



MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Formerly University of Missouri-Rolla

Minutes of the Campus Curricula Committee Meeting

April 3, 2013

12 pm, Room 117 Fulton Hall

Attendees: Lahne Black, Barry Flachsbarth, Irina Ivliyeva, 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 #0467	DC #0471
DC #0455	DC #0468	DC #0473
DC #0456		

Course Change Forms:

CC #8307	CC #8393	CC #8427
CC #8370	CC #8394	CC #8443
CC #8371	CC #8395	CC #8444
CC #8372	CC #8396	CC #8448
CC #8373	CC #8397	CC #8449
CC #8374	CC #8398	CC #8450
CC #8375	CC #8399	CC #8451
CC #8376	CC #8400	CC #8452
CC #8377	CC #8401	CC #8453
CC #8378	CC #8402	CC #8454
CC #8380	CC #8403	CC #8455
CC #8381	CC #8404	CC #8456
CC #8382	CC #8405	CC #8457
CC #8383	CC #8408	CC #8458
CC #8384	CC #8409	CC #8459
CC #8387	CC #8410	CC #8460
CC #8388	CC #8411	CC #8461
CC #8389	CC #8412	CC #8462
CC #8390	CC #8413	CC #8463
CC #8391	CC #8425	
CC #8392	CC #8426	

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MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Formerly University of Missouri-Rolla

Experimental Course Forms:

EC #2459

EC #2461

EC #2462

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

A handwritten signature in black ink, appearing to read "Daniel Tauritz", written over a horizontal line.

Daniel Tauritz, Chair

Missouri S&T Campus Curricula Committee

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Effective Year: FS2013

Effective Term: Summer ☐ Fall ☒ Spring ☐

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

DC #0454-2013-EE-000-00

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:

Electrical Engineering B.S. Program (General & all 7 Emphasis Areas)

Department: Electrical & Computer Engineering

Briefly describe action requested (Attach documentation as appropriate):

The EI Eng Elective D, Elective E, and free elective courses are updated. The EI 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 EI Eng Elective D footnote (16) from the the catalog will be modified:

EI Eng Elective D must be a 300-level EI Eng or Cp Eng course with at least a 3-hour lecture component. EI Eng and Cp Eng 300, 38X, 390, 391, and 392 may not be used for Elective D.

The EI Eng Elective E footnote (17) from the the catalog will be modified:

EI Eng Elective E may be any 200 or 300-level EI Eng or Cp Eng course except EI 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. EI 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 EI Eng 202 or Cp Eng 202 may be applied to the B.S. degree for free electives.

Recommended by Department:

Keln Ensh
(Chair signature)

Date: 1/29/13

Recommended by:

Dan Raper
(Chair signature)

Discipline Specific Curricula Committee

Date: 02/19/13

Approved by Curricula Committee:

Daniel J. Smith
(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

Effective Year: FS2013

Effective Term: Summer ☐ Fall ☒ Spring ☐

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

DC #0455-2013-EE-000-00

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:

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 EI Eng 217 and EI Eng 218 prerequisites have been changed. These courses may be taken with just EI Eng 153 and Math 204 each with a grade of "C" or better and passing the EI Eng Advancement Exam II. Approved at the April 16, 2012 ECE Faculty Meeting.

The EI Eng footnote (9) from the the catalog will be modified (modify list):

Students must earn a passing grade in the EI Eng Advancement Exam II (associated with EI Eng 153) before they enroll in EI Eng 205, 207, 208, 209, 215, 216, 217, 218, 253, 255, or 271, or other courses with EI Eng 153 as a prerequisite.

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

Recommended by Department: Keln Enlin
(Chair signature)

Date: 1/29/13

Recommended by: Don G. Raper
Discipline Specific Curricula Committee (Chair signature)

Date: 02/19/13

Approved by Curricula Committee: Daniel Lunt
(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate: _____
(Chair signature)

Date: _____

Effective Year: FS2013**Effective Term:** Summer ☐ Fall ☒ Spring ☐
(Creating or modifying a degree program must be effective for a Fall term)

DC #0456-2013-CpE+DDD-DD

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: 1/24/13

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: _____

Effective Year: 2013

Effective Term: Summer ☐ Fall ☒ Spring ☐

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

DC # 0467-2013-Psych-
000-00

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:

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:

Nancy Stone
(Chair signature)

Date:

2/8/13

Recommended by:

Ray Thompson
(Chair signature)

