present: McEng 256  Proposed:
3. Course Title: Present: **Materials Handling and Plant Layout**
   Proposed:
   
   Abbreviated Course Title (24 Spaces or less. Only needed for New Courses or Title Changes.):

4. Catalog Description (360 character spaces or less.)
   Present: The design and objectives of materials handling equipment including diversity of application in industry from the viewpoint of efficient movement of materials and products from the receiving areas to the shipping areas.
   Proposed:

5. If course requires field trip check box: ☐
6. Credit Hours: Present: Lecture 2  Lab 1  Total 3
   Proposed: Lecture Lab Total

7. Prerequisites:
   Present: **None**
   Proposed:

8. Required for Majors: ☐  Elective for Majors: ☑
9. Justification: **This course has been co-listed with Eng Mg 257. We are deleting only the McEng course.**
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: 1/30/13

   Recommended by DSCC
   (Chair signature)  Date: 3-11-13

   Approved by Curricula Committee:
   (Chair signature)  Date: 4/12/2013

   Approved by Faculty Senate:
   (Chair signature)  Date: ______________
Course Change Form (CC)

This form is for creating or modifying permanent courses.

**Course Changes** (Check all changes.)
- New Course [ ]
- Course Deletion [x]
- Credit Hours [ ]
- Prerequisites [ ]
- Course Title [ ]
- Catalog Description [ ]
- Course Number [ ]
- Co-listing [ ]

**Course Information** (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. **Department:** Mech & Aero Engineering

2. **Discipline and Course Number:** Present: McEng 316 Proposed:

3. **Course Title:** Present: Concurrent Engineering II Proposed:
   - Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.):

4. **Catalog Description** (360 character spaces or less.)
   - Present: Students will form groups and then using the electronic data based approach apply the concurrent engineering process to develop products... (co-listed with AeEng 316)
   - Proposed:

5. **If course requires field trip check box:** [ ]

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

7. **Prerequisites:**
   - Present: AeEng 315 or McEng 315 Proposed:

8. **Required for Majors:** [ ]
   - Elective for Majors: [x]

9. **Justification:** This course has not been taught in many years. Delete both McEng 316 and the co-listed AeEng 316.

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) AeEng 316
    - 2) McEng 316
    - 3) McEng 316
    - 4) McEng 316
    - 5) McEng 316
    - 6) McEng 316

**Recommended by Department**

[Signature]

Date: 2/20/013

**Recommended by DSCC**

[Signature]

Date: 3/11/13

**Approved by Curricula Committee:**

[Signature]

Date: 4/26/13

**Approved by Faculty Senate:**

[Signature]

Date:

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Mech & Aero Engineering
   MECH

2. Discipline and Course Number: Present: MeEng 315  Proposed:

3. Course Title: Present: Concurrent Engineering I
   Proposed: Concurrent Engineering

   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.): Concurrent Engineering

4. Catalog Description (360 character spaces or less.)
   Present: Students will be introduced to the concurrent engineering approach to product development. They will learn to set up quantitative requirements and then use a quantitative rating process to identify the critical requirements relating to the desired product. The interaction between design, manufacturing, assembly, cost, and supportability will be covered.
   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: MeEng 213 or AeEng 231, and EvEng 110
   Proposed:

8. Required for Majors: 
   Elective for Majors: 

9. Justification: With the deletion of the second course in the sequence, this one does not need to be identified as the first.

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) Ae Eng 315
   2) 
   3) 
   4)  
   5) 
   6) 

Recommended by Department
   (Chair signature)

Recommended by DSCC
   (Chair signature)

Approved by Curricula Committee:
   (Chair signature)

Approved by Faculty Senate:
   (Chair signature)

Date: 7/30/2013

Date: 3-11-13

Date: 4/12/2013

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Mech & Aero Engineering

2. Discipline and Course Number: Present: MeEng 381 Proposed:

3. Course Title: Present: Mechanical and Aerospace Control Systems

Proposed:

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

4. Catalog Description (360 character spaces or less.)

Present: Synthesis of mechanical and aerospace systems to perform specific control functions. Response and stability are studied. Singular value analysis for stability margins is introduced. (Co-listed with Ae Eng 381)

