Minutes of the Campus Curricula Committee Meeting
January 9, 2018
8:30am, 106 Parker Hall
(For Faculty Senate Meeting of January 25, 2018)

Attendees: Steve Raper, Barry Flachsbart, Petra Dewitt, Katie Shannon, Geariod MacSithigh, Kristy Giacomelli and Brittany Parnell

The following curriculum forms were discussed and approved:

Course Change Forms:
- File: 942.1 ARCH ENG 4800: Principles of HVAC I
- File: 2069.5 ARCH ENG 4820: Building Lighting Systems
- File: 4219.5 ARCH ENG 4850: Building Electrical Systems
- File: 2151.1 BIO SCI 2263: Ecology
- File: 1513.1 BIO SCI 2383: Plant Biology
- File: 2531.1 BIO SCI 3233: Evolution
- File: 1843.1 BIO SCI 3313: Microbiology
- File: 4501 CHEM ENG 6180: Advanced Applications of Computational Fluid Dynamics
- File: 4070.7 CIV ENG 5515: Advanced Traffic Operations and Capacity Analysis
- File: 4579 CIV ENG 5635: Phytoremediation and Natural Treatment Systems: Science and Design
- File: 110.2 COMP SCI 1200: Discrete Mathematics for Computer Science
- File: 774.1 ECON 6440: Advanced Environmental and Natural Resource Economics
- File: 1737.1 ECON 6540: Advanced Energy Economics
- File: 4499 FINANCE 5310: Financial Modeling
- File: 2391.6 IS&T 4335: Fundamentals of Mobile Technology for Business
- File: 1871.6 IS&T 6335: Mobile Technology for Business
- File: 2342.7 PSYCH 5010: Seminar for Industrial/Organizational Psychology
- File: 4500 PSYCH 5020: Introduction to Industrial/Organizational Psychology
- File: 719.1 SYS ENG 6110: Risk Modeling and Optimization under Uncertainty

Degree Change Forms:
- File: 143.20 ARC ENG-BS: Architectural Engineering BS
- File: 230.12 AUTOENG-MI: Minor in Automation Engineering
- File: 156.7 GE ENG-BS: Geological Engineering BS
- File: 238.6 HCI-MI: Human-Computer Interaction and User Experience Minor
- File: 234.20 INORGPS-MS: Industrial Organizational Psychology MS
- File: 121.1 PRE LAW-MI: Pre Law Minor
Experimental Course Forms:
File: 4492  BIO SCI 5001.001: Ichthyology
File: 4497  BIO SCI 5001.002: Population and Conservation Genetics
File: 4440  CHEM ENG 4001.001: Introduction to Phase Equilibrium
File: 4491  CIV ENG 4001.001: Infrastructure Sustainability through Recycling
File: 4490  CIV ENG 6001.002: Pavement Management, Evaluation and Rehabilitation
File: 4494  COMP SCI 3001.002: Introduction to Data Science
File: 4496  ELEC ENG 3001.001: Intelligent Robotics
File: 4488  ELEC ENG 6001.006: Introduction to Nonlinear Optics
File: 4504  HISTORY 3001.003: Slavery in the Atlantic World
File: 4502  MECH ENG 6001.002: Fundamentals of Metal Additive Manufacturing Processes
File: 4498  NUC ENG 2001.001: Professional Development for Nuclear Engineers

Implementation of potential graduate-level education courses through Project Lead The Way were discussed.

The proposed catalog language to be included in “The Approved List of Humanities and Social Sciences Courses for Engineering Degrees” within undergraduate engineering degree programs, was approved.

The meeting adjourned at 9:28am.

(Handwritten signature)

Stephen A. Raper, Chair
Missouri S&T Campus Curricula Committee
# Course Change Request

**Date Submitted:** 05/05/17 2:09 pm

**Viewing:** ARCH ENG 4800 5872: Principles of HVAC I Environmental Controls

File: 942.1  
Last edit: 05/16/17 9:18 am  
Changes proposed by: baur

<table>
<thead>
<tr>
<th>Programs referencing this course</th>
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<tbody>
<tr>
<td>ARC ENG-BS: Architectural Engineering BS</td>
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</table>

<table>
<thead>
<tr>
<th>Requested Effective Change Date</th>
</tr>
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<tbody>
<tr>
<td>Fall 2018 08/01/2014</td>
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<table>
<thead>
<tr>
<th>Department</th>
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<tbody>
<tr>
<td>Civil, Architectural, and Environmental Engineering</td>
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<table>
<thead>
<tr>
<th>Discipline</th>
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<tbody>
<tr>
<td>Architectural Engineering (ARCH ENG)</td>
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</table>

<table>
<thead>
<tr>
<th>Course Number</th>
</tr>
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<tbody>
<tr>
<td>4800 5872</td>
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<table>
<thead>
<tr>
<th>Title</th>
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<tbody>
<tr>
<td>Principles of HVAC I Environmental Controls</td>
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<table>
<thead>
<tr>
<th>Abbreviated Course Title</th>
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<tbody>
<tr>
<td>Principles of HVAC I</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Catalog Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heating, ventilating, and air conditioning</strong> Theory and applications of principles related to the heat loss and heat gain calculations for commercial buildings. of heating, ventilating, and air conditioning equipment and systems; design problems. Calculations will be performed manually and using current computer software. Analysis and specification of the building envelope components, with an emphasis on improving energy efficiency by reducing heating and cooling loads <strong>Physiological and psychological factors relating to environmental control.</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mech Eng 3521 and accompanied or preceded by Mech Eng 3525; or Mech Eng 2527 and Civ Eng 3330.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Field Trip Statement</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LEC: 3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Yes No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Approval Path</th>
</tr>
</thead>
</table>
| 1. 05/11/17 11:36 am  
Joel Burken (burken): Approved for RCIVILEN Chair |
| 2. 05/12/17 9:56 am  
Brittany Parnell (ershenb): Approved for CCC Secretary |
| 3. 05/22/17 12:30 pm  
sraper: Approved for Engineering DSCC Chair |
| 4. 06/28/17 4:03 pm  
Brittany Parnell (ershenb): Approved for Registrar |
| 5. Pending CCC Agenda post |
| 6. Campus Curricula Committee Chair |
| 7. FS Meeting Agenda |
| 8. Faculty Senate Chair |
| 9. Registrar |
| 10. Lynn Shelton |
| 11. Peoplesoft |
Justification for change:

The architectural engineering program is realigning the building systems courses to provide a path for a continuous design project. The realignment and renumbering of courses include environmental controls, building lighting systems and building electrical systems. When complete a student project that was initially started in architectural design will be carried through environmental controls and building lighting systems. The same project will be forwarded to building electrical systems course once complete it will have a fully designed building environmental systems in place.

Semesters previously offered as an experimental course

Co-Listed Courses:  

**MECH-ENG 5571 - Environmental Controls**

Course Reviewer  

iahne (05/05/17 11:57 am): Rollback: .

sraper (05/16/17 9:18 am): Changed effective date to Fall 18 and checked required for majors box. Approval subject to DC form to be submitted.
Course Change Request

Date Submitted: 05/01/17 2:42 pm

Viewing: **ARCH ENG 4820 3805**: Building Lighting Systems

File: 2069.5

Last approved: 09/21/15 3:55 am

Last edit: 10/31/17 11:26 am

Changes proposed by: baur

Programs referencing this course: **ARC ENG-BS: Architectural Engineering BS**

Requested Effective Change Date: **Fall 2018 Spring 2016**

Department: Civil, Architectural, and Environmental Engineering

Discipline: Architectural Engineering (ARCH ENG)

Course Number: **4820 3805**

Title: Building Lighting Systems

Abbreviated Course Title: Bldg Light Syst

Catalog Description: Design and specifications for interior and exterior building illumination systems. Work includes study of applicable NFPA 70 (NEC) and related building codes.

Prerequisites: Arch Eng 3804 3803 and Physics 2135 Arch Eng 3804.

Field Trip Statement: 

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

Required for Majors: Yes

Elective for Majors: No

Justification for change: The architectural engineering program is realigning the building systems courses to provide a path for a continuous design project. The realignment and renumbering of courses include environmental controls, building lighting systems and building electrical systems. When complete a student project that was initially started in architectural design will be carried through environmental controls and building lighting systems. The same project will be forwarded to building electrical systems course once complete it will have a fully designed building environmental systems in place.

Semesters previously offered as an experimental course: ArchE 3805 typically has an enrollment of 40 students. Student enrollment numbers are expected to be similar.

Co-Listed Courses: 

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

Approval Path
1. 05/11/17 11:36 am Joel Burken (burken): Approved for RCIVILEN Chair
2. 05/12/17 9:57 am Brittany Parnell (ershenb): Approved for CCC Secretary
3. 06/28/17 4:24 pmBrittany Parnell (ershenb): Approved for Engineering DSCC Chair
4. 01/09/18 4:41 pm Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
5. 01/10/18 9:35 am sraper: Approved for Campus

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/2069/index.html... 1/11/2018
<table>
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<th>Course Reviewer</th>
<th>Comments</th>
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<tbody>
<tr>
<td>sraper (05/16/17 9:20 am)</td>
<td>Changed effective date to Fall 2018. Approval subject to DC form submission.</td>
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</table>

**History**

1. Sep 21, 2015 by baur (2069.1)
Course Change Request

Date Submitted: 05/01/17 2:34 pm

Viewing: **ARCH ENG 4850 3803**: Building Electrical Systems

File: 4219.5
Last approved: 09/21/15 3:55 am
Last edit: 10/31/17 11:27 am
Changes proposed by: baur

### Programs referencing this course
- ARC ENG-BS: Architectural Engineering BS

### Requested Effective Change Date
- Fall 2018
- Spring 2016

### Department
Civil, Architectural, and Environmental Engineering

### Discipline
Architectural Engineering (ARCH ENG)

### Course Number
4850 3803

### Title
Building Electrical Systems

### Abbreviated Course Title
Bldg Elect Syst

### Catalog Description
The design of interior and exterior building electrical systems, including power loads, branch circuits and switching. Work includes study of applicable NFPA 70 (NEC) and related building codes.

### Prerequisites
Arch Eng 4800 and Arch Eng 4820 Math 3304 and Physics 2135.

### Field Trip Statement

### Credit Hours
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<tr>
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<th>LAB: 0</th>
<th>IND: 0</th>
<th>RSD: 0</th>
<th>Total: 3</th>
</tr>
</thead>
</table>

### Required for Majors
Yes

### Elective for Majors
No

### Justification for change:
The architectural engineering program is realigning the building systems courses to provide a path for a continuous design project. The realignment and renumbering of courses include environmental controls, building lighting systems and building electrical systems. When complete a student project that was initially started in architectural design will be carried through environmental controls and building lighting systems. The same project will be forwarded to building electrical systems course once complete it will have a fully designed building environmental systems in place.

### Semesters previously offered as an experimental course
This will be the new pre-requisite for ArchE 3805, which typically has an enrollment of 40 students. As the pre-requisite for ArchE 3805, student enrollment numbers are expected to be similar.

### Approval Path

- **1.** 05/11/17 11:36 am - Joel Burken (burken): Approved for RCIVILEN Chair
- **2.** 05/12/17 9:58 am - Brittany Parnell (ershenb): Approved for CCC Secretary
- **3.** 05/22/17 12:30 pm - sraper: Approved for Engineering DSCC Chair
- **4.** 06/28/17 4:25 pm - Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
- **5.** 01/09/18 4:41 pm - Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
- **6.** 01/10/18 9:35 am - sraper: Approved for Campus

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4219/index.html... 1/11/2018
<table>
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<tr>
<td>Course Reviewer: sraper (05/16/17 9:21 am): Changed effective date to Fall 2018. Approval subject to DC form submission.</td>
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<tr>
<td>History: 1. Sep 21, 2015 by Stuart Baur (baur)</td>
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</tbody>
</table>

ARCH ENG 4850: Building Electrical Systems

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4219/index.html... 1/11/2018
## Course Change Request

**Date Submitted:** 10/20/17 1:38 pm  
**Viewing:** **BIO SCI 2263 : Ecology**  
**File:** 2151.1  
**Last edit:** 01/09/18 3:21 pm  
**Changes proposed by:** shannonk

### Programs referencing this course

- BIO SC-BA: Biological Sciences BA
- BIO SC-BS: Biological Sciences BS
- ECON-BS: Economics BS
- EV ENG-BS: Environmental Engineering BS
- GEOL-MI: Geology Minor
- SCTCPL-MI: Science, Tech,& Politics Minor
- TCH COM-BS: Technical Communication BS

### Other Courses referencing this course

- In The Prerequisites:
  - BIO SCI 4363 : Freshwater Ecology
  - BIO SCI 5423 : Advanced Biodiversity
  - BIO SCI 5463 : Global Ecology

### Requested Effective Change Date

**Fall 2018 08/01/2014**

**Department:** Biological Sciences  
**Discipline:** Biological Sciences (BIO SCI)

### Credit Hours

<table>
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<tr>
<th>Credit Hours</th>
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<th>LAB: 0</th>
<th>IND: 0</th>
<th>RSD: 0</th>
<th>Total: 3</th>
</tr>
</thead>
</table>

**Required for Majors:** No  
**Elective for Majors:** Yes No

### Catalog Description

Relationships between organisms and the environment. Topics include the influence of environmental factors on individual organisms, population dynamics, interspecific associations, and entire ecosystems.

### Prerequisites

Bio Sci 1113 or Bio Sci 1213 or Bio Sci 1223. **1213.**

### Field Trip Statement

No

### Justification for change:

We are adding Biodiversity as an acceptable prerequisite for this course

### Approval Path

1. 10/20/17 1:45 pm David Duvernell (duvernelld): Approved for RBIOLSCI Chair  
2. 10/23/17 10:27 am Brittany Parnell (ershenb): Approved for CCC Secretary  
3. 11/17/17 12:17 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair  
4. 11/21/17 3:25 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post  
5. 01/09/18 2:09 pm Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
Co-Listed Courses:

Course Reviewer ershenb (01/09/18 2:08 pm): checked "Yes" for majors

Comments

Key: 2151

Preview Bridge Page

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/2151/index.html...
### Course Change Request

**Date Submitted:** 10/20/17 1:41 pm  
**Viewing:** **BIO SCI 2383 : Plant Biology**

**File:** 1513.1  
**Last edit:** 10/20/17 1:41 pm  
**Changes proposed by:** shannonk

<table>
<thead>
<tr>
<th>Other Courses referencing this course</th>
<th>In The Catalog Description:</th>
<th>BIO SCI 2389 : Plant Biology Laboratory</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prerequisites:</strong></td>
<td>In The Prerequisites:</td>
<td>BIO SCI 2389 : Plant Biology Laboratory</td>
</tr>
</tbody>
</table>

**Requested Effective Change Date:** **Fall 2018 08/01/2014**

**Department:** Biological Sciences  
**Discipline:** Biological Sciences (BIO SCI)  
**Course Number:** 2383  
**Title:** Plant Biology  
**Abbreviated Course Title:** Plant Biology

**Catalog Description:** An intermediate class covering plant form and function. Topics include the cellular structures unique to plants, their life cycles, and the mechanisms they use to survive, reproduce, and convert solar energy into a form usable by all other organisms.