Date:

2/19/2013

Approved by Curricula Committee:

Daniel Jantz
(Chair signature)

Date:

4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date:

Effective Year: 2013

Effective Term: Summer ☐ Fall ☒ Spring ☐

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

DC # 0468-2013-Psych-
000-00

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:

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:

Nancy Stone
(Chair signature)

Date:

2/8/13

Recommended by:

Dan Hersholt
(Chair signature)

Date:

2/19/2013

Approved by Curricula Committee:

Daniel Junt
(Chair signature)

Date:

4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date:

Effective Year: 2013

DC # 0471-2013-IST-000-00

Effective Term: Summer ☐ Fall ☒ Spring ☐

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

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:

Information Science and Technology B.S., Minor in Digital Supply Chain Management

Create a Department: Business and Information Technology *ing*

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: _____

(Chair signature)

Date: 2/19/13

Recommended by: _____

Discipline Specific Curricula Committee

(Chair signature)

Date: 3/7/13

Approved by Curricula Committee: _____

(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

Concurrence by Program: _____
(Manufacturing Engineering)


(Chair signature)

Date: 2-20-2013

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 Elrod (Business and Information Technology)
Dr. Bih-Ru Lea (Business and Information Technology)
Dr. Frank Liou (Manufacturing Engineering)
Dr. Vincent Yu (Business and Information Technology)

DC # 0473-2013-Mech Eng-000-00

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:

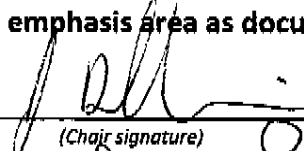
B.S. in Mechanical Engineering, Manufacturing Processes Emphasis Area

Department: **Mech & Aero Engineering**

Briefly describe action requested (attach documentation as appropriate):

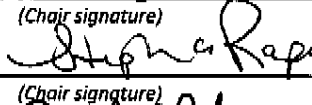
Modify the description for the emphasis area as documented on the accompanying page.

Recommended by Department:


(Chair signature)

Date: 2/20/2013

Recommended by DSCC:


(Chair signature)

Date: 2-11-13

Approved by Curricula Committee:


(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

Revised November 2012

Manufacturing Emphasis Area Modification p. 1 of 2

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:**

- Mc Eng 253 ~~is required~~.
- ~~One of the Mc Eng technical electives must be~~ **One course** from the following Manufacturing/Automation courses: Mc Eng 353, 355, 349, and 306.
- ~~One of the Mc Eng technical electives must be~~ **One course** from the following Design courses: Mc Eng 363, ~~308~~, 356, and 302.
- ~~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: McEng 308, 358**
- 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^f	3
Manufacturing Technical Elective^f	3
Manufacturing Technical Elective^f	3
Elective Literature	3
	17

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^f	3
Manufacturing Technical Elective^f	3
Electives-Hum or Soc Sci	3
	13

Manufacturing Emphasis Area Modification p. 2 of 2

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

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # 8307-2012-Exp Eng-
411-10**Course Change Form (CC)**

This form is for creating or modifying permanent courses.

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

1. Department: 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, ~~intellectual~~ ^{dissertation} composition, concepts of originality and intellectual property.

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 *SF* 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:

10/22/12

Date:

10/29/12

Date:

4/12/2013

Date:

Effective Year: ~~FS2013~~ ²⁰¹³Effective Term: Summer ☐ Fall ☒ SpringCC File # 8370-2013-CPE202-31

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:

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)

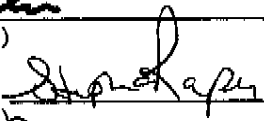
6)

Recommended by Department



(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: _____

Effective Year: ~~2012~~ 2013CC File # 8371-2013-EE202-31Effective 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** (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

Kelvin Evers
(Chair signature)Date: 4/29/13

Recommended by Discipline Specific Curricula Committee

Supriya Rana
(Chair signature)Date: 4/18/13

Approved by Curricula Committee:

Daniel Smith
(Chair signature)Date: 4/12/2013

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

Effective Year: FS2013

CC File # 8372-2013-EE 205-32

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 (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: Lab: 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 Kahn Emelin Date: 1/29/13
(Chair signature)Recommended by Discipline Specific Curricula Committee Steph Raper Date: 02/19/13
(Chair signature)Approved by Curricula Committee: Daniel Smith Date: 4/12/2013
(Chair signature)Approved by Faculty Senate: _____ Date: _____
(Chair signature)

