



# MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

*Formerly University of Missouri-Rolla*

## **Minutes of the Campus Curricula Committee Meeting**

**May 21, 2013**

**9 am, Room 106B Parker Hall**

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

The meeting agenda was amended to

- Remove CC #8386 from the Tabled items
- Add CC #8447 to the Tabled items
- Change "Online Curricula Workflow Demo" to "Online Curricula Workflow Discussion"

The following curriculum forms were discussed and approved:

**Degree Change Forms:**

DC #0466

DC #0476

**Course Change Forms:**

CC #8468

CC #8472

CC #8469

CC #8473

CC #8470

CC #8474 (EC #2467)

CC #8471

**Experimental Course Forms:**

EC #2468

EC #2469

The items below remain tabled pending further action/clarification to be provided by the academic department responsible for each:

CC #8385, Ceramic Engineering 261, Materials Senior Design I.

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.

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## MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

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*Formerly University of Missouri-Rolla*

Course Renumbering Initiative: The Committee discussed the initiative at length and provided suggestions for the implementation template to the Campus Course Renumbering Committee. The Committee unanimously voted to include a motion on its report to the June 2013 Faculty Senate meeting to approve the course renumbering proposal modified per the suggestions provided and consisting of the so modified course renumbering scheme document and FAQ.

Associating Minors with DSCCs: After discussion, the Committee voted to forward a proposal to RP&A.

Online Curricula Workflow Discussion: Curricula forms will soon be submitted electronically and approved at each stage (Department Chair, DSCC Chair, CCC Chair, Faculty Senate President) using workflow. A printable PDF will still be available for review prior to CCC meetings and archived on the CCC website.

The meeting adjourned at 11:20 am.

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

DC # 0466 - 2013 - MS&amp;E - 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. minor in Materials Science & Engineering**

Department: **Materials Science & Engineering**

Briefly describe action requested (attach documentation as appropriate):

**Discontinue offering the Minor in Materials.**

In the January 2013 curriculum review meeting by the Materials Science and Engineering Department faculty, it was decided to discontinue offering the Materials Minor (Vote of 15 to discontinue minor, 2 to continue offering the minor and 1 abstaining). The faculty felt that the the current Materials Minor requirements of 15 hours does not provide students with sufficient materials background to be designated a Materials Minor. Most Materials Minors come from the Mechanical Engineering Department where students can take 12 hours as a part of their required ME curriculum (ME153, Met 121 and two ME tech electives: ME 336 and ME 338) allowing students to get a minor in materials with only one more 3 hour course. The faculty found this to be an insufficient materials background to continue providing a minor in materials.

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

*Wayne Hulse*  
(Chair signature)

Date: 2/6/13

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

*John Kopen*  
(Chair signature)

Date: 02/19/13

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

*Daniel J. Smith*  
(Chair signature)

Date: 5/24/2013

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

(Chair signature)

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

Effective Fall 2013, the Minor in Materials will no longer appear in the undergraduate catalog or be available for students to declare. Students currently enrolled in the minor will be allowed to complete the minor.

Effective Year: 2013

Effective Term: Summer ☐ Fall ☒ Spring ☐

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

DC # 0476-2013-GeoEng-00000

## Degree Change Form (DC)

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

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

Bachelor of Science in Geological Engineering

**Department:** Geological Sciences and Engineering

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

The course list for the Engineering Econ Elective in the catalog (item f) should be amended as follows ~~(see attachments)~~

Add: Min <sup>Eng</sup> E 270.

Old:

To be selected from Eng Mgt 308 or PE 357 or both Eng Mgt 124 and Eng Mgt 137.

New:


To be selected from Eng Mgt 308, Min <sup>Eng 270</sup> E 207, or <sup>PE + Eng</sup> PE 357 or both Eng Mgt 124 and Eng Mgt 137.

Recommended by Department:

  
(Chair signature)

Date: April 19/13

Recommended by Discipline Specific Curricula Committee:

  
(Chair signature)

Date: 4/30/13

Approved by Curricula Committee:

  
(Chair signature)

Date: 5/24/2013

Approved by Faculty Senate:

\_\_\_\_\_  
(Chair signature)

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

CC File # 8468-2013-AeroEng-161-32Effective Year: <sup>2014</sup>~~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: **Mechanical & Aerospace Engineering**2. Discipline and Course Number: Present: <sup>Aero Eng</sup>~~AE 161~~ Proposed:3. Course Title: Present: **Aerospace Vehicle Performance**

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: **Nature and theory of lift, drag, performance, and stability and control of aerospace vehicles.**~~Prerequisite: Physics 23.~~Proposed: **Nature and theory of lift, drag, performance, and stability and control of aerospace vehicles.**~~Prerequisite: "C" or better in Math 15 and Physics 23 is required for enrollment.~~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 23**Proposed: <sup>grade</sup>"C" or better in Math 15 and Physics 238. Required for Majors: ☒ <sup>both</sup> Elective for Majors: ☐9. Justification: **Material covered requires mastery of Physics 23 and Math 15 content**

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: 4/9/2013

Recommended by DSCC

(Chair signature)

Date: 4/18/13

Approved by Curricula Committee:

(Chair signature)

Date: 5/24/2013

Approved by Faculty Senate:

(Chair signature)

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

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8469-2013-Sys Eng - 435-32

## Course Change Form (CC)

This form is for creating or modifying permanent courses.