**Prerequisites:** Bio Sci 1113 or Bio Sci 1213 or Bio Sci 1223. 1213.

**Field Trip Statement:**

**Credit Hours:**  
<table>
<thead>
<tr>
<th>LEC: 3</th>
<th>LAB: 0</th>
<th>IND: 0</th>
<th>RSD: 0</th>
<th>Total: 3</th>
</tr>
</thead>
</table>
**Required for Majors:** No  
**Elective for Majors:** Yes  
**Justification for change:** we are adding Biodiversity as an acceptable prereq for this course

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**Approval Path**

1. 10/20/17 1:44 pm  
   David Duvernell (duvernelld): Approved for RBIOLSCI Chair

2. 10/23/17 10:28 am  
   Brittany Parnell (ershenb): Approved for CCC Secretary

3. 11/17/17 12:18 pm  
   Katie Shannon (shannonk): Approved for Sciences DSCC Chair

4. 01/09/18 2:14 pm  
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda

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1/11/2018
## Course Change Request

**Date Submitted:** 10/20/17 1:37 pm  
**Viewing:** BIO SCI 3233 2233: Evolution  
**File:** 2531.1  
**Last edit:** 01/09/18 3:26 pm  
**Changes proposed by:** shannonk

<table>
<thead>
<tr>
<th>Requested Effective Change Date</th>
<th>Fall 2018 08/01/2014</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department</strong></td>
<td>Biological Sciences</td>
</tr>
<tr>
<td><strong>Discipline</strong></td>
<td>Biological Sciences (BIO SCI)</td>
</tr>
<tr>
<td><strong>Course Number</strong></td>
<td>3233 2233</td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td>Evolution</td>
</tr>
<tr>
<td><strong>Abbreviated Course Title</strong></td>
<td>Evolution</td>
</tr>
</tbody>
</table>

**Catalog Description:** A survey of the genetic and environmental mechanisms associated with organic evolution.

**Prerequisites:** Bio Sci 2223.

**Field Trip Statement**

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

**Required for Majors:** No  
**Elective for Majors:** Yes No

**Justification for change:**  
We are adding a Genetics prerequisite because it is important for students to understand mutations before they learn evolution. We are making this course 3000 level since it now requires a 2000 level prereq. Historically this course was offered at an introductory level, without prerequisites, to provide a survey of evolutionary theory for majors and non-majors students. Most students who actually take the course are biology majors. Going forward, we wish for this course to provide a synthesis of biological principles after students (primarily biology majors) have completed more introductory biology courses. For this reason, we wish to add the prerequisite of general genetics.

**Semesters previously offered as an experimental course**

**Co-Listed Courses**

| **Course Reviewer** | ershenb (01/09/18 3:13 pm): checked "yes" for Required for Majors and removed "General Genetics" from the Prerequisite.  
| **Course Reviewer** | ershenb (01/09/18 3:26 pm): *correction- checked "Yes" for Elective for Majors |

**Course Reviewer Comments**

**Key:** 2531  
**File:** 2531.1  
**Last edit:** 01/09/18 3:26 pm  
**Changes proposed by:** shannonk

### Approval Path

1. 10/20/17 1:44 pm  
   David Duvernell (duvernellid): Approved for RBIOLSCI Chair  
2. 10/23/17 10:31 am  
   Brittany Parnell (ershenb): Approved for CCC Secretary  
3. 11/17/17 12:18 pm  
   Katie Shannon (shannonk): Approved for Sciences DSCC Chair  
4. 11/21/17 3:25 pm  
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post  
5. 01/09/18 3:13 pm  
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda  
6. Campus Curricula Committee Chair  
7. FS Meeting Agenda  
8. Faculty Senate Chair  
9. Registrar  
10. CAT entry  
11. Peoplesoft
# Course Change Request

**Date Submitted:** 10/20/17 1:39 pm

**Viewing:** **BIO SCI 3313: Microbiology**

**File:** 1843.1

**Last edit:** 01/09/18 3:29 pm

**Changes proposed by:** shannonk

<table>
<thead>
<tr>
<th>Programs referencing this course</th>
<th>In Workflow</th>
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<tbody>
<tr>
<td>BIOMED-MI: Biomedical Engineering Minor</td>
<td>1. RBIOLSCI Chair</td>
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<table>
<thead>
<tr>
<th>Other Courses referencing this course</th>
<th>2. CCC Secretary</th>
</tr>
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<tbody>
<tr>
<td>BIO SCI 3319: Microbiology Lab</td>
<td></td>
</tr>
<tr>
<td>BIO SCI 4313: Introduction to Environmental Microbiology</td>
<td></td>
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<tr>
<td>BIO SCI 6513: Advanced Microbial Metabolism</td>
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<tr>
<th>Requested Effective Change Date</th>
<th>3. Sciences DSCC Chair</th>
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<tr>
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<table>
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<tr>
<th>Department</th>
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<tr>
<th>Title</th>
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<table>
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<tr>
<th>Abbreviated Course Title</th>
<th>Microbiology</th>
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<table>
<thead>
<tr>
<th>Catalog Description</th>
<th>General introduction to the culture and study of microorganisms, their physiology, structure, and contribution to biology.</th>
</tr>
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<table>
<thead>
<tr>
<th>Field Trip Statement</th>
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<th>Credit Hours</th>
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<th>RSD: 0</th>
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<tr>
<td>Required for Majors</td>
<td>No</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Elective for Majors</td>
<td>Yes No</td>
<td></td>
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| Justification for change: | We are adding Cell Biology Bio Sci 2213 as a prerequisite for this 3000 level course |

<table>
<thead>
<tr>
<th>Semesters previously offered as an experimental course</th>
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<table>
<thead>
<tr>
<th>Co-Listed Courses:</th>
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| ershenb (01/09/18 3:29 pm): checked "Yes" Elective for Majors. |

<table>
<thead>
<tr>
<th>Approval Path</th>
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</table>

1. 10/20/17 1:44 pm David Duvernell (duvernelld): Approved for RBIOLSCI Chair

2. 10/23/17 10:32 am Brittany Parnell (ershenb): Approved for CCC Secretary

3. 11/17/17 12:18 pm Katie Shannon (shannonk): Approved for Sciences DSCC Chair

4. 01/09/18 3:29 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post

5. 01/09/18 3:29 pm Brittany Parnell (ershenb): Approved for CCC Meeting Agenda

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<table>
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6. 01/10/18 9:37 am
sraper: Approved for Campus Curricula Committee Chair
## Course Change Request

### New Course Proposal

**Date Submitted:** 11/28/17 6:20 am  
**Viewing:** CHEM ENG 6180: Advanced Applications of Computational Fluid Dynamics

**File:** 4501  
**Last edit:** 01/09/18 3:31 pm  
**Changes proposed by:** smithjose

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<th>Requested Effective Change Date</th>
<th>Fall 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department</strong></td>
<td>Chemical and Biochemical Engineering</td>
</tr>
<tr>
<td><strong>Discipline</strong></td>
<td>Chemical Engineering (CHEM ENG)</td>
</tr>
<tr>
<td><strong>Course Number</strong></td>
<td>6180</td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td>Advanced Applications of Computational Fluid Dynamics</td>
</tr>
<tr>
<td><strong>Abbreviated Course Title</strong></td>
<td>Advanced CFD Application</td>
</tr>
</tbody>
</table>

**Catalog Description:** Advanced applications of CFD analyses is presented to investigate mass, momentum and heat transport in complex geometries with general initial and boundary conditions. Students will gain practical experience using commercial CFD codes and learn and apply a general algorithm for solving challenging industrial problems using tutorials.

**Prerequisites:** Chem Eng 4150 and Chem Eng 5100.

**Field Trip Statement:**

**Credit Hours:**

<table>
<thead>
<tr>
<th>LEC</th>
<th>LAB</th>
<th>IND</th>
<th>RSD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required for Majors:** No  
** Elective for Majors:** Yes

**Justification for new course:** This course has been taught the last three years in Chemical Engineering as an experimental course which students from Chemical Engineering, Nuclear Engineering and Petroleum Engineering have taken. CFD is commonly used by engineers to solve difficult industrial problems and is routinely used by academic researchers to understand complex transport processes involving heat, mass and momentum transfer. This course teaches an algorithmic approach to setting up and solving CFD problems using commercial software packages commonly used in industry and academia that will better prepare them for future success in their chosen career.

**Semesters previously offered as an experimental course:** Enrollment: Spring 2015-14, Spring 2016-16, Spring 2017-6
<table>
<thead>
<tr>
<th>Course Reviewer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>sraper (12/04/17 1:33 pm)</td>
<td>checked &quot;elective for majors&quot;</td>
</tr>
<tr>
<td>sraper (12/04/17 1:34 pm)</td>
<td>simplified prereqs.</td>
</tr>
<tr>
<td>ershenb (01/09/18 3:31 pm)</td>
<td>switched &quot;5100&quot; and &quot;4150&quot; in Prerequisites so they will be listed in ascending order.</td>
</tr>
</tbody>
</table>
Course Change Request

Date Submitted: 09/18/17 11:15 am


Effective Change Date: Fall 2018 08/01/2014

Department: Civil, Architectural, and Environmental Engineering

Discipline: Civil Engineering (CIV ENG)

Course Number: 5515

Title: Advanced Traffic Signal-Operations and Capacity Analysis

Abbreviated Course Title: Adv Traf Signal Ops & CA Anlys

Catalog Description:

This course will introduce students to advanced traffic operation and discuss the role and capacity analysis as applied to an urban highway network. Function of traffic signal components: the signal controller, conflict monitor, vehicle detectors, etc. It will focus on the operations and management layout of freeway and arterials where a signalized traffic signal hardware at an intersection is one of and will discuss the key elements affecting traffic flow operation and determining highway capacity. Phasing/timing of traffic signals in detail.

Prerequisites:

Civ Eng CIV-ENG 5513.

Field Trip Statement

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

Required for Majors: No

Elective for Majors: Yes

In Workflow

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

Approval Path

1. 10/03/17 5:04 am
   Joel Burken
   (burken):
   Approved for RCIVILEN Chair

2. 10/04/17 11:37 am
   Brittany Parnell
   (ershenb):
   Approved for CCC Secretary

3. 11/21/17 9:55 am
   sraper:
   Approved for Engineering DSCC Chair

4. 11/21/17 3:26 pm
   Brittany Parnell
   (ershenb):
   Approved for Pending CCC Agenda post

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4070/index.html... 1/11/2018
### Justification for change:

New faculty would like to update the information for this course.

### Semesters previously offered as an experimental course

### Co-Listed Courses:

<table>
<thead>
<tr>
<th>Course Reviewer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>sraper (11/21/17 9:55 am)</td>
<td>edits to course description as suggested by DSCC members.</td>
</tr>
<tr>
<td>ershenb (01/09/18 3:36 pm)</td>
<td>Changed effective date to Fall 2018 and removed &quot;s&quot; from &quot;introduces&quot; in Catalog Description.</td>
</tr>
</tbody>
</table>

### History

1. Sep 22, 2014 by Debbie Benenati (dbenenat)

5. 01/09/18 3:36 pm Brittany Parnell (ershenb): Approved for CCC Meeting Agenda

6. 01/10/18 9:37 am sraper: Approved for Campus Curricula Committee Chair
# Course Change Request

## New Course Proposal

**Date Submitted:** 09/11/17 10:06 pm  
**Viewing:** CIV ENG 5635: Phytoremediation and Natural Treatment Systems: Science and Design

### Science and Design

**File:** 4479  
**Last edit:** 01/09/18 3:40 pm  
**Changes proposed by:** burken

<table>
<thead>
<tr>
<th>Requested Effective Change Date</th>
<th>Fall 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Department</strong></td>
<td>Civil, Architectural, and Environmental Engineering</td>
</tr>
<tr>
<td><strong>Discipline</strong></td>
<td>Civil Engineering (CIV ENG)</td>
</tr>
<tr>
<td><strong>Course Number</strong></td>
<td>S635</td>
</tr>
<tr>
<td><strong>Title</strong></td>
<td>Phytoremediation and Natural Treatment Systems: Science and Design</td>
</tr>
<tr>
<td><strong>Abbreviated Course Title</strong></td>
<td>Phytoremediation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Catalog Description</strong></th>
<th>Students learn the scientific basics of chemical transport in soil and groundwater and learn fundamental plant physiology and processes. Students then learn how these processes are utilized in design of phytoremediation and natural treatment systems, including the most up to date literature and design guidance available.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prerequisites</strong></td>
<td>Civ Eng 3615 or Env Eng 3615.</td>
</tr>
<tr>
<td><strong>Field Trip Statement</strong></td>
<td></td>
</tr>
</tbody>
</table>
| **Credit Hours**        | LEC: 3  
LAB: 0  
IND: 0  
RSD: 0  
Total: 3 |
| **Required for Majors** | No |
| **Elective for Majors** | Yes |

<table>
<thead>
<tr>
<th><strong>Justification for new course:</strong></th>
<th>Just a colist of EnvEng 5635</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Semesters previously offered as an experimental course</strong></td>
<td>Civ Eng 5001: Phytoremediation - Fall 2015 enrollment: 4, Spring 17 enrollment 1</td>
</tr>
<tr>
<td><strong>Co-Listed Courses:</strong></td>
<td>ENV ENG 5635 - Phytoremediation and Natural Treatment Systems: Science and Design</td>
</tr>
</tbody>
</table>

| **Course Reviewer Comments** | ershenb (10/09/17 8:50 am): Rollback: Clarification needed for Env Eng 5615  
ershenb (11/09/17 10:37 am): Per the request of Dr. Burken, added ENV ENG 5635 as the co-list.  
ershenb (01/09/18 3:40 pm): Switched and listed "Civ Eng 3615" as the first prerequisite (alphabetical). |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Key: 4479</td>
<td>Pending CCC Agenda post</td>
</tr>
<tr>
<td>-----------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>7. 01/09/18 3:40 pm</td>
<td>Brittany Parnell (ershenb): Approved for CCC Meeting Agenda</td>
</tr>
<tr>
<td>8. 01/10/18 9:37 am</td>
<td>sraper: Approved for Campus Curricula Committee Chair</td>
</tr>
</tbody>
</table>
Course Change Request

Date Submitted: 11/08/17 12:11 pm

Viewing: COMP SCI 1200 : Discrete Mathematics for Computer Science

File: 110.2
Last approved: 04/28/14 4:00 am
Last edit: 11/21/17 2:35 pm
Changes proposed by: tauritzd

Programs referencing this course

- AP MATH-BS: Applied Mathematics BS
- CMP SC-BS: Computer Science BS
- CP ENG-BS: Computer Engineering BS

Other Courses referencing this course

- COMP SCI 2200 : Theory of Computer Science
- COMP SCI 2500 : Algorithms
- COMP SCI 2889 : Introduction To Computer Organization And Assembly
- COMP SCI 3800 : Introduction To Operating Systems
- COMP SCI 5300 : Database Systems
- MATH 5107 : Combinatorics And Graph Theory
- PHILOS 3254 : Symbolic Logic in Argumentation

Requested Effective Change Date

Fall 2018 01/13/2015

Department

Computer Science

Discipline

Computer Science (COMP SCI)

Course Number

1200

Title

Discrete Mathematics for Computer Science

Abbreviated Course Title

Discrete Math For Cmp Sc

Catalog Description

A rigorous treatment of topics from discrete mathematics which are essential to computer science. Principal topics include: formal logic (propositional & predicate), proof techniques, mathematical induction, program correctness, sets, combinatorics, probability, relations, functions, matrices, graph theory and graph algorithms.

Prerequisites

A grade of "C" or better grade in both Comp Sci 1570 and one of Math 1120, Math 1140, Math 1208, and Math 1214. 1570.

Field Trip Statement

Credit Hours

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

Required for Majors

Yes

Elective for Majors

No

Justification for change:

Lack of algebra skills and mathematical maturity is impeding student success in this course. The added math prereq addresses this impediment.