Effective Year: FS2013

CC File # 8373-2013-EE209-32

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** (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)1. **Department:** Electrical & Computer Engineering2. **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


 (Chair signature)

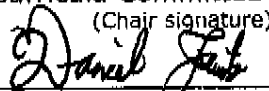
Date: 1/29/13

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:

Effective Year: ~~FS2013~~ 2014
 Effective Term: Summer ☐ Fall ☒ Spring ☒

CC File # 8374-2013-EE 208-32

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: 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. - Sep 14
 bc

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 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 Kelvin Enslin
 (Chair signature)

Date: 1/29/13

Recommended by Discipline Specific Curricula Committee Shirley Roper
 (Chair signature)

Date: 02/19/13

Approved by Curricula Committee: Daniel Jank
 (Chair signature)

Date: 4/12/2013

Approved by Faculty Senate: _____
 (Chair signature)

Date: _____

Effective Year: FS2013 2014
 Effective Term: Summer ☐ Fall ☒ Spring ☒

CC File # 8375-2013-EE 209-32

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: 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: 1 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, initiated by Dept. Chair, if signature does not appear below.

1) 2) 3)

4) 5) 6)

Recommended by Department Kelvin Emsler
 (Chair signature)

Date: 1/20/13

Recommended by Discipline Specific Curricula Committee John Raper
 (Chair signature)

Date: 02/19/13

Approved by Curricula Committee: Daniel Smith
 (Chair signature)

Date: 4/12/2013

Approved by Faculty Senate: _____
 (Chair signature)

Date: _____

Effective Year: FS2013

CC File # 8376-2013-EE215-32

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** (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:

3. Course Title: Present: Discrete 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 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:	Lab:	Total:

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, initiated 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: 02/11/13

Approved by Curricula Committee:


 (Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date:

Effective Year: FS2013

Effective Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8377-2013-EE216-32

Course Change Form (CC)

This form is for creating or modifying permanent courses.

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

1. Department: Electrical & Computer Engineering

2. Discipline and Course Number: Present : EE 216

Proposed:

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, initiated by Dept. Chair, if signature does not appear below.

1) 2) 3)

4) 5) 6)

Recommended by Department



(Chair signature)

Date: 1/24/13

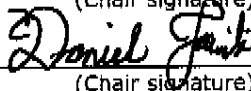
Recommended by Discipline Specific Curricula Committee



(Chair signature)

Date: 02/19/13

Approved by Curricula Committee:



(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date:

Effective Year: ~~FS2013~~ ²⁰¹⁴Effective Term: Summer ☐Fall ☒Spring ☒CC File # 8378-2013-EE 218-32

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: 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:

Lecture:

Lab:

Total:

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 El 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

Kate Enslin
(Chair signature)Date: 4/28/13

Recommended by Discipline Specific Curricula Committee

(Chair signature)

[Signature]Date: 02/19/13

Approved by Curricula Committee:

(Chair signature)

Daniel J. [Signature]Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8380-2013-Ge Eng-352-32

Effective Year: 2014 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: 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 (360 character spaces or less.)

Present:

Proposed:

5. If course requires field trip check box: ☒

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

7. Prerequisites:

Present: 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, Initialed by Dept. Chair, if signature does not appear below.

- 1) CerE352 *KS* 3) 5)
2) MetE352 *KS* 4) 6)

Recommended by Department: *[Signature]* Date: 4-5-13
(Chair signature)

Recommended by DSCC: *[Signature]* Date: 6/2/13
(Chair signature)

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

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

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # 8381-2013-Min Eng-
411-34

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:

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~~ ^{intellectual} composition, concepts of originality and ~~intellectual~~ ^{dissertation} 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)

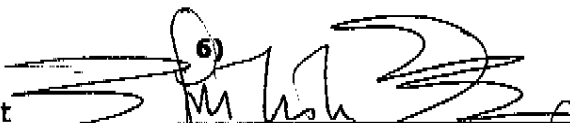
3)

4)

5)

6)


Recommended by Department



(Chair signature)

Date: 2-7-2013

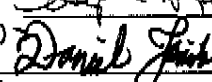
Recommended by Discipline Specific Curricula Committee



(Chair signature)

Date: 02/19/13

Approved by Curricula Committee:



(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # 8382-2013 - Arch Eng -
204-32**Course Change Form (CC)**

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)New Course ☐Course Deletion ☐Credit Hours ☐Prerequisites ☒Course Title ☐