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: MeEng 279 or Ae Eng 385

   Proposed: MeEng 279 or Ae Eng 261

8. Required for Majors: [ ]

   Elective for Majors: [ ]

9. Justification: Lower level prerequisite is sufficient for the current material covered.

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) Ae Eng 381
   2) Ae Eng 381
   3) Ae Eng 381
   4) Ae Eng 381
   5) Ae Eng 381
   6) Ae Eng 381

   Recommended by Department ____________________________ Date: 7/20/2013
   (Chair signature)

   Recommended by DSCC ____________________________ Date: 7/10/13
   (Chair signature)

   Approved by Curricula Committee: ____________________________ Date: 4/10/2013
   (Chair signature)

   Approved by Faculty Senate: ____________________________ Date:
   (Chair signature)

(Revised December 2012)
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Mech & Aero Engineering

2. Discipline and Course Number: Present: Mech 363 Proposed:

3. Course Title: Present: Principles and Practice of Computer Aided Design

Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: This course introduces the fundamentals of computer-aided design with emphasis on mathematical representations of curves and surfaces, modeling of solids, and graphic displays. Students will also practice with commercial CAD/CAM packages to gain experiences and to help grasp fundamentals

   Proposed: Lectures cover the fundamentals of computer-aided design with emphasis on geometric modeling of curves, surfaces and solids, CAD/CAM data exchange, and computer graphics. In the lab session, students practice with commercial CAD/CAM systems including NX and SolidWorks to gain practical experience.

5. If course requires field trip check box: □

6. Credit Hours: Present: Lecture 2 Lab 1 Total 3

   Proposed: Lecture Lab Total

7. Prerequisites:

   Present: Comp Sci 53 or 73 or 74, Mech 161, at least junior standing

   Proposed: Comp Sci 53 or 74, Mech 161, Math 22, at least junior standing

8. Required for Majors: □ Elective for Majors: □

9. Justification: The description is reworded to reflect current coverage. The additional math prereq is needed.

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: 7/20/13

   Recommended by DSCC

   (Chair signature) Date: 3/11/13

   Approved by Curricula Committee:

   (Chair signature) Date: 4/12/2013

   Approved by Faculty Senate:

   (Chair signature) Date: 0

   (Revised December 2012)
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 Information  (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Mech & Aero Engineering  
2. Discipline and Course Number: Present: Ae Eng 213  Proposed:
3. Course Title: Present: Aerospace Mechanics I  Proposed:

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

4. Catalog Description (360 character spaces or less.)
   Present: Introduction to celestial mechanics and an analytical study of space flight. Emphasis is placed on satellite orbits and general theory of gyrodynamics.  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: A grade of "C" or better in Ae Eng 160 (or McEng 160), Math 14 (or 8), 15 (or 21), 22, and Physics 23  Proposed: Math 204; A grade of "C" or better in each of Aero Eng 160 (or Mech Eng 160), Math 14 (or 8), 15 (or 21), 22, and Physics 23
8. Required for Majors: □  Elective for Majors: □
10. Semesters previously offered as an experimental course (101, 201, 301, 401):
    1)  
    2)  
    3)  
    4)  
    5)  
    6)  

Recommended by Department  
(Chair signature)  Date: 7/10/2013

Recommended by DSCC  
(Chair signature)  Date: 5/11/13

Approved by Curricula Committee:  
(Chair signature)  Date: 4/12/2013

Approved by Faculty Senate:  
(Chair signature)  Date: 

(Revised December 2012)
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 Information**
(1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)
1. Department: ALP
2. Discipline and Course Number: Present: ALP
   Proposed: 397
3. Course Title: Present:
   Proposed: Multidisciplinary Studies Capstone

**Abbreviated Course Title:**
(24 Spaces or Less. Only needed for New Courses or Title Changes.)
Present:

Proposed: Individually designed by the student and advisor with the approval of the advisory committee, this course is to reflect the student's ability to synthesize methods and knowledge from each focus area in his/her program into an academically coherent product.