In Workflow

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

Approval Path

1. 11/08/17 5:37 pm George Markowsky (markowskyg):
   Approved for RCOMPSCI Chair
2. 11/09/17 9:33 am Brittany Parnell (ershenb):
   Approved for CCC Secretary
3. 11/21/17 9:55 am sraper: Approved for Engineering DSCC Chair
4. 11/21/17 3:26 pm Brittany Parnell (ershenb):
   Approved for Pending CCC Agenda post
5. 01/09/18 3:42 pm Brittany Parnell (ershenb):
   Approved for CCC Meeting Agenda post
6. 01/10/18 9:37 am sraper: Approved for Campus
<table>
<thead>
<tr>
<th>Semesters previously offered as an experimental course</th>
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</thead>
<tbody>
<tr>
<td>Co-Listed Courses:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Reviewer Comments</th>
<th>Key: 110</th>
</tr>
</thead>
</table>

Curricula Committee Chair

History
1. Apr 28, 2014 by lahne (110.1)
**Course Change Request**

**Date Submitted:** 12/12/17 5:26 pm

**Viewing:** **ECON 6440 5440:** Advanced Environmental and Natural Resource Economics

**Economics**

File: 774.1

Last edit: 12/15/17 3:11 pm

Changes proposed by: marcys

<table>
<thead>
<tr>
<th>Requested Effective Change Date</th>
<th>Fall 2018 08/01/2014</th>
</tr>
</thead>
</table>

**Department:** Economics

**Discipline:** Economics (ECON)

**Course Number:** 6440 5440

**Title:** Advanced Environmental and Natural Resource Economics

**Abbreviated Course Title:** Adv Env and Nat Res

**Course Title:** Env&Nat Resource Econ

**Catalog Description:** Optimum use of replenishable and non-replenishable resources, public goods and common resources, externalities, private vs. public costs, and non-renewable resources, public goods and common resources, externalities, and quality of the environment; emphasis on public policy related to environmental and natural resource economics. As this course is an advanced version of Econ 4440, it will include additional research and project assignments. Credit cannot be earned for both Econ 4440 and 6440.

**Prerequisites:** Econ 2100.

**Field Trip Statement:**

**Credit Hours:**

<table>
<thead>
<tr>
<th>LEC</th>
<th>LAB</th>
<th>IND</th>
<th>RSD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

**Required for Majors:** No

**Elective for Majors:** No

**Justification for change:** This is a graduate level course and should have a 6000 graduate level number.

**Semesters previously offered as an experimental course:**

**Co-Listed Courses:**

**Course Reviewer Comments:** ershenb (12/13/17 9:52 am): updated effective date to Fall 2018

**Approval Path**

1. 12/13/17 9:13 am
   Gregory Gelles (gelles): Approved for RECONOMI Chair
2. 12/13/17 9:52 am
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. 12/15/17 2:59 pm
   Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair
4. 12/15/17 3:07 pm
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 01/09/18 3:52 pm
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. 01/10/18 9:38 am
   sraper: Approved for Campus
# Course Change Request

**Date Submitted:** 12/13/17 9:05 am  
**Viewing:** **ECON 6540** 5540: Advanced Energy Economics

- **File:** 1737.1  
- **Last edit:** 12/13/17 10:05 am  
- **Changes proposed by:** marcys

<table>
<thead>
<tr>
<th>Requested</th>
<th>Effective Change Date</th>
<th>Department</th>
<th>Discipline</th>
<th>Course Number</th>
<th>Title</th>
<th>Abbreviated</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fall 2018 08/01/2014</td>
<td>Economics</td>
<td>Economics (ECON)</td>
<td>6540 5540</td>
<td>Advanced Energy Economics</td>
<td>Adv Energy Economics</td>
<td></td>
</tr>
</tbody>
</table>

- **Catalog Description:** Market structures. World resource development. Supply and demand analysis on energy production and consumption within domestic and global settings. This course is an advanced version of Econ 4540, 345, and will include additional research and project assignments. Credit cannot be obtained for both Econ 4540 345 and Econ 6540 445.

- **Prerequisites:** Econ 2100, 221.

- **Field Trip Statement:**

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

- **Required for Majors:** No  
- **Elective for Majors:** No

- **Justification for change:**  
  This is a graduate level course and should have a 6000 graduate level number.

<table>
<thead>
<tr>
<th>Semesters previously</th>
<th>Approval Path</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. Gregory Gelles (gelles): Approved for RECONOMI Chair</td>
</tr>
<tr>
<td></td>
<td>2. Brittany Parnell (ershenb): Approved for CCC Secretary</td>
</tr>
<tr>
<td></td>
<td>3. Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair</td>
</tr>
<tr>
<td></td>
<td>4. Brittany Parnell (ershenb): Approved for</td>
</tr>
</tbody>
</table>
offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments
ershenb (12/13/17 10:05 am): updated effective date to Fall 2018

Pending CCC Agenda post
5. 01/09/18 3:53 pm Brittany Parnell (ershenb): Approved for CCC Meeting Agenda

6. 01/10/18 9:38 am sraper: Approved for Campus Curricula Committee Chair
FINANCE 5310: Financial Modeling

**New Course Proposal**

Date Submitted: 11/30/17 7:50 am

Viewing: **FINANCE 5310 : Financial Modeling**

File: 4499

Last edit: 12/05/17 12:11 pm

Changes proposed by: barryf

<table>
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<th>Requested Effective Change Date</th>
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<table>
<thead>
<tr>
<th>Department</th>
<th>Business and Information Technology</th>
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<tbody>
<tr>
<td>Discipline</td>
<td>Finance (FINANCE)</td>
</tr>
<tr>
<td>Course Number</td>
<td>5310</td>
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<tr>
<td>Title</td>
<td>Financial Modeling</td>
</tr>
<tr>
<td>Abbreviated Course Title</td>
<td>Financial Modeling</td>
</tr>
</tbody>
</table>

**Catalog Description**

This course is built on finance theory, financial analysis, and quantitative methods from prerequisite courses. The course will extensively use Excel spreadsheets to design and construct integrated financial models. The objective is to offer students opportunities to experience hands-on numerical analyses, company valuation, and dynamic projections.

**Prerequisites**

Finance 2150 or Graduate Standing.

**Field Trip Statement**

**Credit Hours**

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

**Required for Majors**

No

**Elective for Majors**

Yes

**Justification for new course:**

In today’s technology-driven market, computer skills play a key role in a student’s career success. In most finance courses, students are introduced to fundamental finance theories. Financial modeling is a course that bridges the gap between textbook learning and digitalized practice. The course will prepare students to design and implement realistic forecasting models using Excel spreadsheet functions.

The proposed course will be a dual listed course for both undergraduate and graduate students. It will be the first computer-based finance class that takes students step-by-step through financial models that are closely related to other undergraduate and graduate finance courses. The course provides the technology component to the existing paper-based finance courses. This new course diversifies the department course offering and provides students with a more broad exposure in the subject of finance. It will complement the department mission with the technological emphasis.

Part of the Minor in Financial Technology.
### Course Reviewer

ershenb (12/05/17 12:11 pm): Approved the course form per the request of Dr. Flachsbart (technical issues).

<table>
<thead>
<tr>
<th>Course Reviewer</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>ershenb</td>
<td>Approved the course form per the request of Dr. Flachsbart (technical issues).</td>
</tr>
</tbody>
</table>
Course Change Request

Date Submitted: 12/13/17 1:45 pm

Viewing: IS&T 4335 : Fundamentals of Mobile Technology for Business

File: 2391.6
Last approved: 06/30/14 3:55 am
Last edit: 01/09/18 4:00 pm
Changes proposed by: barryf

Programs referencing this course

- CYBERMG-MI: Cybersecurity Management and Information Assurance Minor
- E&S COM-MI: Elect & Social Commerce Minor
- ENTRNS-MI: Entrepreneurship Minor
- MOBLB&T-MI: Mobile Bus & Tech Minor

Requested Effective Change Date

Fall 2018 08/01/2014

Department
Business and Information Technology

Discipline
Info Science & Technology (IS&T)

Course Number
4335

Title
Fundamentals of Mobile Technology for Business

Abbreviated Course Title
Fund MobileTech for Bus

Catalog Description
A broad overview of mobile technology use in business environments. Topics include the mobile industry; mobile network and wireless standards; mobile devices; mobile web design and app development; social and user experience issues; mobile marketing and commerce.

Prerequisites
Junior standing or above. IS&T 3333.

Field Trip Statement

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

Required for Majors
Yes

Elective for Majors
No

Justification for change:
Instructor has changed course slightly and prerequisite is no longer needed.

Semesters previously offered as an experimental course

Co-Listed Courses:

In Approval Path

1. 12/13/17 10:20 pm
siauk: Approved for RINFSCTE Chair

2. 12/14/17 9:30 am
Brittany Parnell (ershenb): Approved for CCC Secretary

3. 12/15/17 3:00 pm
Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair

4. 01/09/18 4:00 pm
Brittany Parnell (ershenb): Approved for CCC Meeting Agenda

5. 01/10/18 9:39 am
sraper: Approved for Campus
ershenb (01/09/18 4:00 pm): added "Junior standing or above" to Prerequisite and checked "yes" for majors.
# Course Change Request

**Date Submitted:** 12/13/17 1:45 pm  
**Viewing:** IS&T 6335 : Mobile Technology for Business  
**File:** 1871.6  
**Last approved:** 06/30/14 3:55 am  
**Last edit:** 12/14/17 4:30 pm  
**Changes proposed by:** barryf  

| Catalog Pages referencing this course | Business Administration  
| Information Science and Technology |

| Requested Effective Change Date | Fall 2018 08/01/2014  
| Department | Business and Information Technology  
| Discipline | Info Science & Technology (IS&T)  
| Course Number | 6335  
| Title | Mobile Technology for Business  
| Abbreviated Course Title | Mobile Tech for Business |

| Catalog Description | Overview of mobile technology use in business environments. Topics include: mobile industry; mobile network and wireless standards; mobile devices; mobile web design and app development; social and user experience issues; mobile marketing and commerce. Project required.  
| Prerequisites | IS&T 3333 or equivalent  
| Field Trip Statement |  
| Credit Hours | LEC: 3  
| Required for Majors | No  
| Elective for Majors | No  
| Justification for change: | Instructor has changed the course slightly and prerequisite is no longer needed.  
| Semesters previously offered as an experimental course |  
| Co-Listed Courses: |  
| Course Reviewer Comments |  

| Approval Path |  
| 1. | 12/13/17 10:20 pm  
| siauk: Approved for RINFSCTE Chair  
| 2. | 12/14/17 4:31 pm  
| Brittany Parnell (ershenb): Approved for CCC Secretary  
| 3. | 12/15/17 3:32 pm  
| Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair  
| 4. | 12/15/17 3:32 pm  
| Brittany Parnell (ershenb): Approved for Pending CCC Agenda post  
| 5. | 01/09/18 4:02 pm  
| Brittany Parnell (ershenb): Approved for CCC Meeting Agenda  
| 6. | 01/10/18 9:39 am  
| sraper: Approved for Campus
Curricula Committee Chair

History
1. May 2, 2014 by barryf (1871.1)
2. Jun 30, 2014 by lahne (1871.4)
### Course Change Request

**Date Submitted:** 11/20/17 3:33 pm  
**Viewing:** PSYCH 5010: Seminar for Introduction to Industrial / Organizational Psychology  
**File:** 2342.7  
**Last approved:** 05/08/17 3:15 am  
**Last edit:** 11/21/17 3:19 pm  
**Changes proposed by:** weidnern

<table>
<thead>
<tr>
<th>Catalog Pages referencing this course</th>
<th>Psychology</th>
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<table>
<thead>
<tr>
<th>Other Courses referencing this course</th>
<th>In The Prerequisites:</th>
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<tbody>
<tr>
<td></td>
<td>PSYCH 6602: Job Attitudes, Emotions, and Discretionary Behaviors</td>
</tr>
<tr>
<td></td>
<td>PSYCH 6610: Leadership, Motivation, and Culture</td>
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<table>
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<th>Requested Effective Change Date</th>
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<table>
<thead>
<tr>
<th>Department</th>
<th>Psychological Science</th>
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<table>
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<tr>
<th>Course Number</th>
<th>5010</th>
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<table>
<thead>
<tr>
<th>Title</th>
<th>Seminar for Introduction to Industrial / Organizational Psychology</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Abbreviated Course Title</th>
<th>Ind Org Psych Seminar intro</th>
</tr>
</thead>
</table>

| Catalog Description | A seminar course for general overviews of the most recent theoretical and applied research in Industrial-Organizational Psychology. Topics will include personnel selection, training and performance appraisal, job attitudes, motivation, work groups and teams, leadership, organizational culture, and organizational development. |

<table>
<thead>
<tr>
<th>Prerequisites</th>
<th>Graduate standing.</th>
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<table>
<thead>
<tr>
<th>Field Trip Statement</th>
<th></th>
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| Credit Hours | LEC: 3  
LAB: 0  
IND: 0  
RSD: 3  
Total: 3 |
|--------------|---------|

<table>
<thead>
<tr>
<th>Required for Majors</th>
<th>No</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Elective for Majors</th>
<th>Yes No</th>
</tr>
</thead>
</table>

| Justification for change: | This is designed to return 5010 to a seminar course. This course will remain on the books, but will not be offered yet under the new curriculum. We just want to have the number remain available. A new course "Psych 5020" will be proposed and inserted into the curriculum for Fall 2018 in place of this 5010 course. |

| Semesters previously | |
PSYCH 5010: Seminar for Industrial / Organizational Psychology

offered as an experimental course

Co-Listed Courses:

Course Reviewer: kristyg (11/20/17 2:52 pm): Rollback: Rollback per Dr. Murray.

History
1. Jan 13, 2017 by weidnern (2342.1)
2. May 8, 2017 by weidnern (2342.5)
# Course Change Request

## New Course Proposal

**PSYCH 5020** : Introduction to Industrial-Organizational Psychology

**Date Submitted:** 11/20/17 3:39 pm  
**Viewing:** PSYCH 5020 : Introduction to Industrial-Organizational Psychology

**Programs referencing this course:**  
INORGPS-MS: Industrial Organizational Psychology MS

### Requested Effective Change Date: Fall 2018

**Department:** Psychological Science  
**Discipline:** Psychology (PSYCH)  
**Course Number:** 5020

**Title:** Introduction to Industrial-Organizational Psychology  
**Abbreviated Course Title:** Intro to Ind Org Psych

**Catalog Description:** Review of the most recent theoretical and applied research in advanced personnel and organizational psychology. Topics will include personnel selection, training and performance appraisal, job attitudes, motivation, work groups and teams, leadership, organizational culture, and organizational development.

**Prerequisites:** Graduate Standing

**Field Trip Statement:**

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

**Required for Majors:** Yes  
**Elective for Majors:** No

**Justification for new course:** We have been asked to change the course number from 5010 to a number that is more appropriate since the course numbers ending in 10 are generally reserved for seminar courses. Since a number change would kill the 5010 number, we are instead creating a Psych 5020 course which will take the place of the old 5010 in our curriculum. We felt 5020 would be a sufficient and appropriate number to use as this is still and introductory level course for our I-O MS program. If there is a reason that number won’t work either, we are open to other suggestions.

