

## **Campus Curricula Committee Meeting Agenda**

**August 17, 2015**

**2:30-4:00 p.m., Room 110H Bertelsmeyer Hall**

### **Prerequisite Discussion**

#### **Graduate Faculty Proclamations**

#### **Review of submitted Degree Change forms:**

File #143.13 Architectural Engineering: Architectural Engineering BS

File #152.14 Civil Engineering: Civil Engineering BS

File #153.26 Computer Engineering: Computer Engineering BS

File #108.1 Petroleum Engineering: Petroleum Engineering BS

#### **Review of submitted Course Change forms:**

File #4219 Architectural Engineering 3803: Building Electrical Systems

File #2069.1 Architectural Engineering 3805: Building Lighting Systems

File #2267.1 Art 1190: Achieving a Life of Art

File #4231 Ceramic Engineering 3110: Introduction to Biomedical Engineering

File #1759.1 Chemistry 1310: General Chemistry I

File #1885.1 Chemistry 1320: General Chemistry II

File #1098.1 Chemistry 2220: Organic Chemistry II

File #195.1 Civil Engineering 2003: Engineering Communications and Computations

File #4205 Computer Engineering 1200: Introduction to Digital Electronics

File #2375.2 Computer Engineering 5450: Digital Image Processing

File #180.3 Computer Engineering 5460: Machine Vision

File #2280.1 Computer Engineering 6330: Clustering Algorithms

File #705.1 Electrical Engineering 5160: Computer-Aided Network Design

File #904.1 Electrical Engineering 5170: Introduction to Circuit Synthesis

File #2076.1 Electrical Engineering 5320: Neural Networks Control and Applications

File #2530.1 Electrical Engineering 5330: Fuzzy Logic Control

File #958.1 Electrical Engineering 5400: Digital Signal Processing II

File #486.1 Electrical Engineering 5650: Microwave and Millimeter Wave Engineering and Design

File #1281.1 Electrical Engineering 6400: Advanced Digital Signal Processing

File #1466.1 Music 1133: Highland Pipe Band

File #2465.1 Music 1142: Collegium Musicum – King's Musicke

File #1171.1 Music 1143: Collegium Musicum – Madrigal Singers

File #4228 Nuclear Engineering 4345: Applied Mathematics in Nuclear Engineering

File #4189 Petroleum Engineering 3320: Petrophysics



- File #1975.1 Petroleum Engineering 4710: Finite Element Analysis with Applications in Petroleum Engineering
- File #2185.4 Petroleum Engineering 6231: Drilling Optimization
- File #1754.1 Philosophy 3205: Early Modern Philosophy

**Review of submitted Experimental Course forms:**

- File #4215 Biological Sciences 4001.001: Mammal Ecology
- File #4217 Chemistry 6001.001: Advanced Analytical Techniques for Small Biomolecules and Nanoparticles
- File #4210 Computer Science 1001.001: Data Structures Laboratory
- File #4212 Information Science & Technology 4001.001: Human and Organizational Factors in Information Assurance
- File #1471.1 Information Science & Technology 5001.001: Privacy and Information Security Law
- File #4213 Information Science & Technology 6001.001: Advanced Human and Organizational Factors in Information Assurance
- File #4233 Mechanical Engineering 6001.001: Advanced Optical Materials and Structures
- File #4237 Petroleum Engineering 5001.001: Geomechanical Applications in Petroleum Engineering
- File #4230 Philosophy 3001.001: Kant and 19th Century Philosophy
- File #4216 Political Science 4001.001: Environmental Politics and Policy
- File #4218 Theatre 2001.001: Voice, Diction and Interpretation

## Program Change Request

Date Submitted: 06/09/15 2:48 pm

Viewing: **ARC ENG-BS : Architectural Engineering BS**

File: 143.13

Last approved: 01/30/15 8:50 am

Last edit: 06/29/15 9:47 am

Changes proposed by: baur

Catalog Pages Using this Program [Architectural Engineering](#)

Start Term Fall **2016** ~~2015~~  
 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 a 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** ~~128~~-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. At least two grade points per credit hour must also be attained 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:

- 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](#). The humanities course must be selected from the approved lists for art, English, foreign languages, music, philosophy, speech and media studies, or theater.
- Depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000-level or above and must be selected from "The Approved List of Humanities and Social Science Courses for Engineering Degrees" maintained by the Office of Undergraduate Studies. This course must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000-level. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
- The remaining two courses are to be chosen from the list of approved humanities/social sciences courses and may include one communications course in addition to [ENGLISH 1120](#).
- Any specific departmental requirements in the general studies area must be satisfied.
- 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.