### Course Changes (Check all changes.)

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

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

1. Department: Eng Management and Systems Eng

2. Discipline and Course Number: Present: Sys Eng 435 Proposed:

3. Course Title: Present: Model Based Systems Engineering

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:** This course covers the use of models to represent systems and the underlying system elements, components, etc. Topics also include SysML, executable systems architectures, model repositories, integration of models and information, and use of MBSE in distributed systems.

**Proposed:** Provides the student with understanding of the use of models to represent systems and validate system architectures. The student will gain proficiency in using a systems modeling language and shifting systems engineering from a document centric to a model centric paradigm.

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: Sys Eng 433

Proposed: Sys Eng 433 or both a "C" or better grade in Comp Sci 206 and instructor approval

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

9. Justification: Co-listing course with Computer Science for the existing graduate certificate "Systems and Software Architecture" and updating course description.

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) ~~Comp Sci~~ 405 XFL 2) 3)

4) 5) 6)

Recommended by Department Daniel Ende

(Chair signature)

Date: 4/23/13

Recommended by Discipline Specific Curricula Committee John Raper

(Chair signature)

Date: 4/30/13

Approved by Curricula Committee: Daniel Ende

(Chair signature)

Date: 5/24/2013

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

(Chair signature)

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

(Revised 1/29/09)

Effective Year: 2013

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8470-2013-Comp Sci - 405-10

**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: Computer Science

2. Discipline and Course Number: Present :

Proposed: Comp Sci 405

3. Course Title: Present:

Proposed: Model Based Systems Engineering

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: Provides the student with understanding of the use of models to represent systems and validate system architectures. The student will gain proficiency in using a systems modeling language and shifting systems engineering from a document centric to a model centric paradigm.

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: Sys Eng 433 or both a "C" or better in Comp Sci 206 and instructor approval

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

9. Justification: Creating co-listing of Sys Eng 435 for the existing graduate certificate "Systems and Software Architecture".

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) SysEng 435 *DE* 2) 3)

4) 5) 6)

Recommended by Department *[Signature]*

(Chair signature)

Recommended by Discipline Specific Curricula Committee *[Signature]*

(Chair signature)

Approved by Curricula Committee: *[Signature]*

(Chair signature)

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

(Chair signature)

Date: 4/23/13

Date: 5/8/2013

Date: 5/24/2013

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

(Revised 1/29/09)

CC File # 8471-2013-CompSci-346-10

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: **Computer Science**

2. Discipline and Course Number: Present: **Comp Sci 301** Proposed: **Comp Sci 346**

3. Course Title: Present: **Introduction to Computational Perception and Cognition**

Proposed: **Introduction to Computer Vision**

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

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

Present:

Proposed: **This course introduces foundational theories and analysis methods in computer vision. Topics will include camera model and geometry, description of visual features, shape analysis, stereo reconstruction, motion and video processing, and visual object recognition.**

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: **A "C" or better grade in both Math 208 and Comp Sci 253**

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

9. Justification: **Students like this course as the evaluation was 3.9 in Spring 2012. Topics will focus on computer vision.**

10. Semesters previously offered as an experimental course (101, 201, 301, 401): <sup>18</sup>SP2012, <sup>13</sup>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

(Chair signature)

Date: 4/26/13

Recommended by DSCC

(Chair signature)

Date: 5/8/2013

Approved by Curricula Committee:

(Chair signature)

Date: 5/24/2013

Approved by Faculty Senate:

(Chair signature)

Date:

(Revised December 2012)



Effective Year: 2014

Effective Term: Summer ☐ Fall ☐ Spring ☒

CC File # 8472-2013-Geo Eng-407-10

**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: GSE

2. Discipline and Course Number: Present :

Proposed: *Geo Eng* GE 407

3. Course Title: Present:

Proposed: Inca Civilization Geotechnical Engineering Practices

Abbreviated Course Title: Inca Engineering

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

4. Catalog Description (40 Words or Less)

Present:

**Proposed:** An in-depth study of geotechnical engineering practices in the mountains of Peru, including the Cuzco-Machu Picchu corridor, with emphasis on the inter-relationships between tectonics, geology, geomorphology, climate, hydrology, agriculture, quarrying, construction practices, irrigation, culture and history. A week-long field trip to Peru during Spring Break is

5. If course requires field trip check box: ☒

6. Credit Hours:

Present:

Lecture:

Lab:

Total:

Proposed:

Lecture: 3

Lab: 0

Total: 3

*required at student's expense.*

7. Prerequisites:

Present:

*Geo Eng* *Civ Eng* *Geo Eng*  
 Proposed: GE 50 or CE 215 or GE 371 or equivalent; and graduate standing

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

9. Justification:

10. Semesters previously offered as an experimental course (101, 201, 301, 401): Spring 2010, '11, '12

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

1) CE 407

2)