**Semesters previously offered as an enrollment:**  
FS14: 6, FS15: 12, FS16: 12, FS17: 15

---

**In Workflow**

1. RPSYCHOL Chair  
2. CCC Secretary  
3. Social Sciences DSCC Chair  
4. Pending CCC Agenda post

**Campus Curricula Committee Chair**

5. CCC Meeting Agenda

**Faculty Senate Chair**

6. Campus Curricula Committee Chair

**Registrar**

7. FS Meeting Agenda

**CAT entry**

8. Faculty Senate Chair  
9. Registrar  
10. Peoplesoft

## Approval Path

1. 11/20/17 4:08 pm murray: Approved for RPSYCHOL Chair
2. 11/21/17 9:55 am Brittany Parnell (ershnb): Approved for CCC Secretary
3. 11/22/17 9:19 pm Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair
4. 11/27/17 10:06 am

5. 01/09/18 4:03 pm Brittany Parnell (ershnb): Approved for Pending CCC Agenda post
6. 01/10/18 9:40 am sraper: Approved for Campus

---

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4500/index.html... 1/11/2018
<table>
<thead>
<tr>
<th>Experimental Course</th>
<th>Co-Listed Courses:</th>
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</table>

Course Reviewer
Comments

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4500/index.html... 1/11/2018
Course Change Request

Date Submitted: 10/10/17 11:26 am

Viewing: **SYS ENG 6110 : Risk Modeling and Optimization under Uncertainty** Function-Based Risk Analysis

File: 719.1
Last edit: 12/21/17 8:40 am
Changes proposed by: qinr

Catalog Pages referencing this course

Requested Effective Change Date

- Fall 2018 08/01/2014

Department Engineering Management and Systems Engineering

Discipline Systems Engineering (SYS ENG)

Course Number 6110

Title **Risk Modeling and Optimization under Uncertainty** Function-Based Risk Analysis

Abbreviated Course Title Risk Mod and Opt Uncert Function-Based Risk Analysis

Catalog Description

Risk analysis of products and systems will be **explored**, **explored using product functionality as the starting point**. Traditional probabilistic risk assessment techniques will be covered along with recent approaches (i.e., **stochastic programming, robust optimization, and dynamic programming**) that use historical data **based risk models to realize optimal risk management**. **produce automatic risk assessments.**

Prerequisites

- Graduate standing.

Field Trip Statement

Credit Hours

- LEC: 3
- LAB: 0
- IND: 0
- RSD: 0
- Total: 3

Required for Majors

No
<table>
<thead>
<tr>
<th>Elective for Majors</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

**Justification for change:**
- Change the course name to be in-line with the advancement of methodology and the growth of relevant engineering applications.
- Co-list it with Engineering Management to allow more students to take and include it in their graduate study plan.

**Semesters previously offered as an experimental course**

**Co-Listed Courses:**

- **ENG MGT 6415 - Course Not Found**

**Course Reviewer Comments**

- **ershenb (10/09/17 11:34 am):** Rollback: Please adjust co-list: ENG MGT 6414 is an existing course.
- **sraper (11/13/17 10:04 am):** checked elective for majors and changed abbreviated title.
ARC ENG-BS: ARCHITECTURAL ENGINEERING BS

In Workflow
1. RCIVILEN Chair (burken@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Engineering DSCC Chair (sraper@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
1. Tue, 03 Oct 2017 10:04:06 GMT
   Joel Burken (burken): Approved for RCIVILEN Chair
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Tue, 21 Nov 2017 15:53:16 GMT
   sraper: Approved for Engineering DSCC Chair
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:52:34 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Thu, 11 Jan 2018 15:18:00 GMT
   sraper: Approved for Campus Curricula Committee Chair

History
1. Sep 27, 2013 by Lahne Black (lahne)
2. Sep 27, 2013 by Lahne Black (lahne)
3. Apr 28, 2014 by Lahne Black (lahne)
4. Aug 4, 2014 by pantaleoa
5. Jan 30, 2015 by Stuart Baur (baur)
6. Sep 21, 2015 by Stuart Baur (baur)
7. Sep 15, 2016 by Crystal Wilson (wilsoncry)

Date Submitted: Thu, 28 Sep 2017 21:31:33 GMT

Viewing: ARC ENG-BS : Architectural Engineering BS
File: 143.20
Last approved: Thu, 15 Sep 2016 19:40:43 GMT
Last edit: Tue, 09 Jan 2018 22:51:44 GMT

Changes proposed by: baur

Start Term
Fall 2018

Program Code
ARC ENG-BS

Department
Civil, Architectural, and Environmental Engineering
Title

Architectural Engineering BS

Program Requirements and Description

Architectural Engineering
Bachelor of Science

Entering freshmen desiring to study Architectural Engineering will be admitted to the Freshman Engineering Program. They will, however, be permitted, if they wish, to state an Architectural Engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshman Engineering program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major.

For the Bachelor of Science degree in Architectural Engineering a minimum of 129 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. An average of at least two grade points per credit hour must be attained. An average of at least two grade points per credit hour must also be maintained in all courses taken in Architectural Engineering.

Each student’s program of study must contain a minimum of 21 credit hours of course work in general education and must be chosen according to the following rules:

1. All students are required to take one American history course, one economics course, one humanities course, and ENGLISH 1120. The history course is to be selected from HISTORY 1200 (preferred), HISTORY 1300, or HISTORY 1310. The economics course may be either ECON 1100 or ECON 1200. Art 3203 is required.
2. Depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000-level or above. This will be satisfied by taking the required History 2510 and 4550. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
3. The Gen Ed course chosen must meet requirements as specified under “Engineering Degree Requirements” published in the current undergraduate catalog and may include one communications course in addition to ENGLISH 1120.
4. Special topics and special problems and honors seminars are allowed only by petition to and approval by the student’s department chair.

The Architectural Engineering program at Missouri S&T is characterized by its focus on the scientific basics of engineering and its innovative application; indeed, the underlying theme of this educational program is the application of the scientific basics to engineering practice through attention to problems and needs of the public. The necessary interrelations among the various topics, the engineering disciplines, and the other professions as they naturally come together in the solution of real world problems are emphasized as research, analysis, synthesis, and design are presented and discussed through classroom and laboratory instruction.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
<th>Second Semester</th>
<th>Credits</th>
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<tbody>
<tr>
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<tr>
<td>CHEM 1100</td>
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<td>MECH ENG 1720</td>
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<td>ENGLISH 1120</td>
<td>3</td>
<td>PHYSICS 1135</td>
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<td>General Ed Elective¹</td>
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<td>CHEM 1310</td>
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<tr>
<td>&amp; CHEM 1319</td>
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<tr>
<td>CIV ENG 2200²</td>
<td>3</td>
<td>STAT 3113</td>
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<td>MATH 2222</td>
<td>4</td>
<td>CIV ENG 2210²</td>
<td>3</td>
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<td>PHYSICS 2135</td>
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<td>1</td>
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<tr>
<td>CIV ENG 2401²</td>
<td>3</td>
<td>ARCH ENG 2103</td>
<td>3</td>
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<tr>
<td>ARCH ENG 2003</td>
<td>3</td>
<td>ART 3203</td>
<td>3</td>
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<td></td>
<td></td>
<td>MATH 3304</td>
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<td>MECH ENG 2350</td>
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<th>Junior Year</th>
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<tr>
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<td></td>
</tr>
<tr>
<td>ARCH ENG 320¹²</td>
<td>3</td>
<td>ARCH ENG 4820²</td>
<td>3</td>
</tr>
</tbody>
</table>
All general education electives must be approved by the student's advisor. Students must comply with the general education requirements with respect to selection and depth of study. These requirements are specified in the current catalog.

A grade of 'C' or better required to satisfy graduation requirements.

A grade of 'C' or better may be required in ARCH ENG technical elective prerequisite courses. Refer to the Missouri S&T undergraduate catalog for this prerequisite information.

Choose technical electives from approved lists under Emphasis Areas for Architectural Engineering Students. A maximum of 3 credits of independent study (ARCH ENG 5000 or ARCH ENG 4099) may be used as a technical elective. Additional independent study course may be taken but will not count towards the B.S. Architectural Engineering degree.

Each student is required to take three hours of basic science electives in consultation with his/her academic advisor. This course must be selected from the following: Chem 1301, Geo 1111, Geo 2610, Bio Sci 1213, Bio Sci 1943, Phys 1505, or Phys 2305

Note: All Architectural Engineering students must take the Fundamentals of Engineering examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree, however, it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process as described in Assessment Requirements found elsewhere in this catalog.

**Emphasis Areas and Course Listings by Area for Architectural Engineering Students**

**Area I, Structural Engineering**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ARCH ENG 5001</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>ARCH ENG 5203</td>
<td>Applied Mechanics In Structural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5205</td>
<td>Structural Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5260</td>
<td>Analysis And Design Of Wood Structures</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5207</td>
<td>Computer Methods of Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5210</td>
<td>Advanced Steel Structures Design</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5220</td>
<td>Advanced Concrete Structures Design</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5222</td>
<td>Prestressed Concrete Design</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5729</td>
<td>Foundation Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5231</td>
<td>Infrastructure Strengthening with Composites</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5206</td>
<td>Low-Rise Building Analysis And Design</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5208</td>
<td>Structural Dynamics</td>
<td>3</td>
</tr>
</tbody>
</table>

**Area II, Construction Engineering and Project Management**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARCH ENG 5442</td>
<td>Construction Planning and Scheduling Strategies</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5445</td>
<td>Construction Methods</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5446</td>
<td>Management Of Construction Costs</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5448</td>
<td>Green Engineering: Analysis of Constructed Facilities</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5449</td>
<td>Engineering and Construction Contract Specifications</td>
<td>3</td>
</tr>
<tr>
<td>ENG MGT 5110</td>
<td>Managerial Decision Making</td>
<td>3</td>
</tr>
<tr>
<td>ENG MGT 5613</td>
<td>Value Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ENG MGT 5711</td>
<td>Total Quality Management</td>
<td>3</td>
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</table>
### Area III, Environmental Systems for Buildings

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ARCH ENG 5001</td>
<td>Special Topics</td>
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</tr>
<tr>
<td>ARCH ENG 5642</td>
<td>Sustainability, Population, Energy, Water, and Materials</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5665</td>
<td>Indoor Air Pollution</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 5850</td>
<td>Residential Renewable Energy Systems</td>
<td>3</td>
</tr>
<tr>
<td>ENG MGT 5513</td>
<td>Energy and Sustainability Management Engineering</td>
<td>3</td>
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</tbody>
</table>

### Mechanical Emphasis Courses

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MECH ENG 5309</td>
<td>Engineering Acoustics I</td>
<td>3</td>
</tr>
<tr>
<td>MECH ENG 5566</td>
<td>Solar Energy Technology</td>
<td>3</td>
</tr>
<tr>
<td>MECH ENG 5575</td>
<td>Mechanical Systems For Environmental Control</td>
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### Electrical Emphasis Courses

<table>
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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>ELEC ENG 3340</td>
<td>Basic Programmable Logic Controllers</td>
<td>3</td>
</tr>
<tr>
<td>ELEC ENG 5150</td>
<td>Photovoltaic Systems Engineering</td>
<td>3</td>
</tr>
<tr>
<td>COMP ENG 2210 &amp; COMP ENG 2211</td>
<td>Introduction to Digital Logic and Computer Engineering Laboratory</td>
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### Area IV, Construction Materials

<table>
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<tr>
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<tbody>
<tr>
<td>ARCH ENG 5203</td>
<td>Applied Mechanics In Structural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 5113</td>
<td>Composition And Properties Of Concrete</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 5118</td>
<td>Smart Materials And Sensors</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 5156</td>
<td>Concrete Pavement Design</td>
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<tr>
<td>CER ENG 5810</td>
<td>Principles Of Engineering Materials</td>
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### Architectural Engineering Courses

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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ARCH ENG 2103</td>
<td>Architectural Materials And Methods Of Construction</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 3804</td>
<td>Architectural Design II</td>
<td>3</td>
</tr>
<tr>
<td>ART 3203</td>
<td>Architectural Design I</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 4820</td>
<td>Building Lighting Systems</td>
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### Architectural Engineering Courses (cross-list with existing civil engineering courses)

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<th>Course Title</th>
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<td>ARCH ENG 2003</td>
<td>Engineering Communications and Computations</td>
<td>3</td>
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<tr>
<td>ARCH ENG 2001</td>
<td>Special Topics</td>
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</tr>
<tr>
<td>ARCH ENG 3000</td>
<td>Special Problems</td>
<td>1-6</td>
</tr>
<tr>
<td>ARCH ENG 3001</td>
<td>Special Topics</td>
<td>0-6</td>
</tr>
<tr>
<td>ARCH ENG 2002</td>
<td>Cooperative Engineering Training</td>
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<tr>
<td>ARCH ENG 4010</td>
<td>Senior Seminar: Engineering In A Global Society</td>
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<tr>
<td>ARCH ENG 3201</td>
<td>Structural Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 3210</td>
<td>Structural Design in Metals</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 3220</td>
<td>Reinforced Concrete Design</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 4447</td>
<td>Ethical, Legal and Professional Engineering Practice</td>
<td>2</td>
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<tr>
<td>ARCH ENG 4448</td>
<td>Fundamentals Of Contracts And Construction Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ARCH ENG 4097</td>
<td>Senior Design Project</td>
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<tr>
<td>ARCH ENG 5000</td>
<td>Special Problems</td>
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</tr>
<tr>
<td>ARCH ENG 5001</td>
<td>Special Topics</td>
<td>6</td>
</tr>
<tr>
<td>ARCH ENG 5205</td>
<td>Structural Analysis II</td>
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<tr>
<td>ARCH ENG 5260</td>
<td>Analysis And Design Of Wood Structures</td>
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<td>ARCH ENG 5207</td>
<td>Computer Methods of Structural Analysis</td>
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<td>ARCH ENG 5210</td>
<td>Advanced Steel Structures Design</td>
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<td>ARCH ENG 5220</td>
<td>Advanced Concrete Structures Design</td>
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<td>Prestressed Concrete Design</td>
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<td>ARCH ENG 5445</td>
<td>Construction Methods</td>
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<td>ARCH ENG 5446</td>
<td>Management Of Construction Costs</td>
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<tr>
<td>ARCH ENG 5449</td>
<td>Engineering and Construction Contract Specifications</td>
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<td>Infrastructure Strengthening with Composites</td>
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<tr>
<td>ARCH ENG 4099</td>
<td>Undergraduate Research</td>
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### Civil Engineering Courses (required courses, emphasis area, and/or technical electives)

<table>
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<tr>
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<th>Course Title</th>
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<tbody>
<tr>
<td>CIV ENG 3715</td>
<td>Fundamentals of Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 3116</td>
<td>Construction Materials, Properties And Testing</td>
<td>3</td>
</tr>
<tr>
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<td>Credits</td>
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</tr>
<tr>
<td>CIV ENG 4729</td>
<td>Foundation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 3330</td>
<td>Engineering Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 5113</td>
<td>Composition And Properties Of Concrete</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 5117</td>
<td>Asphalt Pavement Design</td>
<td>3</td>
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<tr>
<td>CIV ENG 5729</td>
<td>Foundation Engineering II</td>
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<tr>
<td>CIV ENG 5441</td>
<td>Professional Aspects Of Engineering Practice</td>
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<td>CIV ENG 5445</td>
<td>Construction Methods</td>
<td>3</td>
</tr>
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<td>CIV ENG 5446</td>
<td>Management Of Construction Costs</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 5449</td>
<td>Engineering and Construction Contract Specifications</td>
<td>3</td>
</tr>
</tbody>
</table>

**Justification for request**

**Supporting Documents**

**Course Reviewer Comments**

sraper (Fri, 10 Nov 2017 15:02:00 GMT): Changed language as related to the old "Approved List" and deleted sentence about signing to release FE results.

sraper (Fri, 10 Nov 2017 15:02:51 GMT): added "and" to revised statement.


ershenb (Tue, 09 Jan 2018 22:51:44 GMT): removed the spacing before and after "chosen" found in 3. of the general education rules. changed History 3550 to History "4550" found in 2. of the general education rules section.