### In Workflow

- RCIVILEN Chair
- CCC Secretary
- Engineering DSCC Chair
- Pending CCC Agenda post
- CCC Meeting Agenda
- Campus Curricula Committee Chair
- FS Meeting Agenda
- Faculty Senate Chair
- Registrar
- kristyg

### Approval Path

- 06/09/15 4:40 pm wschon: Approved for RCIVILEN Chair
- 06/10/15 12:00 pm Kaylor Buckner (kleb6b): Approved for CCC Secretary
- 06/29/15 9:47 am sraper: Approved for Engineering DSCC Chair

### History

- Sep 27, 2013 by lahne
- Sep 27, 2013 by lahne
- Apr 28, 2014 by lahne
- Aug 4, 2014 by pantaleoa
- Jan 30, 2015 by baur

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.

### Free Elective Footnote:

Each student is required to take three hours of free elective in consultation with his/her academic advisor. Credits which do not count towards this requirement are deficiency courses (such as algebra and trigonometry), and extra credits in required courses. Any courses outside of Engineering and Science must be at least three credit hours.

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CHEM 1100</a>	1	<a href="#">MATH 1215</a>	4
<a href="#">FR ENG 1100<sup>2</sup></a>	1	General Ed Elective <sup>1</sup>	3
<a href="#">MATH 1214</a>	4	<a href="#">MECH ENG 1720</a>	3
<a href="#">ENGLISH 1120</a>	3	<a href="#">PHYSICS 1135</a>	4
General Ed Elective <sup>1</sup>	3		
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a>	5		
	17		14
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CIV ENG 2200<sup>2</sup></a>	3	<a href="#">STAT 3113</a>	3
<a href="#">MATH 2222</a>	4	<a href="#">CIV ENG 2210<sup>2</sup></a>	3
<a href="#">PHYSICS 2135</a>	4	<a href="#">CIV ENG 2211</a>	1
<a href="#">ARCH ENG 2003</a>	3	<a href="#">ARCH ENG 2103</a>	3
<a href="#">CIV ENG 2401<sup>2</sup></a>	3	<a href="#">ART 3203</a>	3
		<a href="#">MATH 3304</a>	3
		<a href="#">MECH ENG 2350</a>	2
	17		18
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">ARCH ENG 3201<sup>2</sup></a>	3	<a href="#">ARCH ENG 3805</a>	3
<a href="#">CIV ENG 3330<sup>2</sup></a>	3	<a href="#">ARCH ENG 5872</a>	3
<del>ELEC ENG 2800</del>	3	<a href="#">CIV ENG 3116</a>	3
<a href="#">MECH ENG 2527</a>	3	<a href="#">HISTORY 2510</a>	3
<a href="#">ARCH ENG 3803</a>		<a href="#">ARCH ENG 3220</a>	3
<a href="#">ARCH ENG 3804</a>	3		
<a href="#">CIV ENG 3715</a>	3		
	15		15
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">ARCH ENG 4010</a>	1	<a href="#">ARCH ENG 4097</a>	3
<a href="#">ARCH ENG 3210</a>	3	ARCH ENG Technical Elective <sup>3,4</sup>	3
<a href="#">ARCH ENG 4448</a>	3	<a href="#">CIV ENG 4729</a>	3
<a href="#">HISTORY 3550</a>	3	General Education Elective <sup>1</sup>	3
ARCH ENG Technical Elective <sup>3,4</sup>	3	Basic Science Elective <sup>5</sup>	3
<a href="#">ENG MGT 1210</a>	2		
	15		15

Total Credits: 126

- 1 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.
- 2 A grade of 'C' or better required to satisfy graduation requirements.
- 3 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.
- 4 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.
- 5 Each student is required to take three hours of basic science electives in consultation with his/her academic advisor. A list of basic science courses is provided in the advising office in BCH 119.

**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. Students must sign a release form giving the University access to their Fundamentals of Engineering Examination score.