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: Senior status
8. Required for Majors: [ ]
   Elective for Majors: [ ]
9. Justification: This is the final course in the Bachelor of Multidisciplinary Studies degree program.

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: [Signature]
   Date: Jan 23, 2013
   Recommended by Discipline Specific Curricula Committee: [Signature]
   Date: Jan 23, 2013
   Approved by Curricula Committee: [Signature]
   Date: 4/12/09
   Approved by Faculty Senate: [Signature]
   Date: [Signature]
   Date: [Signature]
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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)

1. Department: Physics
   Proposed: PHYSICS

2. Discipline and Course Number: Present: Proposed: 382

3. Course Title: Present: Transport in Nanostructures: An Introduction
   Proposed:
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.): Nanostructures

4. Catalog Description (360 character spaces or less.): Present: The course overviews how wave interference, energy quantization and tunneling phenomena influence the wave (electron and light) transport in modern nanostructured materials and devices such as quantum dots, quantum wells, quantum wires, and photonic crystals.
   Proposed:

5. If course requires field trip check box: [ ]

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

7. Prerequisites:
   Present: Physics 107 or 207
   Proposed:

8. Required for Majors: [ ]
   Elective for Majors: [ ]

9. Justification: This was an experimental course that was offered in FS09 and FS11

10. Semesters previously offered as an experimental course (101, 201, 301, 401): FS09 and FS11

11. List all co-listed courses, initiated by Dept. Chair, if signature does not appear below.
   1)  3)  5)
   2)  4)  6)

Recommended by Department
[Signature] Date: 2-26-13

Recommended by DSIC
[Signature] Date: 3/8/2013

Approved by Curricula Committee
[Signature] Date: 4/12/2013

Approved by Faculty Senate
[Signature]

(Revised December 2012)
Effective Year: 2013  Effective Term:  Summer ☐  Fall ☒  Spring ☐

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 (Sections 1-9 must be completed. Leave "Proposed" items blank if no change is being made.)
1. Department: Electrical & Computer Engineering
2. Discipline and Course Number: Present: EE 301  Proposed: EE 339
3. Course Title: Present: Autonomous Mobile Robots
   Proposed: Autonomous Mobile Robots
   Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.): Autonomous Mobile Robots
4. Catalog Description (360 character spaces or less.)
   Present: This course will provide an introduction to mobile robots and current approaches to robot autonomy. Topics include mobile robot systems, modeling and control, sensors and estimation, localization and mapping, and motion planning.
   Proposed: same as above
5. If course requires field trip check box: ☐
6. Credit Hours: Present: Lecture 3  Lab 0  Total 3
   Proposed: Lecture 3  Lab 0  Total 3
7. Prerequisites:
   Present: EE 231 or equivalent and Stat 217 or equivalent, or consent of instructor
   Proposed: EE 231 or equivalent and Stat 217 or equivalent, or consent of instructor
8. Required for Majors: ☐  Elective for Majors: ☒
9. Justification: This is a popular and relevant course for the control area.
10. Semesters previously offered as an experimental course (101, 201, 301, 401): FS2012 & SP2013
11. List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.
   1)  3)  5)
   2)  4)  6)

Recommended by Department: [Signature]

Recommended by DSCC: [Signature]

Approved by Curricula Committee: [Signature]

Approved by Faculty Senate: [Signature]

Date: 6 Mar 2013
Date: 3/11/13
Date: 4/12/2013

(Revised December 2012)
Effective Year: 2013  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 Spring 2009 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:** NE 301

**Course Title:** Applied Mathematics in Nuclear Engineering  
**Abbreviated Title (24 spaces or less):** Applied Math in NE

**Instructor(s):** Dr. Gary E. Mueller

**Credit Hours:** Lecture 3.0  Lab 0  Total 3

**Prerequisites:** NE 303

**Semester(s) previously taught:** FS2008

**Brief Course Description (360 character spaces or less):** Application of ordinary and partial differential equations in the solution of nuclear engineering problems, particularly with the neutron kinetics equations. Bessel’s equation and special functions, eigenvalue problems, Green’s function, integral methods and transformations.