Key: 143
AUTOENG-MI: MINOR IN AUTOMATION ENGINEERING

In Workflow
1. RELECENG Chair (daryl@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Engineering DSCC Chair (sraper@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
1. Sat, 04 Nov 2017 20:56:33 GMT
   Daryl Beetner (daryl): Approved for RELECENG Chair
2. Mon, 06 Nov 2017 15:05:29 GMT
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Tue, 21 Nov 2017 15:53:24 GMT
   sraper: Approved for Engineering DSCC Chair
4. Tue, 21 Nov 2017 21:25:30 GMT
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:39:05 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Wed, 10 Jan 2018 15:36:07 GMT
   sraper: Approved for Campus Curricula Committee Chair

History
1. Apr 28, 2014 by Kelvin Erickson (kte)
2. May 7, 2014 by Lahne Black (lahne)
3. Jul 20, 2015 by pantaleoa

Date Submitted: Thu, 02 Nov 2017 19:33:45 GMT

Viewing: AUTOENG-MI : Minor in Automation Engineering
File: 230.12
Last approved: Mon, 20 Jul 2015 17:25:22 GMT
Last edit: Mon, 06 Nov 2017 15:04:50 GMT
Changes proposed by: kte

Start Term
Fall 2018

Program Code
AUTOENG-MI

Department
Electrical and Computer Engineering

Title
Minor in Automation Engineering
Program Requirements and Description

Minor in Automation Engineering

A minor in automation engineering will require the following:

- Pass ELEC ENG 3340 Basic Programmable Logic Controllers with a "C" or better
- Pass one of the following courses with a "C" or better:
  - ELEC ENG 3320 Control Systems
  - MECH ENG 4479 Automatic Control Of Dynamic Systems
  - CHEM ENG 4110 Chemical Engineering Process Dynamics And Control
- Pass 9 additional hours of coursework from the following list. A "C" or better is required for all 9 hours.
  - CHEM ENG 5370 Intermediate Process Dynamics And Control
  - CHEM ENG 5190/ELEC ENG 5350 Plantwide Process Control
  - CHEM ENG 4310/MECH ENG 5644 Interdisciplinary Problems In Manufacturing Automation
  - ELEC ENG 4380 Practicum in Automation Engineering (no more than one can be applied to the Automation Engineering Minor)
  - ELEC ENG 5340 Advanced PLC
  - ELEC ENG 5345 PLC Motion Control
  - ELEC ENG 5870/MECH ENG 5478 Mechatronics
  - MECH ENG 5449 Robotic Manipulators and Mechanisms
  - MECH ENG 5655 Manufacturing Equipment Automation

Justification for request

Elec Eng 5345 added to the list of additional courses. It is a new automation engineering course and its permanent number was effective with the Spring 2017 semester.

Supporting Documents

Course Reviewer Comments

ershencb (Mon, 06 Nov 2017 15:04:50 GMT): updated start term to Fall 2018

Key: 230
GE ENG-BS: GEOLOGICAL ENGINEERING BS

In Workflow
1. RGEOSENG Chair (borrokd@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Sciences DSCC Chair (shannonk@mst.edu)
4. Engineering DSCC Chair (sraper@mst.edu)
5. Pending CCC Agenda post (ershenb@mst.edu)
6. CCC Meeting Agenda (ershenb@mst.edu)
7. Campus Curricula Committee Chair (sraper@mst.edu)
8. FS Meeting Agenda (ershenb@mst.edu)
9. Faculty Senate Chair (sedighs@mst.edu)
10. Registrar (kristyg@mst.edu)
11. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
1. Sun, 27 Aug 2017 14:31:15 GMT
   David Borrok (borrokd): Approved for RGEOSENG Chair
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Wed, 06 Sep 2017 18:09:36 GMT
   Katie Shannon (shannonk): Approved for Sciences DSCC Chair
4. Tue, 21 Nov 2017 15:58:04 GMT
   sraper: Approved for Engineering DSCC Chair
5. Tue, 21 Nov 2017 21:26:43 GMT
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
6. Tue, 09 Jan 2018 22:38:19 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
7. Thu, 11 Jan 2018 15:18:11 GMT
   sraper: Approved for Campus Curricula Committee Chair

History
1. Mar 18, 2014 by Lahne Black (lahne)
2. Nov 18, 2014 by pantaleoa
3. Nov 18, 2014 by pantaleoa
4. Jul 20, 2015 by pantaleoa

Date Submitted: Sat, 26 Aug 2017 19:20:30 GMT

Viewing: GE ENG-BS : Geological Engineering BS
File: 156.7
Last approved: Mon, 20 Jul 2015 20:09:25 GMT
Last edit: Wed, 10 Jan 2018 19:20:25 GMT
Changes proposed by: grotekr

Start Term
Fall 2018

Program Code
GE ENG-BS

Department
Geosciences and Geological and Petroleum Engineering
Geological Engineering BS

Program Requirements and Description

Bachelor of Science
Geological Engineering

Entering freshmen desiring to study geological engineering will be admitted to the Freshman Engineering Program. They will, however, be permitted, if they wish, to state a geological engineering preference, which will be used as a consideration for available freshman departmental scholarships. The focus of the Freshman Engineering program is on enhanced advising and career counseling, with the goal of providing to the student the information necessary to make an informed decision regarding the choice of a major.

For the bachelor of science degree in geological engineering a minimum of 128 credit hours is required. These requirements are in addition to credit received for algebra, trigonometry, and basic ROTC courses. A student must maintain at least two grade points per credit hour for all courses taken in the student’s major department, and an average of at least two grade points per credit hour must be maintained in geological engineering.

The geological engineering curriculum contains a required number of hours in humanities and social sciences. Each student’s program of study must contain a minimum of 18 credit hours of course work from the humanities and the social sciences areas and should be chosen according to the following rules:

1. All students are required to take one American history course and one economics course. The history course is to be selected from HISTORY 1200, HISTORY 1300, HISTORY 1310, or POL SCI 1200. The economics course may be either ECON 1100 or ECON 1200. Some disciplines require one humanities course to be selected for art, English, foreign languages, music, philosophy, speech and media studies, or theater.
2. Of the remaining hours, six credit hours must be taken in humanities or social sciences at the 2000 level or above and must meet requirements as specified under “Engineering Degree Requirements” published in the current undergraduate catalog. Each of these courses must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 can be considered to be one of these courses. (Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 3000 level.)
3. Some departments list specific requirements; e.g. a psychology course, a literature course, and/or a second semester of economics. Selections should be made to ensure that these requirements are met.
4. Special topics, special problems courses and honors seminars are allowed only by petition to and approval by the student’s program head.

The geological engineering program at Missouri S&T is characterized by its focus on the scientific basics of engineering and its innovative application; indeed, the underlying theme of this educational program is the application of the scientific basics to engineering practice through attention to problems and needs of the public. The necessary interrelations among the various topics, the engineering disciplines, and the other professions as they naturally come together in the solution of real world problems are emphasized as research, analysis, synthesis, and design are presented and discussed through classroom and laboratory instruction.

<table>
<thead>
<tr>
<th>Freshman Year</th>
<th>Credits</th>
<th>Second Semester</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Semester</td>
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<td></td>
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<tr>
<td>MATH 1214</td>
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<td>MATH 1215</td>
<td>4</td>
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<tr>
<td>CHEM 1310</td>
<td>4</td>
<td>Chemistry/Geochemistry Elective&lt;sup&gt;b&lt;/sup&gt;</td>
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<tr>
<td>CHEM 1100</td>
<td>1</td>
<td>MECH ENG 1720</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 1319</td>
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<td>PHYSICS 1135</td>
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<tr>
<td>FR ENG 1100</td>
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<td></td>
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</tr>
<tr>
<td>Humanities/Soc Sci Elective&lt;sup&gt;a&lt;/sup&gt;</td>
<td>3</td>
<td></td>
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</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>17</strong></td>
<td><strong>Total</strong></td>
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<tr>
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<td></td>
</tr>
<tr>
<td>MATH 2222</td>
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<td>MATH 3304</td>
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<tr>
<td>PHYSICS 2135</td>
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<td>CIV ENG 2200</td>
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<td>GEO ENG 2110</td>
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<td>GEO ENG 1150</td>
<td>3</td>
<td>GEOLOGY 2611</td>
<td>3</td>
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<td>GEO ENG 1119</td>
<td>1</td>
<td>GEO ENG 3175</td>
<td>3</td>
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<tr>
<td>Humanities/Soc Sci Elective&lt;sup&gt;a&lt;/sup&gt;</td>
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<td><strong>Total</strong></td>
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### Junior Year

#### First Semester

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<tbody>
<tr>
<td>MECH ENG 2350</td>
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<td>CIV ENG 2210</td>
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<tr>
<td>GEOLOGY 3310</td>
<td>3</td>
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<tr>
<td>Economics Elective</td>
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<tr>
<td>Humanities/Soc Sci Elective</td>
<td>3</td>
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<tr>
<td>Technical Elective (Technical Electives)</td>
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#### Second Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>CIV ENG 3330</td>
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</tr>
<tr>
<td>GEO ENG 4115</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 5443</td>
<td>3</td>
</tr>
<tr>
<td>Technical Communications Elective</td>
<td>3</td>
</tr>
<tr>
<td>Humanities/Soc Sci Elective</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>15</strong></td>
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</table>

### Senior Year

#### First Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>Geophysics Elective</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 4010</td>
<td>0.5</td>
</tr>
<tr>
<td>GEO ENG 5331</td>
<td>3</td>
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<tr>
<td>GEO ENG 5441</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 5090 or 5092</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 3715 or MIN ENG 4823</td>
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<td><strong>Total</strong></td>
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#### Second Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>GEO ENG 5174</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 4010</td>
<td>0.5</td>
</tr>
<tr>
<td>Earth Mechanics Elective</td>
<td>3</td>
</tr>
<tr>
<td>Eng Econ Elective</td>
<td>3</td>
</tr>
<tr>
<td>Technical Electives</td>
<td>6</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>15.5</strong></td>
</tr>
</tbody>
</table>

Total Credits: 128

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**a** The sequence of course selection must provide both breadth and depth of content and must meet requirements as specified under "Engineering Degree Requirements" published in the current undergraduate catalog. A total of 18 hours of humanities and social science credit is required.

**b** The chemistry/geochemistry elective must be selected from chemistry, geochemistry or biology courses as approved by your advisor.

**c** The Technical Communications elective can be selected from ENGLISH 1160, ENGLISH 3560, SP&M S 1185, or the complete four-course sequence in Advanced ROTC (MIL ARMY 3250, MIL ARMY 3500, MIL ARMY 4250, and MIL ARMY 4500 or AERO ENG 5758, AERO ENG 4790, and AERO ENG 5481).

**d** To be selected from GEO ENG 5471, GEO ENG 5381, MIN ENG 4823, PET ENG 2510, PET ENG 3520, CIV ENG 3715, CIV ENG 4729, or CIV ENG 5715.

**e** To be selected from ENG MGT 5210, MIN ENG 3512, or PET ENG 4590 or both ENG MGT 1100 and ENG MGT 1201.

**f** To be selected from advanced courses in geological, mining, petroleum or civil engineering, geology or other courses with approval of your advisor. Must contain design content and must be approved by your advisor.

**g** Students may take GEO ENG 5090 or GEO ENG 5092 for senior design credit.

**h** The Geophysics elective can be selected from GEO ENG 5736, GEO ENG 5761, or GEO ENG 5782.

**i** The Economics Elective must be selected from Econ 1100 or Econ 1200.

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All GE students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade is not required; however, it is the first step toward becoming a registered professional engineer. This requirement is part of the Missouri S&T assessment process.

Geological engineering students must earn the grade of “C” or better in all geological engineering courses to receive credit toward graduation. The total number of credit hours required for a degree in Geological Engineering is 128. The assumption is made that a student admitted to the Department has completed 34 hours toward graduation to fulfill the requirements of the Freshman Engineering program.

### Geological Engineering Emphasis Areas

Electives are selected by the student with advisor approval. Some appropriate electives are listed for each emphasis area.

#### Environmental Protection and Hazardous Waste Management

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>GEO ENG 5235</td>
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<tr>
<td>GEO ENG 5237</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 5381</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 5331</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 4115</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 4276</td>
<td>3</td>
</tr>
<tr>
<td>GEO ENG 5233</td>
<td>3</td>
</tr>
<tr>
<td>CIV ENG 3715</td>
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</table>
Groundwater Hydrology and Contaminant Transport

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>GEO 5381</td>
<td>Intermediate Subsurface Hydrology And Contaminant Transport Mech's</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5233</td>
<td>Risk Assessment In Environmental Studies</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5174</td>
<td>Geological Engineering Field Methods</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5331</td>
<td>Subsurface Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>GEO 4115</td>
<td>Statistical Methods in Geology and Engineering</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5441</td>
<td>Engineering Geology And Geotechnics</td>
<td>3</td>
</tr>
<tr>
<td>CIV 3715</td>
<td>Fundamentals of Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>PET 3330</td>
<td>Well Logging</td>
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</tbody>
</table>

Engineering Geology and Geotechnics

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
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<td>Rock Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CIV 3715</td>
<td>Fundamentals of Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MIN 4823</td>
<td>Rock Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CIV 4729</td>
<td>Foundation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5146</td>
<td>Applications Of Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5441</td>
<td>Engineering Geology And Geotechnics</td>
<td>3</td>
</tr>
<tr>
<td>GEO 4115</td>
<td>Statistical Methods in Geology and Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Petroleum, Energy and Natural Resources

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>PET 3520</td>
<td>Petroleum Reservoir Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MIN 4823</td>
<td>Rock Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5146</td>
<td>Applications Of Geographic Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5381</td>
<td>Intermediate Subsurface Hydrology And Contaminant Transport Mech's</td>
<td>3</td>
</tr>
<tr>
<td>GEOLOGY 5511</td>
<td>Applied Petroleum Geology</td>
<td>3</td>
</tr>
<tr>
<td>PET 2510</td>
<td>Properties Of Hydrocarbon Fluids</td>
<td>3</td>
</tr>
<tr>
<td>PET 1110</td>
<td>Introduction to Petroleum Engineering</td>
<td>1</td>
</tr>
<tr>
<td>PET 3330</td>
<td>Well Logging</td>
<td>3</td>
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<tr>
<td>PET 4520</td>
<td>Well Test Analysis</td>
<td>3</td>
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</table>

Quarry Engineering

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>MIN 4823</td>
<td>Rock Mechanics</td>
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</tr>
<tr>
<td>GEO 5575</td>
<td>Aggregates And Quarrying</td>
<td>3</td>
</tr>
<tr>
<td>CIV 3116</td>
<td>Construction Materials, Properties And Testing</td>
<td>3</td>
</tr>
<tr>
<td>GEO 5471</td>
<td>Rock Engineering</td>
<td>3</td>
</tr>
<tr>
<td>GEO 4276</td>
<td>Environmental Aspects Of Mining</td>
<td>3</td>
</tr>
<tr>
<td>MIN 3913</td>
<td>Mineral Identification and Exploration</td>
<td>3</td>
</tr>
<tr>
<td>MIN 5612</td>
<td>Principles of Explosives Engineering</td>
<td>3</td>
</tr>
<tr>
<td>MIN 5822</td>
<td>Strata Control</td>
<td>3</td>
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</tbody>
</table>

Justification for request

Two changes are requested:
1. In the fall semester of the sophomore year, Geo Eng 1120 has been changed to Geo Eng 1119. Geo Eng 1120 does not exist. Geo Eng 1119 is the necessary course.
2. In the fall semester of the junior year, the “Earth Energy Elective” has been replaced with “Technical Elective”. The Geo Eng faculty have decided that the earth energy requirement is unnecessarily restrictive, and current earth energy courses either require excessive numbers of prerequisites or are not offered with sufficient frequency for students to routinely enroll in these courses.

Supporting Documents

Course Reviewer Comments

ershenb (Mon, 28 Aug 2017 14:52:26 GMT): updated Start Term to Fall 2018
shannonk (Wed, 06 Sep 2017 14:45:15 GMT): What about the course MIN ENG 308, this course number appears to need updating
shannonk (Wed, 06 Sep 2017 18:09:07 GMT): MIN ENG 308 Course not found removed after communication with David Borrok, old course number
sraper (Wed, 13 Sep 2017 21:13:31 GMT): Awaiting answers to questions with regard to H/SS restriction that does not match CEC/Engineering policy, and FE statement.
sraper (Fri, 10 Nov 2017 15:32:45 GMT): various edits related to H/SS list and FE statement.
ershenb (Fri, 10 Nov 2017 16:39:27 GMT): Per the request of Dr. Raper, removed AERO ENG 351 from Footnote D
ershenb (Wed, 10 Jan 2018 19:20:25 GMT): Footnote C had been removed so I updated the remaining footnote letters to keep them in the correct alphabetical order, per the request of Dr. Raper.