Catalog Description

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

1. Department: Civil, Architectural and Envir

2. Discipline and Course Number: Present: *Arch Eng* 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 *modules* 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:

Lecture: 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

[Signature]

(Chair signature)

Date:

2/5/13

Recommended by Discipline Specific Curricula Committee

[Signature]

(Chair signature)

Date:

3-11-13

Approved by Curricula Committee:

[Signature]

(Chair signature)

Date:

4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date:

(Revised 1/29/09)

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # 8383-2013-Arch Eng -
203-20**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 : 203

Proposed:

3. Course Title: Present: Architectural Design I

Proposed:

Abbreviated Course Title: ArchE 203

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

4. 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: Sophomore 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



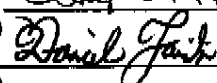
(Chair signature)

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

Date:

Effective Year: ~~F2013~~ ²⁰¹⁴CC File # ~~8384~~ ^{8384-2013-EE217-32}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** (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: 4/24/13


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:

CC File # 8387-2013-CER ENG-103-32

Effective Year: ²⁰¹⁴ ~~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: **Cer 103** ^{ENG} 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 *Wayne Huchra*

(Chair signature)

Date: *2/20/13*Recommended by DSCC *Stephen Raper*

(Chair signature)

Date: *3-11-13*Approved by Curricula Committee: *Daniel Felt*

(Chair signature)

Date: *4/12/2013*Approved by Faculty Senate: _____
(Chair signature)

Date: _____

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

Effective Year: ²⁰¹⁴ 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: **Cer 122** ^{ENG} 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: Cr 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** ^{ENG}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)

*Wayne Huelken*Date: *2/20/12*

Recommended by DSCC

(Chair signature)

*Diane Raper*Date: *3-11-13*

Approved by Curricula Committee:

(Chair signature)

*Daniel J. Smith*Date: *4/12/2013*

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8389-2013-CER ENG-222-32

Effective Year: ²⁰¹⁴ ~~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: **Cer 222** Proposed: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, sophomore, 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: ☒ 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)

*Wayne Huelman*Date: **2/20/13**

Recommended by DSCC

(Chair signature)

*Steve Roper*Date: **3-11-13**

Approved by Curricula Committee:

(Chair signature)

*Daniel Smith*Date: **4/12/2013**

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8390-2013-CER ENG-231-32

Effective Year: ²⁰¹⁴ ~~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: **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: Cer 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

(Chair signature)

*Wayne Huelber*Date: 2/20/13

Recommended by DSCC

(Chair signature)

*Shirley Reps*Date: 3-11-13

Approved by Curricula Committee:

(Chair signature)

*Daniel Smith*Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8391-2013-CER ENG-242-32

Effective Year: ~~2013~~ ²⁰¹⁴ 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: **Cer 242** ^{ENG} 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 Eng 231.**

Proposed:

5. If course requires field trip check box: ☐

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

7. Prerequisites: **ENG**
Present: **Cer 231**Proposed: ~~Pass prerequisite course with "C" or better~~ **grade in CER ENG 231**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 Hulbur Date: 2/20/13
(Chair signature)Recommended by DSCC Stephen Raper Date: 3-11-13
(Chair signature)Approved by Curricula Committee: Daniel Fink Date: 4/12/2013
(Chair signature)Approved by Faculty Senate: _____ Date: _____
(Chair signature)

CC File # 8392-2013-CER ENG-251-32

Effective Year: ²⁰¹⁴2013 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: **Cer ^{ENG}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

(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:

CC File # 8393-2013-CER ENG-369-32

Effective Year: ~~2013~~ ²⁰¹⁴ 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: **Cer 369** ^{ENG} 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.**

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: **Cer 103** ^{ENG}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) 3) 5)
2) 4) 6)

Recommended by Department

(Chair signature)

*Wayne Hubba*Date: *2/20/13*

Recommended by DSCC

(Chair signature)

*Steve A. Raper*Date: *3-11-13*

Approved by Curricula Committee:

(Chair signature)

*Daniel Jant*Date: *4/12/2013*

Approved by Faculty Senate:

(Chair signature)

Date:

CC File # 8394-2013-CER ENG-284-32

Effective Year: ²⁰¹⁴2013 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: **Cer 284** ^{ENG} Proposed:3. Course Title: Present: **Electrical 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: **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:

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) 3) 5)
 2) 4) 6)