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

1)  3)  5)
2)  4)  6)

**Recommended by Department:**  
[Signature]  
**Date:** 2012-01-17

**Recommended by DSCC:**  
[Signature]  
**Date:** 02/19/13

**Approved by Curricula Committee:**  
[Signature]  
**Date:** 4/12/2013

11/2/2012  
(Revised October 2012)
Experimental Course Form (EC)

This form must be filed with the Secretary to the Campus Curricula Committee, after the department chair's and college dean's notation, by the appropriate deadline. Filing deadlines for inclusion in the pre-registration Schedule of Classes are as follows:

Summer and Fall Semester Offerings – January 1
Winter Semester Offerings – August 1

Filing deadlines for inclusion in the Revised Schedule of Classes are April 30 and October 1. An EC form must be submitted each semester it is to be offered, not to exceed two offerings. An experimental course that is required should be submitted on a CC form. Co-listed offerings should be submitted on one form, originating from the primary discipline.

School or College: Engineering
Department: CArEE
Discipline and Course Number: ArchE 301
Course Title: Passive Solar Engineering
Abbreviated Title (24 spaces or less): Solar Engineering
Instructor(s): Baur
Credit Hours: Lecture: 2 Lab: 1 Total: 3
Prerequisites: ME 371 or instructor's consent

Semester(s) previously taught: New

Brief Course Description: (40 words or less)
This course will treat topics in passive solar analysis and design. It will deal with various types of passive space heating and cooling systems applying principles of theory to actual application through the use of both computer modeling techniques and actual case studies. Both instantaneous and long-term performance will be analyzed. Economics and construction topics will be discussed.

List all co-listed courses: Include initials of Dept. Chair(s) and Dean(s) if signatures are not already included below.
1. 
2. 
3. 

Department Chair: [Signature]
Date: 2/11/13

College/School Dean: [Signature]
Date: 3/11/13

UMR Curricula Committee: [Signature]
Date: 4/12/2013

(Revised 2/14/2002)
ArchE 301 – PASSIVE SOLAR ENGINEERING

Instructor: Stuart W. Baur, Ph.D., AIA
Civil, Architectural and
Environmental Engineering
Office: Butler Carlton Hall - Room 329
Phone: 573-341-7236
Email Address: baur@mst.edu

Class Hours: Lec: T 10:00am-10:50am
Text: Principles of Solar Engineering,
F. Kreith, J. Kreider, D.Y., Goswami
Heating, Cooling and Lighting
N. Lechner

Catalog Description: This course will treat topics in passive solar analysis and design. It will
deal with various types of passive space heating and cooling systems. Both instantaneous and
long-term performance will be analyzed. Economics and construction topics will be
discussed.

Catalog Materials: Notes will be distributed by the instructor at the start of the course and
periodically throughout the semester. A selection of books will be kept on reserve in the
University library. New information relating to the subject matter will be introduced
throughout the course and will be implemented when and where possible.

Course Objectives: The purpose of this course is to expose students to the current, state-of-the-art
methods for analyzing passive solar methods in buildings. This is a graduate course and a measure of
independent initiative is expected along with the usual expectation for the high quality work
commensurate with graduate school. Both engineering and economic aspects of solar conversion will
be emphasized. To synthesize these disciplines a term project will be required of each student as
described below.

Project: Each student will be required to complete a project by the end of the semester. The project
may be selected from the attached list or devised independently pending prior approval. The project
must be approved by the instructor. The final report for each project will be distributed electronically
to the rest of the class for future use in their professional careers. Therefore, the topics have been
selected with regard to practical utility and to innovative results.

Each report (except the first) must include:

- abstract
- introduction and problem statement
- results to date and project status
- problems encountered and their solutions
- conclusions
- bibliography
- appendices (including, for example, computer programs and output)

The report will outline a description in detail of the final output of the project (the details of the
format of this report are covered by a separate handout). An oral presentation of the results will be
made near the end of the semester. Copies of the final report will be provided to each member of the
class in electronic form along with two paper copies for the instructor. Progress on projects will be
discussed periodically in class. The highest quality reports will be submitted for publication in
archival journals if the authors so choose.