Key: 156
 HCI-MI: HUMAN-COMPUTER INTERACTION AND USER EXPERIENCE MINOR

In Workflow
1. RINFSCTE Chair (siauk@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Social Sciences DSCC Chair (barryf@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
1. Thu, 09 Nov 2017 04:16:12 GMT
   siauk: Approved for RINFSCTE Chair
2. Thu, 09 Nov 2017 17:08:57 GMT
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Thu, 09 Nov 2017 17:23:57 GMT
   Barry Flachsbart (barryf): Approved for Social Sciences DSCC Chair
4. Tue, 21 Nov 2017 21:26:46 GMT
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:24:17 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Wed, 10 Jan 2018 15:38:46 GMT
   sraper: Approved for Campus Curricula Committee Chair

History
1. Mar 17, 2015 by Barry Flachsbart (barryf)
2. Jul 28, 2015 by kleb6b
3. Jul 29, 2015 by pantaleoa
4. May 16, 2016 by pantaleoa

Date Submitted: Wed, 08 Nov 2017 15:58:37 GMT

Viewing: HCI-MI : Human-Computer Interaction and User Experience Minor
File: 238.6
Last approved: Mon, 16 May 2016 18:36:31 GMT
Last edit: Tue, 09 Jan 2018 22:22:59 GMT
Changes proposed by: barryf

Start Term
Summer 2018

Program Code
HCI-MI

Department
Business and Information Technology

Title
Program Requirements and Description

Minor in Human-Computer Interaction and User Experience

The minor in human-computer interaction and user experience requires the following 15 hours of coursework:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 1101</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>IS&amp;T 4654</td>
<td>Web and Digital Media Development</td>
<td>3</td>
</tr>
<tr>
<td>IS&amp;T 5885</td>
<td>Human-Computer Interaction</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>And two of the following</td>
<td>6</td>
</tr>
<tr>
<td>IS&amp;T 4680</td>
<td>Introduction to Web and New Media Studies</td>
<td></td>
</tr>
<tr>
<td>IS&amp;T 5886</td>
<td>Prototyping Human-Computer Interactions</td>
<td></td>
</tr>
<tr>
<td>IS&amp;T 5887</td>
<td>Human-Computer Interaction Evaluation</td>
<td></td>
</tr>
</tbody>
</table>

Justification for request

Provide additional flexibility

Supporting Documents

Course Reviewer Comments

ershenb (Wed, 22 Nov 2017 15:30:14 GMT): updated Start Term to Fall 2018
ershenb (Tue, 09 Jan 2018 22:22:59 GMT): updated Start Term to “Summer 2018”

Key: 238
INORGPS-MS: INDUSTRIAL ORGANIZATIONAL PSYCHOLOGY MS

In Workflow
1. RPSYCHOL Chair (murray@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Social Sciences DSCC Chair (barryf@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
   murray: Approved for RPSYCHOL Chair
2. Wed, 22 Nov 2017 14:59:12 GMT
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Tue, 05 Dec 2017 18:12:19 GMT
   Brittany Parnell (ershenb): Approved for Social Sciences DSCC Chair
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:19:56 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Wed, 10 Jan 2018 15:39:02 GMT
   sraper: Approved for Campus Curricula Committee Chair

History
1. Apr 17, 2014 by Lahne Black (lahne)
2. Apr 17, 2014 by Lahne Black (lahne)
3. Apr 24, 2014 by Lahne Black (lahne)
4. Apr 24, 2014 by Lahne Black (lahne)
5. Apr 24, 2014 by Lahne Black (lahne)
6. May 7, 2014 by Lahne Black (lahne)
7. Jul 8, 2014 by pantaleoa
8. Jul 29, 2014 by pantaleoa
9. Jun 19, 2015 by nstone
10. Jun 23, 2015 by pantaleoa
11. Jul 24, 2015 by pantaleoa
12. Jul 24, 2015 by pantaleoa
13. Dec 1, 2016 by Nathan Weidner (weidnern)

Date Submitted: Mon, 20 Nov 2017 21:45:06 GMT

Viewing: INORGPS-MS : Industrial Organizational Psychology MS
File: 234.20
Last approved: Tue, 11 Jul 2017 13:42:20 GMT
Last edit: Tue, 05 Dec 2017 18:13:00 GMT
Changes proposed by: weidnern
Program Requirements and Description

Master of Science in Industrial-Organizational Psychology

Admission Requirements

Students interested in the M.S. in I-O psychology program should review the admissions requirements listed on our website (http://psych.mst.edu/graduate/indorgpsych/).

Program Requirements

The M.S. in industrial-organizational psychology requires 40 credit hours which includes a thesis or non-thesis option. Students will complete 24 credit hours of core courses, 10 hours of methods courses, and either 6 hours of elective credits or 6 hours of thesis credits. Applied internship experiences are suggested, but not required as part of the program. The program will take at least 2 years to complete and classes are offered both on-campus and via distance.

Core Courses (24 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 5020</td>
<td>Introduction to Industrial-Organizational Psychology</td>
</tr>
<tr>
<td>PSYCH 5601</td>
<td>Small Group Dynamics</td>
</tr>
<tr>
<td>PSYCH 5602</td>
<td>Organizational Development</td>
</tr>
<tr>
<td>PSYCH 5700</td>
<td>Job Analysis and Performance Management</td>
</tr>
<tr>
<td>PSYCH 6610</td>
<td>Leadership, Motivation, and Culture</td>
</tr>
<tr>
<td>PSYCH 6702</td>
<td>Personnel Selection</td>
</tr>
<tr>
<td>PSYCH 6602</td>
<td>Job Attitudes, Emotions, and Discretionary Behaviors</td>
</tr>
<tr>
<td>PSYCH 6700</td>
<td>Training and Development</td>
</tr>
</tbody>
</table>

Methods Courses (10 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 5201</td>
<td>Psychometrics</td>
</tr>
<tr>
<td>PSYCH 5210</td>
<td>Advanced Research Methods</td>
</tr>
<tr>
<td>PSYCH 5012</td>
<td>Ethics and Professional Responsibilities</td>
</tr>
<tr>
<td>PSYCH 5202</td>
<td>Applied Psychological Data Analysis</td>
</tr>
</tbody>
</table>

Electives from list below or Thesis (6 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 5710</td>
<td>Advanced Human Factors</td>
</tr>
<tr>
<td>PSYCH 5600</td>
<td>Advanced Social Psychology</td>
</tr>
<tr>
<td>PSYCH 5001.001</td>
<td>Advanced Cognitive Psychology</td>
</tr>
<tr>
<td>PSYCH 5001.002</td>
<td>Occupational Health and Safety</td>
</tr>
</tbody>
</table>

Students completing a thesis would need to complete the following in place of electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYCH 6099</td>
<td>Research</td>
</tr>
</tbody>
</table>

Justification for request

We previously included Psych 5010 which was a seminar course. This has caused problems due to the limitation on seminar courses for MS programs.

To address this issue, we had changed 5010 to a lecture course. That has caused confusion because the XX10 courses are supposed to be reserved for seminars.

To address these issues, we have created a new course 5020 which will take the place of our 5010 seminar. 5010 will revert to a seminar course and will be an elective. 5020 will become a required course and be included in place of 5010. 5010 is being changed to "seminar in I-O Psych" and the new 5020 course is picking up the “Introduction to I-O Psychology” name. We hope to have these changes in place for the Fall 2018 semester.

Supporting Documents
Course Reviewer Comments

ershenb (Tue, 21 Nov 2017 16:13:15 GMT):

barryf (Thu, 23 Nov 2017 03:34:00 GMT): Fixed Core Courses list. BarryF I think we still need to fix the Methods Courses by listing the credit hours. I think we still need to clarify the Electives or Thesis section by listing the options and credit hours. BarryF


ershenb (Tue, 05 Dec 2017 18:13:00 GMT): Approved course form per the request of Dr. Flachsbart (technical issues).

Key: 234
PRE LAW-MI: PRE LAW MINOR

In Workflow
1. RHISTORY Chair (sfogg@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Arts & Humanities DSCC Chair (dewittp@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
1. Tue, 31 Oct 2017 20:35:52 GMT
   sfogg: Approved for RHISTORY Chair
2. Wed, 01 Nov 2017 14:04:18 GMT
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Wed, 01 Nov 2017 14:19:12 GMT
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair
4. Tue, 21 Nov 2017 21:26:53 GMT
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:43:09 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Wed, 10 Jan 2018 15:39:46 GMT
   sraper: Approved for Campus Curricula Committee Chair

Date Submitted: Mon, 30 Oct 2017 21:06:56 GMT

Viewing: PRE LAW-MI : Pre Law Minor
File: 121.1
Last edit: Tue, 09 Jan 2018 22:18:57 GMT
Changes proposed by: dewittp

Start Term
Fall 2018

Program Code
PRE LAW-MI

Department
History and Political Science

Title
Pre Law Minor

Program Requirements and Description

Prelaw Minor

To qualify, students must complete a minimum of 18 hours of coursework in the following disciplines.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHILDS 1115</td>
<td>Introduction To Logic</td>
<td>3</td>
</tr>
<tr>
<td>HISTORY 1300</td>
<td>American History To 1877</td>
<td>6</td>
</tr>
<tr>
<td>HISTORY 1310</td>
<td>American History Since 1877</td>
<td></td>
</tr>
</tbody>
</table>
Select three of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>POL SCI 1200</td>
<td>American Government</td>
</tr>
<tr>
<td>PHILO 1105</td>
<td>Introduction To Philosophy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGLISH 2410</td>
<td>Theory Of Written Communication</td>
</tr>
<tr>
<td>ENGLISH 3101</td>
<td>Advanced Composition</td>
</tr>
<tr>
<td>HISTORY 2510</td>
<td>History of Technology</td>
</tr>
<tr>
<td>HISTORY 3530</td>
<td>History of Science</td>
</tr>
<tr>
<td>HISTORY 4470</td>
<td>American Environmental History</td>
</tr>
<tr>
<td>HISTORY 2790</td>
<td>Historiography</td>
</tr>
<tr>
<td>PHILO 3235</td>
<td>Business Ethics</td>
</tr>
<tr>
<td>PHILO 4340</td>
<td>Social Ethics</td>
</tr>
<tr>
<td>PHILO 4345</td>
<td>Philosophy Of Science</td>
</tr>
<tr>
<td>PHILO 4350</td>
<td>Environmental Ethics</td>
</tr>
<tr>
<td>PHILO 4360</td>
<td>Foundations Of Political Conflict</td>
</tr>
<tr>
<td>POL SCI 3300</td>
<td>Principles Of Public Policy</td>
</tr>
<tr>
<td>POL SCI 3310</td>
<td>Public Policy Analysis</td>
</tr>
<tr>
<td>POL SCI 3760</td>
<td>The American Presidency</td>
</tr>
<tr>
<td>POL SCI 3763</td>
<td>Contemporary Political Thought</td>
</tr>
</tbody>
</table>

May substitute ONE of these three courses with one of the following with the approval of the advisor:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 1210</td>
<td>Financial Accounting</td>
</tr>
<tr>
<td>BUS 2910</td>
<td>Business Law</td>
</tr>
<tr>
<td>COMP SCI 4700</td>
<td>Intellectual Property For Computer Scientists</td>
</tr>
<tr>
<td>IS&amp;T 5168/PHILO 4368</td>
<td>Law and Ethics in E-Commerce</td>
</tr>
<tr>
<td>ECON 3830</td>
<td>History Of Economic Thought</td>
</tr>
<tr>
<td>ECON 4430</td>
<td>Cost-Benefit Analysis</td>
</tr>
<tr>
<td>ECON 4820</td>
<td>Labor Economics</td>
</tr>
<tr>
<td>ENG MGT 5514</td>
<td>Patent Law</td>
</tr>
<tr>
<td>ENG MGT 5512</td>
<td>Legal Environment</td>
</tr>
<tr>
<td>ETYM 4306</td>
<td>Introduction To Etymology</td>
</tr>
</tbody>
</table>

**Justification for request**

Add the following courses to the minor to satisfy the requirements for three courses beyond the mandated courses for the degree:

POL SC 225 Comparative Politics
POL SC 226 International Relations
POL SC 237 Contemporary Political Thought
POL SC 290 American Political Parties
POL SC 316 The American Presidency

**Supporting Documents**

**Course Reviewer Comments**

ershenb (Wed, 01 Nov 2017 14:03:41 GMT): updated Start Term to Fall 2018
ershenb (Tue, 09 Jan 2018 22:18:57 GMT): Made the "S" in Substitute lowercase

Key: 121
PROPOSED: BUSINESS APPLICATIONS AND SOFTWARE DEVELOPMENT MINOR

In Workflow
1. RINFSCTE Chair (siauk@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Social Sciences DSCC Chair (barryf@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
1. Fri, 01 Dec 2017 01:28:36 GMT
   siauk: Approved for RINFSCTE Chair
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Tue, 05 Dec 2017 15:32:47 GMT
   Brittany Parnell (ershenb): Approved for Social Sciences DSCC Chair
4. Thu, 07 Dec 2017 15:31:49 GMT
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:06:20 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Wed, 10 Jan 2018 15:40:30 GMT
   sraper: Approved for Campus Curricula Committee Chair

New Program Proposal
Date Submitted: Thu, 30 Nov 2017 13:54:23 GMT

Viewing: PROPOSED : Business Applications and Software Development Minor
File: 255
Last edit: Tue, 05 Dec 2017 15:36:24 GMT
Changes proposed by: barryf

Start Term
Fall 2018

Program Code
PROPOSED

Department
Business and Information Technology

Title
Business Applications and Software Development Minor

Program Requirements and Description
The Minor requires 15 credit hours, as follows:

Required Courses:
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS&amp;T 3553</td>
<td>Modular Software Systems in Java</td>
</tr>
</tbody>
</table>
IS&T 5520  Data Science and Machine Learning with Python

And three courses from the following list:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IS&amp;T 1552</td>
<td>Implementing Information Systems: Data Perspective</td>
</tr>
<tr>
<td>IS&amp;T 3131</td>
<td>Computing Internals And Operating Systems</td>
</tr>
<tr>
<td>IS&amp;T 3420</td>
<td>Introduction to Data Science and Management</td>
</tr>
<tr>
<td>IS&amp;T 3423</td>
<td>Database Management</td>
</tr>
<tr>
<td>IS&amp;T 3443</td>
<td>Database Applications in Business</td>
</tr>
<tr>
<td>ERP 5240</td>
<td>Enterprise Application Development and Software Security</td>
</tr>
</tbody>
</table>

Justification for request

Demand from recruiters for students with a focus in this area, plus input from our Advisory Board.

Supporting Documents

Course Reviewer Comments

ershemb (Tue, 05 Dec 2017 15:36:24 GMT): Approved the course form per the request of Dr. Flachsbart (technical issues).