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

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

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

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

CC File # 8395-2013-CER ENG-306-32

Effective Year: ²⁰¹⁴ ~~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: **Cer 306** ^{ENG} 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: ☒ 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 Hudson Date: 2/20/13
 (Chair signature)

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

Approved by Curricula Committee: Daniel J. Smith Date: 4/12/2013
 (Chair signature)

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

CC File # 8396-2013-CER ENG-396-32

Effective Year: ²⁰¹⁴~~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: ^{ENG}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.**

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 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)	3)	5)
2)	4)	6)

Recommended by Department Wayne Huelman

(Chair signature)

Date: 2/20/13Recommended by DSCC Sharon Raper

(Chair signature)

Date: 3-11-13Approved by Curricula Committee: Daniel Fink

(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8397-2013-CER ENG-371-32

Effective Year: **2013** ²⁰¹⁴ 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: **CER ENG 371** Proposed:
 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 Hinkle Date: 3/20/13
 (Chair signature)

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

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

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

CC File # 8398-2013-MET ENG-315-20

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 315** ^{ENG} Proposed: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** ^{ENG}

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: 3-11-13

Approved by Curricula Committee:

(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8399-2013-MET ENG-316-20

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 ^{ENG}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 Wayne Hurler Date: 2/20/13
 (Chair signature)

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

Approved by Curricula Committee: Daniel J. Smith Date: 4/12/2013
 (Chair signature)

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

CC File # 8400-2013-MET ENG-318-20

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** *ENG*
 2. Discipline and Course Number: Present: **Met 318** Proposed:
 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 Hester Date: 2/22/13
 (Chair signature)

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

Approved by Curricula Committee: Daniel J. Smith Date: 4/12/2013
 (Chair signature)

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

CC File # 8401-2013-MET ENG-332-20

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** *ENG*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 Mt-Eng-331.**

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:

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

(Chair signature)

Date: *2/22/13*

Recommended by DSCC

(Chair signature)

Date: *2-11-13*

Approved by Curricula Committee:

(Chair signature)

Date: *4/12/2013*

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8402-2013-MET ENG-354-20

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 354** Proposed: **ENG**
 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) 3) 5)
 2) 4) 6)

Recommended by Department

(Chair signature)

Wayne Huch

Date:

2/22/13

Recommended by DSCC

(Chair signature)

Deane Raper

Date:

3-11-13

Approved by Curricula Committee:

(Chair signature)

Donal J. J.

Date:

4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date:

CC File # 8403-2013-MET ENG-365-20

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 365** ^{Eng} 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: ☒ 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

(Chair signature)

*Wayne Hulme*Date: 2/22/13

Recommended by DSCC

(Chair signature)

*Stephen Raps*Date: 3-11-13

Approved by Curricula Committee:

(Chair signature)

*Donal J. Smith*Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8404-2013-MET ENG-385-20

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** *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 Wayne Hulva Date: 2/22/13
 (Chair signature)

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

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

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

CC File # 8405-2013-MET ENG-403-20

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** ^{ENG} 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 317, 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, initialed by Dept. Chair, if signature does not appear below.

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

Recommended by Department Wayne Hurd Date: 2/22/13
 (Chair signature)
 Recommended by DSCC Dep't Rep Date: 3-11-13
 (Chair signature)
 Approved by Curricula Committee: Daniel Jant Date: 4/12/2013
 (Chair signature)
 Approved by Faculty Senate: _____ Date: _____
 (Chair signature)

CC File # 8408-2013-MET ENG-125-32

Effective Year: ~~2013~~ ²⁰¹⁴ 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 125** Proposed: **ENG**
 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 (360 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: **Chem1**

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) 3) 5)
 2) 4) 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: _____

(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 Mt Eng 203, or an equivalent training program approved by S&T.**Proposed: **A series of laboratory experiments designed to illustrate the principles of pyrometallurgy, hydrometallurgy, and electrometallurgy. Prerequisites: Preceded or accompanied by Mt Eng 203.**5. If course requires field trip check box: ☐6. Credit Hours: Present: Lecture ☒ Lab ☐ Total ☐Proposed: Lecture ☐ Lab ☐ Total ☐

7. Prerequisites:

Present: **Met203 prior or concurrent, Chem 4 prior or concurrent**Proposed: **Met 203 prior or concurrent preceded or accompanied by MET ENG 203**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

(Chair signature)

*Wayne Hubbs*Date: 2/22/13

Recommended by DSCC

(Chair signature)