Grade Policy: Grades will be assigned using the following grading scheme:

Homework - 40%
Case Studies - 40%
Final Project - 20%
Grade Basis: 70 > D > 60, 80 > C > 70, 90 > B > 80, 100 > A > 90

There are no exams in this course. No curve will be used on the grades.
Project List:

1. Comparison of Measured vs. Predicted Passive System Performance (1)
   The instructor will give students some ideas for locating a passively heated solar residence in the Rolla area. Discuss with the owner his/her interest in having the system's performance analyzed. If interested, the owner should expect to provide students previous year's of utility bills and a set of plans (some of which you will want to copy and return). Compare the actual utility usage with the predictions of the un-utilizability method or an hourly simulation code (SUNCODE or TRNSYS). Students should try to avoid homes which use a significant amount of wood energy for heat since the efficiency of wood heating is nearly impossible to determine.

2. Decathlon Solar House
   Principles of passive design have and have not been incorporated in the design of the solar decathlon homes and its surrounding conditions. The task in this project is to research three homes (from other schools) developing simulation models based on their designs and location and determining its effectiveness in employing their passive solar designs.

3. Daylighting (1)
   Buildings with large areas of glass are difficult to calculate the benefits in terms of reducing the need for artificial lighting due to improved daylighting. The assignment for this project is to create a simplified method for determining the electricity savings due to daylighting in residences. Assess the suitability of the daylight factor method for this simplified approach (see Solar Design, by Kreider, Hoogendoorn and Kreith, 1990, for an overview in Chapter 10).

4. Passive Cooling (1)
   The technologies that work for passive cooling are much less well understood than those for heating. The assignment for this project is to prepare a summary of this technology in a 10- to 15-page report with a full bibliography of quality publications. Students will want to evaluate all resources and reports on the Internet. A person picking up this report should be able to gain an understanding of the approaches that have been demonstrated to work and those that do not. Case studies and data collected on passively cooled buildings should be included.

5. Sustainable Buildings (2)
   Sustainable building design is aimed at the energy efficient design of building systems and materials. It is required to assemble a complete data base on the assessment techniques to be used for Life Cycle Analysis of Buildings. A preliminary report on some resources for this study has already been assembled. The student's project is aimed at creating a quantitative tool to assess buildings on a Life Cycle Basis and to collect all data needed. The student will select an example residence and do an LCA study on it.

6. Solar Chimney (2)
   One method of enhancing the flow of cooling air through a building in summer is to create a solar heated chimney. This project will not assess the economic but rather will assess the technical feasibility of this concept. The deliverable of the project is a design tool that will require a handful of inputs and will predict the ventilation airflow on a typical sunny summer day. An earlier unsuccessful attempt at this could serve as some background reading.

7. Other Topics
   If a student has a topic that he/she wishes to pursue other than the ones listed above, the student may seek approval of the instructor for any topic requiring the analysis or synthesis of passive solar design principles.
Effective Year: 2013  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 Spring 2009 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: Business and Information Technology

Discipline and Course Number: MKT 301

Course Title: ☑ Integrated Marketing Communications

Abbreviated Title (24 spaces or less): Integrated Mktg Comm

Instructor(s): Dr. Sarah Stanley

Credit Hours: Lecture 3  Lab 0  Total 3

Prerequisites: At least Junior Standing

Semester(s) previously taught: None

Brief Course Description (360 character spaces or less): Course illustrates the importance of creating synergy within a marketing campaign. Speaking with ‘one voice’ allows a brand to make a stronger impact; so students will work with a local non-profit to improve their marketing message at each customer touch point. Students will analyze a marketing plan and work to improve it, including brochures, donation letters, and letters.

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

1)  3)  5)
2)  4)  6)

Recommended by Department: ____________________________ Date: 3/6/2013

(Chair signature)

Recommended by DSCC: ____________________________ Date: 3/7/2013

(Chair signature)

Approved by Curricula Committee: ____________________________ Date: 4/12/2013

(Chair signature)