Key: 255
PROPOSED: MASTER OF SCIENCE IN EXPLOSIVES TECHNOLOGY

In Workflow
1. RMINNUCL Chair (blusk@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Engineering DSCC Chair (sraper@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
   Braden lusk (blusk): Approved for RMINNUCL Chair
2. Wed, 08 Mar 2017 17:13:07 GMT
   Kristy Giacomelli (kristyg): Approved for CCC Secretary
   sraper: Approved for Engineering DSCC Chair
4. Fri, 30 Jun 2017 14:38:19 GMT
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:43:35 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Wed, 10 Jan 2018 15:40:01 GMT
   sraper: Approved for Campus Curricula Committee Chair

New Program Proposal
Date Submitted: Tue, 07 Mar 2017 00:34:10 GMT

Viewing: PROPOSED : Master of Science in Explosives Technology
File: 249
Last edit: Mon, 15 May 2017 21:10:09 GMT
Changes proposed by: kapqh4

Start Term
Spring 2018

Program Code
PROPOSED

Department
Mining & Nuclear Engineering

Title
Master of Science in Explosives Technology

Program Requirements and Description
The explosives engineering program in the department of mining and nuclear engineering offers the master of science (M.S.) and doctor of philosophy (Ph.D.) degrees and a minor and certificate in explosives engineering for students with bachelor’s degrees in engineering, science or technology. It also offers an explosives technology certificate and master of science (MS) for those with other bachelor’s degrees. Due to the age profile of the explosives industry and attrition of personnel, as well as the rapid change in technology within this field, there is an immediate and growing need for
highly trained explosives professionals in both the civilian explosive, mining and civil excavating fields and government and the defense industry. Employers are looking for engineers and scientists with sophisticated skills in the integration of explosives technology into complex systems in a wide range of applications. Employers are also seeking M.S. and Ph.D. graduates because they can move quickly into managerial positions.

Faculty involved in a variety of explosives related research programs teach and direct the program in conjunction with instruction by industry specialists in a wide range of applications. Students will have opportunities to assist the faculty, both in research and teaching, as well as working alongside faculty and graduate students in other engineering and science fields such as civil, architectural, mechanical, chemical, aerospace, electrical, geological and materials engineering and geology, geophysics, chemistry and physics. The explosives engineering faculty and students will be active in the leading professional societies such as the International Society for Explosives Engineers and those in a wide range of associated areas. A security background check is required for all students in the program.

The M.S. program requires a minimum of 30 hours of graduate credit. A core of four courses is required of all students, and a module of allied courses in departments outside of explosives engineering is encouraged.

M.S. with thesis: The M.S. degree with thesis requires the completion of 24 hours of graduate course work and six hours of research (Exp Eng 6099), and the successful completion and defense of a research thesis.

Four of the following core courses are required of all M.S. students in Explosives Engineering:

- Exp Eng 5612 Principles of Explosives Engineering
- Exp Eng 5622 Blasting Design and Technology
- Exp Eng 5713 Demolition of Buildings and Structures
- Exp Eng 5922 Tunneling and Underground Construction Techniques
- Exp Eng 6412 Environmental Controls for Blasting
- Exp Eng 6312 Scientific Instrumentation for Explosives and Blasting

Four of the following core courses are required of all M.S. students in Explosives Technology:

- Exp Eng 5612 Principles of Explosives Engineering
- Exp Eng 5622 Blasting Design and Technology
- Exp Eng 5711 Explosives in Industry
- Exp Eng 5713 Demolition of Buildings and Structures
- Exp Eng 5721 Specialty Uses of Energetic Materials
- Exp Eng 5914 Explosives Manufacturing
- Exp Eng 5922 Tunneling and Underground Construction Techniques
- Exp Eng 5711 Environmental Controls for Blasting
- Exp Eng 5721 Scientific Instrumentation for Explosives and Blasting
- Exp Eng 6112 Explosives Regulations

Students select 12 hours of Exp Eng and other appropriate elective courses. M.S. in explosives engineering and explosives technology candidates are advised to group out-of-department courses into a module that fits their special interest.

M.S. without thesis (by coursework): The M.S. degree without thesis requires the completion of 30 hours of graduate coursework with the same stipulations as above. The six hours of research is replaced by course work which may include an explosives related cooperative work experience (Exp Eng 6070) or industry project (Exp Eng 6080) with an established company or government agency commonly using explosives and an additional explosives course.

Justification for request

We are applying for an M.S. degree in Explosives Technology. Building on our Masters of Explosives Engineering degree, the Masters of Explosives Technology degree has high potential for attracting students from our online certificate program, particularly from the military and government. The ATF, which currently sends 30-40 agents per year through our Explosives Technology Certificate program, has requested that we make changes to the Certificate program (currently in progress) to accommodate an extra 30-40 agents a year and also develop a Masters of Explosives Technology degree.

We receive a constant stream of inquiries about our current program. However prospective students without an engineering or physical science degree are currently limited in their options. The Graduate Certificate in Explosives Technology was developed in response to the demand from these students. However, in order to continue on to the M.S. in Explosives Engineering, a series of makeup/prerequisite courses are required for most of these students. An M.S. in Explosives Technology would allow these students (who are mostly military) to continue on.
The ATF has requested that we develop the degree so that their agents can continue on to an M.S. degree. Currently only a handful of the agents that have received the Explosives Technology Graduate Certificate have had engineering or physical science degrees. They are wanting to double the number of agents they send through this program and to encourage their agents to continue on to an M.S. degree, and have requested that we develop the M.S. in Explosives Technology degree. In addition it would cater to the demand from military EOD and other students. There will continue to be growing opportunities for graduates with explosives qualifications in the defense, consulting and explosives manufacturing industries and in government. It is expected that the overwhelming majority of our online students will already have a job in industry, the military or a government agency and will be using the M.S. to advance their career, but we would also like to be able to offer the degree on campus so that students can complete the degree in a shorter time frame and move on to a new career. We have already had army officers come to campus and complete their M.S. degree in Explosives Engineering upon their separation from the army.

Supporting Documents

Explosives Technology MS Proposal 3-06-17.pdf
FinancialProjections - MS Explosives Technology.xlsx

Course Reviewer Comments

sraper (Mon, 15 May 2017 21:10:09 GMT): There were no objections from the DSCC to this new program.

Key: 249
PROPOSED: MINOR IN FINANCIAL TECHNOLOGY (FINTECH)

In Workflow
1. RBUSADMN Chair (siauk@mst.edu)
2. CCC Secretary (ershenb@mst.edu)
3. Social Sciences DSCC Chair (barryf@mst.edu)
4. Pending CCC Agenda post (ershenb@mst.edu)
5. CCC Meeting Agenda (ershenb@mst.edu)
6. Campus Curricula Committee Chair (sraper@mst.edu)
7. FS Meeting Agenda (ershenb@mst.edu)
8. Faculty Senate Chair (sedighs@mst.edu)
9. Registrar (kristyg@mst.edu)
10. Kristy Giacomelli (kristyg@mst.edu)

Approval Path
1. Fri, 01 Dec 2017 01:28:11 GMT
   siauk: Approved for RBUSADMN Chair
   Brittany Parnell (ershenb): Approved for CCC Secretary
3. Tue, 05 Dec 2017 18:13:29 GMT
   Brittany Parnell (ershenb): Approved for Social Sciences DSCC Chair
4. Thu, 07 Dec 2017 17:03:27 GMT
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. Tue, 09 Jan 2018 22:06:00 GMT
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda
6. Wed, 10 Jan 2018 15:40:09 GMT
   sraper: Approved for Campus Curricula Committee Chair

New Program Proposal
Date Submitted: Thu, 30 Nov 2017 13:53:34 GMT

Viewing: PROPOSED : Minor in Financial Technology (FinTech)
File: 256
Last edit: Tue, 05 Dec 2017 18:14:35 GMT
Changes proposed by: barryf

Start Term
Fall 2018

Program Code
PROPOSED

Department
Business and Information Technology

Title
Minor in Financial Technology (FinTech)

Program Requirements and Description
The Minor requires 15 credit hours, as follows:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINANCE 2150</td>
<td>Corporate Finance I</td>
</tr>
<tr>
<td>FINANCE 5310</td>
<td>Financial Modeling</td>
</tr>
</tbody>
</table>
And one course from the following list:  
- FINANCE 5160 Corporate Finance II  
- FINANCE 5260 Investments I  
- BUS 5230 Financial Statement Analysis

And one course from the following list:  
- IS&T 5520 Data Science and Machine Learning with Python  
- IS&T 4641 Digital Commerce and the Internet of Things  
- IS&T 4780 Human and Organizational Factors in Cybersecurity  
- ERP 5410 Use of Business Intelligence  
- ERP 5210 Performance Dashboard, Scorecard and Data Visualization

Justification for request

Strong inputs from our Advisory Board, companies who hire our graduates, and our own research directions.

Supporting Documents

Course Reviewer Comments

ershenb (Tue, 05 Dec 2017 18:14:35 GMT): Approved per the request of Dr. Flachsbart (technical issues).

Key: 256
Course Change Request

New Experimental Course Proposal

Date Submitted: 10/25/17 3:43 pm

Viewing: BIO SCI 5001.001 : Ichthyology

File: 4492

Last edit: 01/09/18 10:38 am

Changes proposed by: duvernelld

Requested Effective Change Date
Fall 2018

Department Biological Sciences

Discipline Biological Sciences (BIO SCI)

Course Number 5001

Topic ID 001

Experimental Title Ichthyology

Experimental Abbreviated Course Title Ichthyology

Instructors David Duvernell

Experimental Catalog Description An introduction to evolutionary relationships, ecology, morphology, physiology and behavior of fishes, with emphasis on local fauna. There will be four or five Saturday field collecting trips scheduled in the first six weeks of the semester, and students will be required to attend at least three of them.


Field Trip Statement

Credit Hours LEC: 3 LAB: 1 IND: 0 RSD: 0 Total: 4

Justification for new course: This course will add a critical organismal diversity dimension to enhance both undergraduate and graduate programs. The Biological Sciences undergraduate and graduate programs do not currently offer any advanced organismal diversity courses on a regular basis. In addition, these programs offer relatively few options for students to enroll in lab courses or field courses.

Semester(s) previously taught none

Co-Listed Courses:

course reviewer comments ershenb (01/09/18 10:38 am): moved Field Trip Statement to Description section. Added ; after Bio Sci 1219 and added a . after Bio Sci 1229 in Prerequisites section.

In Workflow
1. RBIOLSCI Chair
2. CCC Secretary
3. Sciences DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path
1. 11/10/17 8:58 am
David Duvernell
(duvernelld): Approved for RBIOLSCI Chair

2. 11/13/17 8:13 am
Brittany Parnell
(ershenb): Approved for CCC Secretary

3. 11/17/17 12:19 pm
Katie Shannon
(shannonk): Approved for Sciences DSCC Chair

4. 11/21/17 3:25 pm
Brittany Parnell
(ershenb): Approved for Pending CCC Agenda post

5. 01/09/18 10:38 am
Brittany Parnell
(ershenb): Approved for CCC Meeting Agenda

6. 01/09/18 12:13 pm
sraper: Approved for Campus Curricula Committee Chair

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4492/index.html...
Course Change Request

New Experimental Course Proposal

Date Submitted: 11/10/17 8:56 am

Viewing: BIO SCI 5001.002 : Population and Conservation Genetics

File: 4497
Last edit: 01/09/18 10:42 am
Changes proposed by: duvernelld

Requested Effective Change Date: Fall 2018

Department: Biological Sciences
Discipline: Biological Sciences (BIO SCI)
Course Number: 5001
Topic ID: 002
Experimental Title: Population and Conservation Genetics
Experimental Abbreviated Course Title: Pop and Cons Genetics
Instructors: David Duvernell

Experimental Catalog Description:
An overview of population genetics theory with a focus on evolutionary processes (mutation, natural selection, genetic drift, inbreeding, recombination and gene flow), and a review of molecular data collection and analysis methods. Emphasis will be placed on application to conservation genetics with a review of examples from current literature.

Prerequisites: Bio Sci 2223 and Bio Sci 2233.

Field Trip Statement:

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

Justification for new course:
The topic of population and conservation genetics synthesizes the fields of molecular genetics and evolutionary biology with a focus on examples at the organism and population level. The Biological Sciences program is in need of more organism and population level courses, and this course fills that need while potentially appealing to students who think they are more interested in molecular biology.

Semester(s) previously taught: none

Co-Listed Courses:

Course Reviewer Comments:
ershenb (12/07/17 10:56 am): Rollback: Rollback per the request of Dr. Shannon and Dr. Duvernell

ershenb (12/07/17 10:56 am):
ershenb (01/09/18 10:42 am):

Approval Path
1. 11/10/17 8:59 am
   David Duvernell (duvernelld):
   Approved for RBIOLSCI Chair
2. 11/13/17 9:33 am
   Brittany Parnell
   (ershenb):
   Approved for CCC Secretary
3. 11/17/17 12:20 pm
   Katie Shannon (shannonk):
   Approved for Sciences DSCC Chair
4. 11/21/17 3:25 pm
   Brittany Parnell (ershenb):
   Rollback to Sciences DSCC Chair for CCC Meeting Agenda
5. 12/07/17 10:56 am
   Brittany Parnell (ershenb):
   Rollback to Sciences DSCC Chair for CCC Meeting Agenda
6. 12/07/17 11:20 am
   Katie Shannon (shannonk):

https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4497/index.html...
<table>
<thead>
<tr>
<th><strong>Experimental Course</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Viewing:</strong> CHEM ENG 4001.001 : Introduction to Phase Equilibrium</td>
</tr>
</tbody>
</table>

File: 4440.5  
Last approved: 01/10/18 9:59 am  
Last edit: 10/31/17 11:23 am

- **Requested Effective Change Date**: Spring 2018
- **Department**: Chemical and Biochemical Engineering
- **Discipline**: Chemical Engineering (CHEM ENG)
- **Course Number**: 4001
- **Topic ID**: 001
- **Experimental Title**: Introduction to Phase Equilibrium
- **Experimental Abbreviated Course Title**: Phase Equilibrium
- **Instructors**: Dr. Christi Luks
This course is intended as a supplement to a mechanical Thermodynamics 1 course to prepare students for Thermodynamics 2. Review of the first and second law of thermodynamics for pure substances with emphasis on finding data for pure substances via fundamental relations and equations of state; phase equilibrium and fugacity of pure substances.

Prerequisites
Mech Eng 2519 and Math 2222.

Field Trip
Statement

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

Total: 1

Justification for change:

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer
Comments

Key: 4440
Preview Bridge
New Experimental Course Proposal

Date Submitted: 10/25/17 4:19 pm

Viewing: CIV ENG 4001.001: Infrastructure Sustainability through Recycling

File: 4491
Last edit: 01/09/18 10:46 am
Changes proposed by: abdelrahmanmd

Requested: Spring 2018
Effective Change Date:

Department: Civil, Architectural, and Environmental Engineering
Discipline: Civil Engineering (CIV ENG)
Course Number: 4001
Topic ID: 001

Experimental Title: Infrastructure Sustainability through Recycling
Experimental Abbreviated Course Title: Infrastructure Recycling

Instructors: Magdy Abdelrahman & Mark Fitch

Experimental Catalog Description: The course introduces infrastructure sustainability with a focus on recycling as used in rehabilitation techniques. Properties, types, usage, design and construction of recycled materials are presented. Environmental impacts are discussed.

Prerequisites: Preceded or accompanied by Civ Eng 2601 and preceded by Civ Eng 3116.

Field Trip Statement:

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

Justification for new course: As recycling and rehabilitation of infrastructure is increasingly significant in Civil Engineering, this course provides knowledge and skills in the areas of material testing, environmental testing, and decision making related to recycling materials such as asphalt and concrete.

Semester(s) previously taught:

Co-Listed Courses:

Course Reviewer: ershenb (01/09/18 10:46 am): Switched the order of "Civ Eng 2601" and "Civ Eng 3116" in the Prerequisites.