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

### Area I, Structural Engineering

<a href="#">ARCH ENG 5001</a>	Special Topics	6
<a href="#">ARCH ENG 5203</a>	Applied Mechanics In Structural Engineering	3
<a href="#">ARCH ENG 5205</a>	Structural Analysis II	3
<a href="#">ARCH ENG 5260</a>	Analysis And Design Of Wood Structures	3
<a href="#">ARCH ENG 5207</a>	Computer Methods of Structural Analysis	3
<a href="#">ARCH ENG 5210</a>	Advanced Steel Structures Design	3
<a href="#">ARCH ENG 5220</a>	Advanced Concrete Structures Design	3
<a href="#">ARCH ENG 5222</a>	Prestressed Concrete Design	3
<a href="#">ARCH ENG 5729</a>	Foundation Engineering II	3
<a href="#">ARCH ENG 5231</a>	Infrastructure Strengthening with Composites	3
<a href="#">ARCH ENG 5206</a>	Low-Rise Building Analysis And Design	3
<a href="#">ARCH ENG 5208</a>	Structural Dynamics	3

### Area II, Construction Engineering and Project Management

<a href="#">ARCH ENG 5442</a>	Construction Planning and Scheduling Strategies	3
<a href="#">ARCH ENG 5445</a>	Construction Methods	3
<a href="#">ARCH ENG 5446</a>	Management Of Construction Costs	3
<a href="#">ARCH ENG 5448</a>	Green Engineering: Analysis of Constructed Facilities	3
<a href="#">ARCH ENG 5449</a>	Engineering and Construction Contract Specifications	3
<a href="#">ENG MGT 5110</a>	Managerial Decision Making	3
<a href="#">ENG MGT 5613</a>	Value Analysis	3
<a href="#">ENG MGT 5711</a>	Total Quality Management	3

### Area III, Environmental Systems for Buildings

<a href="#">ARCH ENG 5001</a>	Special Topics	0-6
<a href="#">ARCH ENG 5642</a>	Sustainability, Population, Energy, Water, and Materials	3
<a href="#">ARCH ENG 5665</a>	Indoor Air Pollution	3
<a href="#">ARCH ENG 5850</a>	Residential Renewable Energy Systems	3

<a href="#">ENG MGT 5513</a>	Energy and Sustainability Management Engineering	3
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### Mechanical Emphasis Courses

<a href="#">MECH ENG 5309</a>	Engineering Acoustics I	3
<a href="#">MECH ENG 5566</a>	Solar Energy Technology	3
<a href="#">MECH ENG 5575</a>	Mechanical Systems For Environmental Control	3

### Electrical Emphasis Courses

<a href="#">ELEC ENG 3340</a>	Controllers For Factory Automation	3
<a href="#">ELEC ENG 5150</a>	Photovoltaic Systems Engineering	3
<a href="#">COMP ENG 2210</a> & <a href="#">COMP ENG 2211</a>	Introduction to Digital Logic and Computer Engineering Laboratory	4

### Area IV, Construction Materials

<a href="#">ARCH ENG 5203</a>	Applied Mechanics In Structural Engineering	3
<a href="#">CIV ENG 5113</a>	Composition And Properties Of Concrete	3
<a href="#">CIV ENG 5118</a>	Smart Materials And Sensors	3
<a href="#">CIV ENG 5156</a>	Concrete Pavement Design	3
<a href="#">CER ENG 5810</a>	Principles Of Engineering Materials	3

### Architectural Engineering Courses

<a href="#">ARCH ENG 2103</a>	Architectural Materials And Methods Of Construction	3
<a href="#">ARCH ENG 3804</a>	Architectural Design II	3
<a href="#">ARCH ENG 3805</a>	Building Lighting Systems	3
<a href="#">ART 3203</a>	Architectural Design I	3