*Shane Raper*Date: 3-11-13

Approved by Curricula Committee:

(Chair signature)

*David Jank*Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8410-2013-MET ENG-203-32

Effective Year: ²⁰¹⁴~~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 ^{ENG}203** Proposed:
3. Course Title: Present: **Introduction to Extractive 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: **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**
Proposed: Lecture Lab Total

7. Prerequisites: **ENG** **ENG** **CHM**
Present: **Met 281, or Cer 259, or Ch Eng 143**
Proposed: **Met 125 with "C" or better** *grade in MET ENG 125*

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 *Wayne Huber* Date: 2/22/13
(Chair signature)

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

Approved by Curricula Committee: *Daniel J. Smith* Date: 4/12/2013
(Chair signature)

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

CC File # 8411-2013-MET ENG-204-32

Effective Year: ²⁰¹⁴ ~~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 204** ^{ENG} 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 50**

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 Wayne L. Fisher Date: 2/22/13
(Chair signature)

Recommended by DSCC John A. Rife Date: 3-11-13
(Chair signature)

Approved by Curricula Committee: Daniel J. Smith Date: 4/12/2013
(Chair signature)

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

CC File # 8412-2013-MET ENG-215-32

Effective Year: ~~2013~~ ²⁰¹⁴ 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 ^{ENG} 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: **ENG**
 Present: **Met 121 and Civ Eng 110**

Proposed: **Met ^{ENG} 121 and Civ ^{ME} 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) 3) 5)
2) 4) 6)

Recommended by Department Wayne Huchner Date: 2/22/13
 (Chair signature)

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

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

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

CC File # 8413-2013-MET ENG-217-32

Effective Year: ²⁰¹⁴~~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: **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 121.**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 preceeded 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, grade in MET ENG 121; No accompanied or preceeded 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

(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: _____

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # 8425-2012-Min Eng
476-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: Mining and Nuclear Engineering

2. Discipline and Course Number: Present :

Proposed: Mi Eng 476

3. Course Title: Present:

Proposed: Sustainability In Mining

Abbreviated Course Title: ~~Sus In Mining~~ Sustainability In Mining
 (24 Spaces or Less. Only needed for New Courses or Title Changes.)

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

Present:

Proposed: Sustainability defined: social, economic & environmental impacts. Mining as sustainable development interventions. Mine planning for sustainability, sustainability assessment & reporting, sustainable mine closure & post-mining land use. Case studies.

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: 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) 6)

Recommended by Department

Recommended by Discipline Specific Curricula Committee

Approved by Curricula Committee:

Approved by Faculty Senate:

(Chair signature)

(Chair signature)

(Chair signature)

(Chair signature)

Date: 11-14-12

Date: 12-19-12

Date: 4/12/2013

Date: _____

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # 8426-2012-Min Eng
424-10**Course Change Form (CC)**

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

Course Information (1-9 Must Be Completed. Leave "Proposed" items blank if no change is being made.)1. **Department:** Mining and Nuclear Engineering2. **Discipline and Course Number:** Present :

Proposed: Mi Eng 424

3. **Course Title:** Present:

Proposed: Underground Mine Design

Abbreviated Course Title: ~~Und Mine Des~~ *Underground Mine Design*
 (24 Spaces or Less. Only needed for New Courses or Title Changes.)

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

Present:

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:	Lecture:	Lab:	Total:
	Proposed:	Lecture: 3	Lab: 0	Total: 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



(Chair signature)

Date: 11-14-12

Recommended by Discipline Specific Curricula 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)

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐CC File # 2427-2012-Mining
426-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: 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 (300 Character Spaces or Less.)

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:	Lecture:	Lab:	Total:
	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) 6)

Recommended by Department: _____

(Chair signature)

Date: 11-14-12

Recommended by Discipline Specific Curricula Committee: _____

(Chair signature)

Date: 12-14-12

Approved by Curricula Committee: _____

(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

CC File # 8443-2013-MET ENG-221-32

Effective Year: ~~2013~~ ²⁰¹⁴ 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 221** ^{ENG} 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: Mt 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: Mt 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: ^{ENG}Present: **Met 121**Proposed: ^{ENG} ~~Met 121~~ with "C" or better *grade in MET ENG 121*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

(Chair signature)

Wayne Humber

Date:

2/22/13

Recommended by DSCC

(Chair signature)

John L. Rafter

Date:

3-11-13

Approved by Curricula Committee:

(Chair signature)

Daniel Smith

Date:

4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date:

CC File # 8444-2013-CER ENG-259-32

Effective Year: ~~2013~~ ²⁰¹⁴ 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: ~~Cer 259~~ ^{ENG} Proposed:
 3. Course Title: Present: ~~Thermodynamics of Materials~~ ^{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~~ ^{ENG} or Chem 3Proposed: ~~Met 125~~ ^{ENG} or Chem 3 with "C" or better *grade in either MET ENG 125 or Chem 3*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

(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: _____

CC File # 8448-2013-CER ENG-291-32

Effective Year: ²⁰¹⁴~~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: ^{ENG}**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 Met~~

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 Met~~ 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: ^{ENG} Present: **Cer 102 or Met 121, or a similar introductory course on structure of solids**

Proposed: ^{ENG} ~~Cer 102 or Met 121~~, or a similar introductory course on structure of solids, with "C" or better grade in

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 Wayne Hendry Date: 2/22/13
 (Chair signature)

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

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

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

CC File # 8449-2013-MET ENG-307-32

Effective Year: ²⁰¹⁴~~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: ^{ENG}**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: ^{ENG}**Met 221** or ^{ME}**MechE 153**Proposed: ^{ENG}**Met 221** or ^{ME}**MechE 153** with "C" or better *grade in either MET ENG 221 or MECH ENG 153*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

(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:

CC File # 8450-2013-MET ENG-329-32

Effective Year: ²⁰¹⁴ ~~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 329** ^{ENG} Proposed:
 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 Lab Total

7. Prerequisites:

Present: ^{ENG} Met 217, ^{ENG} Met 218, and ^{ENG} Met 221

Proposed: ^{ENG} Met 217, ^{ENG} Met 218, and ^{ENG} Met 221 with "C" or better *grade in all of MET ENG 217, MET ENG 218, and MET ENG 221*

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

(Chair signature)

*Wayne Hurdner*Date: 2/22/13

Recommended by DSCC

(Chair signature)

*Debra Rapp*Date: 3-11-13

Approved by Curricula Committee:

(Chair signature)

*Daniel J. Smith*Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

CC File # 8451-2013-MET ENG-331-32

Effective Year: ~~2013~~ ²⁰¹⁴ 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 331** ^{ENG} 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.****Prerequisites: Met Eng 217 and Met Eng 218.**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 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: ^{ENG} ^{ENG}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: ☒ 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: 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: _____

CC File # 8452-2013-MET ENG-355-32

Effective Year: ²⁰¹⁴ ~~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 355** ^{ENG} 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** ^{ENG}Proposed: **Cer 259 with "C" or better** ^{ENG} *grade in CER ENG 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

(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:

2014
Effective Year: ~~2013~~ Effective Term: Summer ☐ Fall ☐ Spring ☒

CC File # 8453-2013-MET ENG-381-32

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: **Met ^{Eng} 381** Proposed:
3. Course Title: Present: **Corrosion and its 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. Prerequisite: Chem 243 or Cer Eng 259. (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 ^{Eng} **grade in EITHER Chem 243 or CER ENG 259**

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) ChemE 381

3)

5)

2)

4)

6)

Recommended by Department

Walter Hinkle
(Chair signature)

Matthew D. Satter

Date: **2/28/12**

Recommended by DSCC

Stephen Raper
(Chair signature)

Date: **3-11-13**

Approved by Curricula Committee:

Daniel Jank
(Chair signature)

Date: **4/12/2013**

Approved by Faculty Senate:

(Chair signature)

Date:

(Revised December 2012)

CC File # *PY5Y-2013-Eng Mgt - 257-34*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: **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: ☒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)

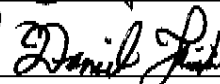
Recommended by Department


 (Chair signature)
Date: 2/19/13

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:

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)

3)

5)

2)

4)

6)

Recommended by Department

(Chair signature)

Date: *2/20/2013*

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: _____

CC File # 8456-2013-Mech Eng-316-20

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 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: ☒

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) **AERO**

3)

5)

6)

Recommended by Department

(Chair signature)

Date: 2/20/2013

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: _____

CC File # 8457-2013-Mech Eng-315-33

Effective Year: ~~2103~~ ²⁰¹³Effective 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: ^{MECH} ~~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: ^{MECH} ^{AERO} ^{CIV}
Present: **Me Eng 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}
^{AERO}

3)

5)