3)

4)

5)

6)

Recommended by Department

*Robert Murray*  
 (Chair signature)

Date: *April 29/13*

Recommended by Discipline Specific Curricula Committee

(Chair signature)

*Demetrius*

Date: *5-6-13*

Approved by Curricula Committee:

*Daniel Smith*  
 (Chair signature)

Date: *5/24/2013*

Approved by Faculty Senate:

(Chair signature)

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

CC File # 8473-2013-Geo Eng-320-10

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 & Engineering**2. Discipline and Course Number: Present: ~~GE301~~<sup>Geo Eng</sup> Proposed: ~~GE320~~<sup>Geo Eng</sup>3. Course Title: Present: ~~Hydrologic Flow and Transport Modeling~~Proposed: **Groundwater Modeling**Abbreviated Course Title (24 Spaces or Less. Only needed for New Courses or Title Changes.): **Groundwater Modeling**

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

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

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

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: ~~Civ Eng 215 Geo Eng 275, 335~~Proposed: Civ Eng 230<sup>or</sup> Geo Eng 3318. Required for Majors: ☐ Elective for Majors: ☒9. Justification: **Computer modeling has become an essential component of all industries and research organizations.**10. Semesters previously offered as an experimental course (101, 201, 301, 401): ~~SP2012, SP2013~~<sup>5</sup><sub>3</sub>

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: 4/30/13

Recommended by DSCC

(Chair signature)

Date: 5-6-13

Approved by Curricula Committee:

(Chair signature)

Date: 5/24/2013

Approved by Faculty Senate:

(Chair signature)

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

(Revised December 2012)

CC File # 8474-2013-AERO ENG-285-10

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: **Mechanical & Aerospace Engineering**

2. Discipline and Course Number: Present: Proposed: **AERO ENG 285**

3. Course Title: Present:

Proposed: **Senior Assessment**

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

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

Present:

Proposed: **This course is an overview and assessment of the required aerospace engineering courses that the students took.**

5. If course requires field trip check box: ☐

6. Credit Hours: Present: Lecture Lab Total

Proposed: Lecture 1 Lab 0 Total 1

7. Prerequisites:

Present:

Proposed: **Aero Eng 271, Aero Eng 261, Aero Eng 235, Aero Eng 253**

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

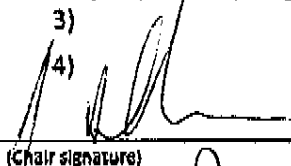
9. Justification: **Effective Fall 2013, this is a required course for the BS-Aerospace Engineering program.**

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.

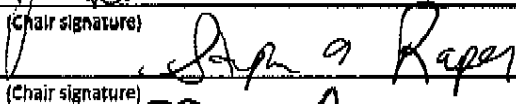
1) 3) 5)  
2) 4) 6)

Recommended by Department



Date: 5/28/2013

Recommended by DSCC



Date: 5/30/2013

Approved by Curricula Committee:



Date: 5/24/2013

Approved by Faculty Senate:

(Chair signature)

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

(Revised December 2012)

EC # 2468-Sp 2014-Pet Eng-301

Effective Year: 2014 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: **Geo Sci and Eng**Discipline and Course Number: **Pet Eng 301**Course Title: **Oil Field Safety and Engineering**Abbreviated Title (24 spaces or less): **Oil Field Safety and Eng**Instructor(s): **R. Flori**Credit Hours: **Lecture 3 Lab 0 Total 3**Prerequisites: **Pet Eng 313 or 316**Semester(s) previously taught: **n/a**

Brief Course Description (360 character spaces or less): **Introduction to health, safety and environment (HSE) critical issues, management systems, risk and risk assessment with oil field drilling, production and processing applications.**

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: 4-30-13

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

(Chair signature)

Date: 5-6-13

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

(Chair signature)

Date: 5/24/2013

Effective Year: 2014

EC File # 2469-Sp 2014-GEO ENG-401

Effective Term: Summer ☐ Fall ☐ Spring ☒

## Experimental Course Form (EC)

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

Summer and Fall Semester Offerings – January 1  
Spring Semester Offerings – August 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.*

Department: Geological Sciences and Engineering

Discipline and Course Number: *Geo Eng*  
~~GE 401~~

Course Title: Renewable Energy Systems Modeling

Abbreviated Title (24 spaces or less): Renewable Energy Model

Instructor(s): Elmore

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

Prerequisites: ~~GE356~~  
*Geo Eng*

Semester(s) previously taught: 0

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

The course will address renewable energy performance prediction models such as Smartz, System Analysis Model (SAM), HOMER and/or others. Photovoltaic, wind, and geothermal systems will be featured with an emphasis on the characterization of the corresponding earth resource.

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

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

Department Chair: *Robert Elmore*  
(Chair Signature)

Date: May 1/13

Discipline Specific Curricula Committee: *Stephen A. Raper*  
(Chair signature)

Date: May 6 13

Curricula Committee: *Daniel Smith*  
(Chair Signature)

Date: 5/24/2013