### Architectural Engineering Courses (cross-list with existing civil engineering courses)

<a href="#">ARCH ENG 2003</a>	Engineering Communications	2
<a href="#">ARCH ENG 2001</a>	Special Topics	0-6
<a href="#">ARCH ENG 3000</a>	Special Problems	1-6
<a href="#">ARCH ENG 3001</a>	Special Topics	0-6
<a href="#">ARCH ENG 2002</a>	Cooperative Engineering Training	1
<a href="#">ARCH ENG 4010</a>	Senior Seminar: Engineering In A Global Society	1
<a href="#">ARCH ENG 3201</a>	Structural Analysis I	3
<a href="#">ARCH ENG 3210</a>	Structural Design in Metals	3
<a href="#">ARCH ENG 3220</a>	Reinforced Concrete Design	3
<a href="#">ARCH ENG 4447</a>	Ethical, Legal and Professional Engineering Practice	2
<a href="#">ARCH ENG 4448</a>	Fundamentals Of Contracts And Construction Engineering	3
<a href="#">ARCH ENG 4097</a>	Senior Design Project	3
<a href="#">ARCH ENG 5000</a>	Special Problems	6
<a href="#">ARCH ENG 5001</a>	Special Topics	6
<a href="#">ARCH ENG 5205</a>	Structural Analysis II	3
<a href="#">ARCH ENG 5260</a>	Analysis And Design Of Wood Structures	3
<a href="#">ARCH ENG 5207</a>	Computer Methods of Structural Analysis	3
<a href="#">ARCH ENG 5210</a>	Advanced Steel Structures Design	3
<a href="#">ARCH ENG 5220</a>	Advanced Concrete Structures Design	3
<a href="#">ARCH ENG 5222</a>	Prestressed Concrete Design	3

<a href="#">ARCH ENG 5445</a>	Construction Methods	3
<a href="#">ARCH ENG 5446</a>	Management Of Construction Costs	3
<a href="#">ARCH ENG 5449</a>	Engineering and Construction Contract Specifications	3
<a href="#">ARCH ENG 5231</a>	Infrastructure Strengthening with Composites	3
<a href="#">ARCH ENG 4099</a>	Undergraduate Research	6

### Civil Engineering Courses (required courses, emphasis area, and/or technical electives)

<a href="#">CIV ENG 3715</a>	Fundamentals of Geotechnical Engineering	3
<a href="#">CIV ENG 3116</a>	Construction Materials, Properties And Testing	3
<a href="#">CIV ENG 4729</a>	Foundation Engineering	3
<a href="#">CIV ENG 3330</a>	Engineering Fluid Mechanics	3
<a href="#">CIV ENG 5113</a>	Composition And Properties Of Concrete	3
<a href="#">CIV ENG 5117</a>	Asphalt Pavement Design	3
<a href="#">CIV ENG 5729</a>	Foundation Engineering II	3
<a href="#">CIV ENG 5441</a>	Professional Aspects Of Engineering Practice	3
<a href="#">CIV ENG 5445</a>	Construction Methods	3
<a href="#">CIV ENG 5446</a>	Management Of Construction Costs	3
<a href="#">CIV ENG 5449</a>	Engineering and Construction Contract Specifications	3

Justification for request

CC form for CivE / ArchE 2003 necessitates the change from 128 to 129 hrs.

An additional modification during the Junior year with first semester replacing the EE 2800 course with ArchE 3803 Building Electrical Systems course and modifying the course formerly known as ArchE 3805 Building Electrical and Lighting Systems course to ArchE 3805 Building Lighting Systems course. A CC form for both courses (ArchE 3803 and 3805) are being submitted simultaneously.

Supporting Documents

[Possible Basic Science Courses.docx](#)

Course Reviewer Comments

**wschon (02/26/15 6:34 pm):** Approved.

**kleb6b (06/09/15 2:28 pm):** Rollback: Rollback per Dr. Baur

**sraper (06/29/15 9:47 am):** changed effective date to FS 2016

## Program Change Request

Date Submitted: 02/06/15 8:39 am

Viewing: **CP ENG-BS : Computer Engineering BS**

File: 153.26

Last approved: 08/13/14 4:16 pm

Last edit: 07/15/15 12:38 pm

Changes proposed by: kleb6b

Catalog Pages Using this Program	<a href="#">Computer Engineering</a>
Start Term	Fall <b>2016</b> <del>2014</del>
Program Code	CP ENG-BS
Department	Electrical and Computer Engineering
Title	Computer Engineering BS

## Program Requirements and Description

### Bachelor of Science Computer Engineering<sup>1</sup>

Entering freshmen desiring to study Computer Engineering will be admitted to the Freshman Engineering Program. They will be permitted to state a Computer 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 Computer Engineering a minimum of 128 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. At least two grade points per credit hour must also be attained in all courses taken in Computer 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:

- All students are required to take one American history course, one economics course, one humanities course, and . The history course is to be selected from [HISTORY 1200](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#). ~~POL SCI 1200~~. The economics course may be either [ECON 1100](#) ~~ECON 1100~~ or [ECON 1200](#). The humanities course must be selected from the approved lists for art, English, foreign languages, music, philosophy, speech and media studies, or theater.
- Depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000 level or above and must be selected from the approved list. This course must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000 level. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
- The remaining two courses are to be chosen from the list of approved humanities/social sciences courses and may include one communications course in addition to [ENGLISH 1120](#).
- Any specific departmental requirements in the general studies area must be satisfied.
- Special topics and special problems and honors seminars are allowed only by petition to and approval by the student's department chairman.

The Computer 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

### In Workflow

- stanleyj
- RELECENG Chair
- CCC Secretary
- Engineering DSCC Chair
- Pending CCC Agenda post
- CCC Meeting Agenda
- Campus Curricula Committee Chair
- FS Meeting Agenda
- Faculty Senate Chair
- Registrar
- kristyg

### Approval Path

- 02/06/15 3:27 pm Stanley (stanleyj): Approved for stanleyj
- 02/06/15 4:47 pm Daryl Beetner (daryl): Approved for RELECENG Chair
- 02/09/15 9:24 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
- 02/17/15 10:07 am sraper: Approved for Engineering DSCC Chair
- 03/05/15 3:43 pm Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
- 04/07/15 10:17 am Kaylon Buckner (kleb6b): Approved for CCC Meeting Agenda
- 04/10/15 9:02 am Kaylon Buckner (kleb6b): Rollback to stanleyj for Campus Curricula Committee Chair
- 05/12/15 8:58 am Stanley (stanleyj): Approved for stanleyj
- 05/12/15 9:37 am Daryl Beetner (daryl): Approved



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. These interrelations are presented and discussed through classroom and laboratory instruction.

### Free Electives Footnote:

Each student is required to take **three five**-hours of free electives in consultation with his/her academic advisor. Credits which do not count towards this requirement are deficiency courses (such as algebra and trigonometry), and extra credits in required courses. Any courses outside of engineering and science must be at least three credit hours.

for RELECENG  
Chair  
10. 05/12/15 9:38 am  
Kaylon Buckner  
(kleb6b): Approved  
for CCC Secretary  
11. 06/23/15 10:31 am  
srapser: Approved  
for Engineering  
DSCC Chair

### History

1. Aug 6, 2014 by Stanley (stanleyj)
2. Aug 13, 2014 by pantaleoa

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">FR ENG 1100</a> <sup>2</sup>	1	<a href="#">MECH ENG 1720</a>	3
<a href="#">MATH 1214</a> <sup>3</sup>	4	<a href="#">MATH 1215</a> <sup>3</sup>	4
<a href="#">CHEM 1310</a>	4	<a href="#">PHYSICS 1135</a> <sup>3,4</sup>	4
<a href="#">CHEM 1319</a>	1	<a href="#">ECON 1100</a> or <a href="#">1200</a>	3
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3	Elective-Hum or Soc (any level) <sup>5</sup>	3
<a href="#">ENGLISH 1120</a>	3		
	16		17
Sophomore Year			
First Semester	Credits	Second Semester	Credits
<a href="#">ELEC ENG 2100</a> <sup>3,6,7</sup>	3	<a href="#">COMP ENG 2210</a> <sup>3,6,8</sup>	3
<a href="#">ELEC ENG 2101</a> <sup>3,6</sup>	1	<a href="#">COMP ENG 2211</a> <sup>3,6</sup>	1
<a href="#">MATH 2222</a> <sup>3</sup>	4	<a href="#">ELEC ENG 2120</a> <sup>3,7,9</sup>	3
<a href="#">COMP SCI 1570</a> <sup>3</sup>	3	<a href="#">MATH 3304</a> <sup>3</sup>	3
<a href="#">COMP SCI 1580</a> <sup>3</sup>	1	<a href="#">COMP SCI 1510</a> <sup>3</sup>	3
<a href="#">PHYSICS 2135</a> <sup>3,4</sup>	4	<a href="#">COMP SCI 1200</a> <sup>3</sup>	3
	16		16
Junior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">COMP ENG 3110</a>	3	COMP ENG Elective A <sup>3,14</sup>	3
<a href="#">COMP ENG 3150</a>	3	<a href="#">ELEC ENG 3410</a> <sup>3,6,9</sup>	3
<a href="#">COMP ENG 3551</a> <sup>3,6,8</sup>	1	<a href="#">COMP SCI 3800</a> <sup>3</sup>	3
<a href="#">ELEC ENG 2200</a> <sup>3,6,7</sup>	3	<a href="#">STAT 3117</a> <sup>12</sup>	3
<a href="#">ELEC ENG 2201</a> <sup>3,6,7</sup>	1	<a href="#">ENGLISH 3560</a> <sup>13</sup>	3
Mathematics Elective <sup>10</sup>	3	<b>Communication Elective</b> <sup>13</sup>	<b>3</b>
<a href="#">SP&amp;M S 1185</a>	3		
	17		15
Senior Year			
First Semester	Credits	Second Semester	Credits
<a href="#">COMP ENG 5410</a> or <a href="#">COMP SCI 5600</a> <sup>3</sup>	3	COMP ENG Elective D <sup>3,15,16</sup>	3