Approval Path
1. 11/14/17 3:48 pm Kristy Giacomelli (kristyg): Approved for RCVILEN Chair
2. 11/16/17 2:08 pm Brittany Parnell (ershenb): Approved for CCC Secretary
3. 11/21/17 9:53 am sraper: Approved for Engineering DSCC Chair
4. 11/21/17 3:26 pm Brittany Parnell (ershenb): Approved for Pending CCC Agenda post
5. 01/09/18 10:46 am Brittany Parnell (ershenb): Approved for CCC Meeting Agenda post
6. 01/09/18 12:18 pm sraper: Approved for Campus Curricula Committee Chair
7. 01/10/18 9:10 am Marita Tibbetts (tibbettsmg):
# Course Change Request

## New Experimental Course Proposal

**Date Submitted:** 11/13/17 3:12 pm  
**Viewing:** CIV ENG 6001.002: Pavement Management, Evaluation and Rehabilitation

### View of CIV ENG 6001.002: Pavement Management, Evaluation and Rehabilitation

**File:** 4490  
**Last edit:** 01/09/18 10:49 am  
**Changes proposed by:** abdelrahmanm

- **Requested Effective Change Date:** Spring 2018  
- **Department:** Civil, Architectural, and Environmental Engineering  
- **Course Number:** 6001  
- **Topic ID:** 002  
- **Experimental Title:** Pavement Management, Evaluation and Rehabilitation  
- **Experimental Abbreviated Course Title:** Pavement Management  
- **Instructors:** Magdy Abdelrahman  
- **Experimental Catalog Description:** Advanced knowledge of pavement performance; pavement evaluation; implementation of pavement management at network and project levels; maintenance and rehabilitation strategies; life-cycle cost analysis.  
- **Prerequisites:** Graduate Standing.  
- **Field Trip Statement:**  
- **Credit Hours:**  
  - LEC: 2  
  - LAB: 1  
  - IND: 0  
  - RSD: 0  
  - Total: 3

**Justification for new course:** As rehabilitation of pavement is increasingly significant in Civil Engineering, this course provides advanced knowledge and skills in the areas of rehabilitation, maintenance, and decision making related to pavement management.

The course will build background for graduate students conducting research in the area of pavement engineering.

**Semester(s) previously taught:**

**Co-Listed Courses:**

**Course Reviewer Comments:**

- sraper (11/15/17 8:01 am): removed hyphen from course description.
- ershenb (01/09/18 10:49 am): added a "." after "Graduate Standing" in the Prerequisites.
Course Change Request

New Experimental Course Proposal

Date Submitted: 11/03/17 6:12 pm

Viewing: COMP SCI 3001.002 : Introduction to Data Science

File: 4494

Last edit: 01/09/18 10:53 am

Changes proposed by: tauritzd

Requested Effective Change Date

Department Computer Science

Discipline Computer Science (COMP SCI)

Course Number 3001

Topic ID 002

Experimental Title Introduction to Data Science

Experimental Abbreviated Course Title Intro to Data Science

Instructors Yanjie Fu

Experimental Catalog Description

This course introduces the fundamental concepts and lifecycle of data science, including (1) programming languages for data science, (2) data representation, collection and preprocessing, (3) data indexing, retrieval and management, (4) data mining, modeling, and visualization, (5) data security and privacy, and (6) data science system development.

Prerequisites A grade of "C" or better in Comp Sci 2300, Comp Sci 2500, and in one of Stat 3113, Stat 3115, Stat 3117 or Stat 5643.

Field Trip Statement None

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

Justification for new course: Computer scientists increasingly work in data science, yet currently there is no undergraduate course in data science with a technically challenging computer science focus. This proposed new course remedies that lack and meets strong student demand for such a course, providing both an undergraduate level treatment of this timely material and complementing, as well as providing a foundation for, our graduate course offering in data mining, machine learning, computer vision, and deep learning.

Semester(s) previously taught None

Co-Listed Courses:

Course Reviewer Comments ershenb (01/09/18 10:53 am): removed "in" after Comp Sci 2300 in Prerequisites.
# New Experimental Course Proposal

**Course Change Request**

Date Submitted: 10/31/17 12:57 pm

**Viewing:** **ELEC ENG 3001.001 : Intelligent Robotics**

File: 4496

Last edit: 01/09/18 10:57 am

Changes proposed by: kte

<table>
<thead>
<tr>
<th>Requested Effective Change Date</th>
<th>Fall 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Discipline</td>
<td>Electrical Engineering (ELEC ENG)</td>
</tr>
<tr>
<td>Course Number</td>
<td>3001</td>
</tr>
<tr>
<td>Topic ID</td>
<td>001</td>
</tr>
<tr>
<td>Experimental Title</td>
<td>Intelligent Robotics</td>
</tr>
<tr>
<td>Experimental Abbreviated Course Title</td>
<td>Intelligent Robotics</td>
</tr>
<tr>
<td>Instructors</td>
<td>Jagannathan Sarangapani</td>
</tr>
</tbody>
</table>

**Experimental Catalog Description**

Introduction to robotics, coordinate transformation, D-H parameters, forward and inverse kinematics, dynamics, state space representation, linear and computed torque control, sensing and intelligence, intelligent control.

**Prerequisites**

A grade of "C" or better in Elec Eng 2120, Math 3108, and Math 3304; passing the Elec Eng Advancement Exam II.

**Field Trip Statement**

**Credit Hours**

<table>
<thead>
<tr>
<th>LEC</th>
<th>LAB</th>
<th>IND</th>
<th>RSD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

**Justification for new course:**

Increasing interest in robotics and lack of robotics courses at the undergraduate (below 5000 level) curriculum.

**Semester(s) previously taught**

None

**Co-Listed Courses:**

COMP ENG 3001 - Special Topics

**Course Reviewer Comments**

**sraper (11/13/17 10:03 am):**

Added "C" or better requirement to prereqs per K. Erickson and clarified as well.

**sraper (11/21/17 9:57 am):**

Modified course description as provided by K. Erickson (EE).

**ershenb (01/09/18 10:57 am):**

Moved "a grade of "C" or better" to the beginning of the Prerequisite and added the word "and" before Math 3304.

**Approval Path**

1. 11/04/17 3:57 pm
   Daryl Beetner (daryl): Approved for RELECENG Chair

2. 11/06/17 4:11 pm
   Brittany Parnell (ershenb): Approved for CCC Secretary

3. 11/21/17 9:57 am
   sraper: Approved for Engineering DSCC Chair

4. 11/21/17 3:26 pm
   Brittany Parnell (ershenb): Approved for Pending CCC Agenda post

5. 01/09/18 10:58 am
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda post

6. 01/09/18 12:19 pm
   sraper: Approved for Campus Curricula Committee Chair

7. 01/10/18 9:02 am
   Marita Tibbetts (tibbettsmg):
# Course Change Request

## New Experimental Course Proposal

**Date Submitted:** 10/23/17 3:30 pm  
**Viewing:** **ELEC ENG 6001.006 : Introduction to Nonlinear Optics**  
**File:** 4488  
**Last edit:** 01/09/18 10:59 am  
**Changes proposed by:** sweetk

<table>
<thead>
<tr>
<th>Requested Effective Change Date</th>
<th>Spring 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Electrical and Computer Engineering</td>
</tr>
<tr>
<td>Discipline</td>
<td>Electrical Engineering (ELEC ENG)</td>
</tr>
<tr>
<td>Course Number</td>
<td>6001</td>
</tr>
<tr>
<td>Topic ID</td>
<td>006</td>
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<tr>
<td>Experimental Title</td>
<td>Introduction to Nonlinear Optics</td>
</tr>
<tr>
<td>Experimental Abbreviated Course Title</td>
<td>Nonlinear Optics</td>
</tr>
<tr>
<td>Instructors</td>
<td>Jie Huang</td>
</tr>
</tbody>
</table>

**Experimental Catalog Description:** This course bridges the gap between conventional courses in optics/electromagnetics and the modern applications of optics in spectroscopy and photonics. The course will provide insight into the physical principle of nonlinear optics and interaction of light with matter from the introduction of anisotropic media to second and third order nonlinear optics.

**Prerequisites:** A basic background in optics or electromagnetics is recommended.

**Field Trip Statement:**

**Credit Hours:**  
- LEC: 3  
- LAB: 0  
- IND: 0  
- RSD: 0  
- Total: 3.0

**Justification for new course:** The field of nonlinear optics emerges from a number of disciplines including electrical engineering, physics, materials science and engineering, and mechanical engineering. The proposed course is designed to bridge the gap between the conventional courses in optics/electromagnetics and the modern applications of optics in spectroscopy and photonics. There is no similar course on campus. Missouri S&T has more than 20 faculty working in optics and photonics, but only offers a few courses related to optics. This course will benefit the graduate students pursuing their M.S. or Ph.D. degrees in photonics, physics, electrical engineering and materials science.

**Semester(s) previously taught:**

**Co-Listed Courses:**

**Course Reviewer Comments:**  
ershenb (01/09/18 10:59 am): changed LEC credit hours from "3.0" to "3"
Course Change Request

New Experimental Course Proposal

Date Submitted: 11/30/17 8:07 am

Viewing: HISTORY 3001.003 : Slavery in the Atlantic World

File: 4504

Last edit: 01/09/18 2:32 pm

Changes proposed by: popejj

Requested Effective Change Date: Fall 2018

Department: History and Political Science

Discipline: History (HISTORY)

Course Number: 3001

Topic ID: 003

Experimental Title: Slavery in the Atlantic World

Experimental Abbreviated Course Title: Slavery Atlantic World

Instructors: Pope

Experimental Catalog Description: This course explores the role of slavery in the history of the Americas, Europe, and Africa. By focusing on the development of "New World Slavery," the course evaluates how slavery shaped the world we live in today.

Prerequisites: Hist 1100 or Hist 1200 or Hist 1300.

Field Trip Statement:

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

Justification for new course: Missouri S&T does not currently offer a course on American or world slavery.

Semester(s) previously taught:

Co-Listed Courses:

Course Reviewer: ershenb (01/09/18 11:01 am): lowercased "HIST" to "Hist" in Prerequisites.

Comments: tibbettsmg (01/09/18 2:32 pm): Rollback: test
7. 01/09/18 2:32 pm  
Marita Tibbetts  
(tibbettsmg):  
Rollback to CCC  
Secretary for CAT entry

8. 01/09/18 2:35 pm  
Brittany Parnell  
(ershenb):  
Approved for CCC  
Secretary

9. 01/10/18 9:01 am  
Marita Tibbetts  
(tibbettsmg):  
Approved for CAT entry
**Course Change Request**

**New Experimental Course Proposal**

Date Submitted: 11/29/17 6:41 pm

Viewing: **MECH ENG 6001.002: Fundamentals of Metal Additive Manufacturing Processes**

File: 4502

Last edit: 12/07/17 11:19 am

Changes proposed by: nisbett

<table>
<thead>
<tr>
<th>Requested Effective Change Date</th>
<th>Spring 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>Department</td>
<td>Mechanical &amp; Aerospace Engineering</td>
</tr>
<tr>
<td>Discipline</td>
<td>Mechanical Engineering (MECH ENG)</td>
</tr>
<tr>
<td>Course Number</td>
<td>6001</td>
</tr>
<tr>
<td>Topic ID</td>
<td>002</td>
</tr>
<tr>
<td>Experimental Title</td>
<td>Fundamentals of Metal Additive Manufacturing Processes</td>
</tr>
<tr>
<td>Abbreviated Course Title</td>
<td>Metal Additive Manufact</td>
</tr>
<tr>
<td>Instructor</td>
<td>Lianyi Chen</td>
</tr>
</tbody>
</table>

**Experimental Catalog Description**

This course covers the fundamental physics in metal additive manufacturing processes, particularly the following processes: powder flow and spattering, laser-powder interaction, melt pool dynamics, solidification, postprocessing, residual stress evolution, and additive manufacturing of emerging materials (metal matrix composites and metallic glasses).

**Prerequisites**

Mech Eng 5519 or Mech Eng 5525.

**Field Trip Statement**

**Credit Hours**

| LEC: 3 | LAB: 0 | IND: 0 | RSD: 0 | Total: 3 |

In Workflow

1. RMECHENG Chair
2. CCC Secretary
3. Engineering DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path

1. 11/30/17 7:28 am
   James Drallmeier (drallmei):
   Approved for RMECHENG Chair
2. 11/30/17 10:03 am
   Brittany Parnell (ershenb):
   Approved for CCC Secretary
3. 12/04/17 1:36 pm
   sraper: Approved for Engineering DSCC Chair
4. 12/07/17 11:21 am
   Brittany Parnell (ershenb):
   Approved for Pending CCC Agenda post
5. 01/09/18 11:03 am
   Brittany Parnell (ershenb):
<table>
<thead>
<tr>
<th>Course Reviewer</th>
<th>Comments</th>
</tr>
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<tbody>
<tr>
<td><strong>sraper (12/04/17 1:36 pm)</strong></td>
<td>Changed prereq statement.</td>
</tr>
</tbody>
</table>

Justification for new course:
Important developing area of research and application.

Semester(s) previously taught
None

Co-Listed Courses:

<table>
<thead>
<tr>
<th>Approved for CCC Meeting Agenda</th>
<th>6. 01/09/18 12:19 pm</th>
<th>sraper: Approved for Campus Curricula Committee Chair</th>
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<tbody>
<tr>
<td>Marita Tibbetts (tibbettsmg):</td>
<td>Approved for CAT entry</td>
<td></td>
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</tbody>
</table>

Key: 4502
## New Experimental Course Proposal

**Date Submitted:** 11/17/17 1:55 pm  
**Viewing:** NUC ENG 2001.001: Professional Development for Nuclear Engineers  
**File:** 4498  
**Last edit:** 01/09/18 11:05 am  
**Changes proposed by:** schlegelj

### Requested Effective Change Date

- **Fall 2018**

### Department

Mining & Nuclear Engineering

### Discipline

Nuclear Engineering (NUC ENG)

### Course Number

2001

### Topic ID

001

### Experimental Title

Professional Development for Nuclear Engineers

### Experimental Abbreviated Course Title

Prof Dev Nuc Eng

### Instructors

Joshua Schlegel

### Experimental Catalog Description

An outline of key topics in professional development important for the success of engineering students both during their education and in their profession. Content will range from resume development to technical writing, problem solving approaches, and using computers to solve various types of engineering problems.

### Prerequisites

Must be accompanied by Comp Sci 1971 or Comp Sci 1972.

### Field Trip Statement

None

### Credit Hours

<table>
<thead>
<tr>
<th>LEC</th>
<th>LAB</th>
<th>IND</th>
<th>RSD</th>
<th>Total</th>
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<tr>
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<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

### Justification for new course:

This course is intended to help students prepare for internships and job searches and help familiarize them with tools and approaches they will need as they progress through their nuclear engineering program.

### Semester(s) previously taught

None

### Co-Listed Courses:

None

### Course Reviewer Comments

ershenb (01/09/18 11:05 am): removed "Co-requisite" from Prerequisites section and replaced with "Must be accompanied by"

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**In Workflow**  
1. RMINNUCL Chair  
2. CCC Secretary  
3. Engineering DSCC Chair  
4. Pending CCC Chair Agenda post  
5. CCC Meeting Agenda  
6. Campus Curricula Committee Chair  
7. CAT entry  
8. Registrar

**Approval Path**

1. 11/17/17 2:10 pm  
   Braden lusk (blusk): Approved for RMINNUCL Chair  
2. 11/20/17 10:39 am  
   Brittany Parnell (ershenb): Approved for CCC Secretary  
3. 11/21/17 9:58 am  
   sraper: Approved for Engineering DSCC Chair  
4. 11/21/17 3:26 pm  
   Brittany Parnell (ershenb): Approved for Pending CCC Chair Agenda post  
5. 01/09/18 11:05 am  
   Brittany Parnell (ershenb): Approved for CCC Meeting Agenda  
6. 01/09/18 12:19 pm  
   sraper: Approved for Campus Curricula Committee Chair  
7. 01/10/18 8:59 am  
   Marita Tibbetts

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https://nextcatalog.mst.edu/courseleaf/courseleaf.cgi?page=/courseadmin/4498/index.html...  
1/10/2018