2)

4)

6)

Recommended by Department

(Chair signature)

Date: 2/20/2013

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: _____

CC File # *8458-2013-Mech Eng-381-32*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: **Mech & Aero Engineering**
 2. Discipline and Course Number: Present: *MECH* **McEng 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: *MECH* **Mc Eng 279** or *AERO* **Ae Eng 361**Proposed: *MECH* **Mc Eng 279** or *AERO* **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) *AERO* **Ae Eng 381**

3)

5)

2)

6)

Recommended by Department

(Chair signature)

Date: *2/20/2013*

Recommended by DSCC

(Chair signature)

Date: *2-11-13*

Approved by Curricula Committee:

(Chair signature)

Date: *4/12/2013*

Approved by Faculty Senate:

(Chair signature)

Date:

CC File # *8459-2013-mechEng-363-32*Effective Year: *2014* **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: *MECH* **McEng 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: *COMP SCI* *MECH ENG*Present: ~~Comp Sc 53 or 73 or 74~~, **McEng 161**, at least junior standingProposed: ~~Comp Sc 53 or 73 or 74~~, **McEng 161**, **Math 22**, at least junior standing8. 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) 3) 5)
2) 4) 6)

Recommended by Department

(Chair signature)

Date: *2/20/2013*

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:

Effective Year: **2014** Effective Term: Summer ☐ Fall ☐ Spring ☒

CC File # **8460-2013-Aero Eng-213-32**

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: **Mech & Aero Engineering**
 2. Discipline and Course Number: Present: **AERO 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 gyro dynamics.**

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 Mech Eng 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: ☐

9. Justification: **Additional math background needed.**

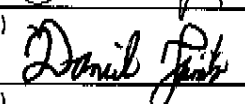
10. Semesters previously offered as an experimental course (101, 201, 301, 401):

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

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

Recommended by Department  Date: 2/20/2013
 (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)

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

CC File # 8461-2013-ALP-397-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: 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.)

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

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 William H. Hays Jr.

(Chair signature)

Recommended by Discipline Specific Curricula Committee W. Hays Jr.

(Chair signature)

Approved by Curricula Committee: William H. Hays Jr.

(Chair signature)

Approved by Faculty Senate: _____

(Chair signature)

Date: Jun 23 2013

Date: Jan 23, 2013

Date: 4/12/2013

Date: _____

CC File # 8462-2013-Physics-382-10Effective 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: **Physics**

2. Discipline and Course Number: Present:

Proposed: **PHYSICS 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 **↓** Lab **↓** Total **↓**

7. Prerequisites:

Present: Physics 107 or 207Proposed: **↓**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

(Chair signature)

Date: 2-26-13

Recommended by DSCC

(Chair signature)

Date: 3/8/2013

Approved by Curricula Committee:

(Chair signature)

Date: 4/12/2013

Approved by Faculty Senate:

(Chair signature)

Date: _____

(Revised December 2012)

CC File # 8463-2013-ELECENG-339-10

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): **F52012 & 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 *Kehi Euskar* Date: 6 Mar 2013
 (Chair signature)

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

Approved by Curricula Committee: *Daniel J. ...* Date: 4/12/2013
 (Chair signature)

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

EC # *2459-FS2013-Nuc Eng-301*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: *NUC ENG*
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: *Arnold Beeman*
(Chair signature)

Date: *2012-01-17*

Recommended by DSCC: *Don E. Laper*
(Chair signature)

Date: *02/19/13*

Approved by Curricula Committee: *Daniel J. Smith*
(Chair signature)

Date: *4/12/2013*

Effective Term: FS13

EC File # 2461 - Fall 2013 - Arch Eng - 301

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: CAEE

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 instructors 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.

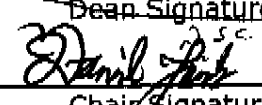
1. _____ 4. _____
2. _____ 5. _____
3. _____ 6. _____

Department Chair: 
Chair Signature

Date: 2/11/13

College/School Dean: 
Dean Signature

Date: 3-11-13

UMR Curricula Committee: 
Chair Signature

Date: 4/12/2013

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.

EC # 2462-552013-MKT 301Effective 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, ^{and} donation ^{letters.} lets-**

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: _____

(Chair signature)

Date: 3/6/2013

Recommended by DSCC: _____

(Chair signature)

Date: 3/7/2013

Approved by Curricula Committee: _____

(Chair signature)

Date: 4/12/2013