COMP ENG Elective C <sup>3,15,16</sup>	3	COMP ENG Elective E <sup>3,15,16</sup>	3
<a href="#">COMP ENG 4096</a> <sup>3,17</sup>	1	<a href="#">COMP ENG 4097</a> <sup>3,17</sup>	3
Elective-Hum or Soc (any level) <sup>5</sup>	3	Elective-Hum or Soc (upper level) <sup>5</sup>	3
Engineering Science Elective <sup>11</sup>	3	Free Elective <sup>18</sup>	3
COMP ENG Elective B <sup>3,19</sup>	3		
	16		15
Total Credits: 128			

**Notes:** Student must satisfy the common engineering freshman year requirements and be admitted into the department.

- 1 The minimum number of hours required for a degree in Computer Engineering is 128.
- 2 Students that transfer to Missouri S&T after their freshman year are not required to enroll in Freshman Engineering Seminars.
- 3 A minimum grade of "C" must be attained in [MATH 1214](#), [MATH 1215](#), [MATH 2222](#), and [MATH 3304](#), [PHYSICS 1135](#) and [PHYSICS 2135](#) (or their equivalents), [COMP SCI 1570](#), [COMP SCI 1580](#), [COMP SCI 1510](#), [COMP SCI 1200](#), [COMP SCI 3800](#), [COMP ENG 2210](#), [COMP ENG 2211](#), [COMP ENG 3150](#), [COMP ENG 3551](#), [COMP ENG 3110](#), [COMP ENG 5410](#) or [COMP SCI 5600](#), [COMP ENG 4096](#), and [ELEC ENG 2100](#), [ELEC ENG 2101](#), [ELEC ENG 2120](#), [ELEC ENG 2200](#), [ELEC ENG 2201](#), [ELEC ENG 3410](#), and [ELEC ENG 3411](#), and the COMP ENG electives A, B, C, D and E. Also, students may not enroll in other courses that use these courses as prerequisites until the minimum grade of "C" is attained.
- 4 Students may take [PHYSICS 1111](#) and [PHYSICS 1119](#) in place of [PHYSICS 1135](#). Students may take [PHYSICS 2111](#) and [PHYSICS 2119](#) in place of [PHYSICS 2135](#).
- 5 All 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.
- 6 Students who drop a lecture course prior to the deadline to drop a class must also drop the corequisite lab course.
- 7 Students must earn a passing grade on the ELEC ENG Advancement Exam I (associated with [ELEC ENG 2100](#)) before they enroll in [ELEC ENG 2120](#) or [ELEC ENG 2200](#) and [ELEC ENG 2201](#).
- 8 Students must earn a passing grade on the COMP ENG Advancement Exam (associated with [COMP ENG 2210](#)) before they enroll in any course with [COMP ENG 2210](#) and [COMP ENG 2211](#) as prerequisites.
- 9 Students must earn a passing grade on the ELEC ENG Advancement Exam II (associated with [ELEC ENG 2120](#)) before they enroll in [ELEC ENG 3410](#) and [ELEC ENG 3411](#).
- 10 Students must take one of the following courses:  
[MATH 3103](#), [MATH 3108](#), [MATH 3109](#), [MATH 5302](#), [MATH 5603](#), [MATH 5105](#), [MATH 5106](#), [MATH 5107](#), [MATH 5108](#), [MATH 4209](#), [MATH 4211](#), [MATH 5215](#), [MATH 5222](#), [MATH 5325](#), [MATH 4530](#), [MATH 5737](#), [MATH 5351](#), [MATH 5154](#), [MATH 4096](#), [MATH 5483](#), [MATH 5585](#), [STAT 5644](#), [STAT 5346](#), [STAT 5353](#).
- 11 Students must take [MECH ENG 2340](#), [MECH ENG 2519](#), [MECH ENG 2527](#), [PHYSICS 2311](#), [PHYSICS 2401](#), [CHEM 2210](#), [BIO SCI 2213](#), or [BIO SCI 2223](#). The following pairs of course are substitutions for any single course: [CIV ENG 2200](#) and [MECH ENG 2350](#), [PHYSICS 2305](#) and [PHYSICS 4311](#), [PHYSICS 2305](#) and [CER ENG 4240](#), or [PHYSICS 2305](#) and [NUC ENG 3205](#).
- 12 Students may replace [STAT 3117](#) with [STAT 3115](#) or [STAT 5643](#).
- 13 Student must take English 3560 or English 1160.
- 14 Comp Eng Elective A must be a 4000 or 5000-level Comp Eng, Elec Eng, or Comp Sci course with at least a 3-hour lecture component. This normally includes all Comp Eng and Elec Eng 4000 or 5000-level courses except Comp Eng or Elec Eng 4000, 4099, 4096, and 4097 or Comp Sci 5000, 4010, 5600, and 4099.
- 15 Comp Eng Electives C, D, and E must be 3000, 4000 or 5000-level courses from an approved list of science, mathematics, and engineering courses. In particular, this list includes all 3000, 4000 or 5000-level Comp Eng, Elec Eng and Comp Sci courses except required courses in Comp Eng, Elec Eng, and Comp Sci and except Comp Eng 4096 and 4097, Elec Eng 2800, 1002, 1003, 4096, and 4097, and Comp Sci 2002 and 4600/5600). Comp Eng Electives C, D, and E must include at least six hours of engineering or computer science courses.
- 16 COMP ENG Electives C, D, and E cannot include more than three hours of [COMP ENG 4000](#), [COMP ENG 4099](#), [ELEC ENG 4000](#), or [ELEC ENG 4099](#).
- 17 Students pursuing dual degrees in COMP ENG and ELEC ENG may take either [COMP ENG 4096](#) or [ELEC ENG 4096](#) and [COMP ENG 4097](#) or [ELEC ENG 4097](#). Students may not receive credit for both [COMP ENG 4096](#) and [ELEC ENG 4096](#) or [COMP ENG 4097](#) and [ELEC ENG 4097](#) in the same degree program.
- 18 Students are required to take at least three credit hours. Elec Eng 2800 level, [ELEC ENG 4096](#), [ELEC ENG 4097](#), [COMP ENG 4096](#) and [COMP ENG 4097](#) may not be used for free electives. No more than one credit hour of [COMP ENG 3002](#) or [ELEC ENG 3002](#) may be applied to the BS degree for free electives.

19 Comp Eng Elective B must be a 4000 or 5000 level COMP ENG course with at least a 3-hour lecture component, excluding [COMP ENG 4096](#) and [COMP ENG 4097](#).

## Emphasis Areas for Computer Engineering

**Note:** The following emphasis areas identify courses from which a student may opt to develop a specific emphasis. It is not required that students obtain an emphasis specialty within computer engineering.

### Computational Intelligence

Highly Recommended		
<a href="#">COMP ENG 5310</a>	Computational Intelligence	3
<a href="#">ELEC ENG 5370</a>	Introduction To Neural Networks & Applications	3
Suggested		
<a href="#">ELEC ENG 5330</a>	Fuzzy Logic Control	3

### Computers and Architecture

Highly Recommended		
<a href="#">COMP ENG 4160</a>	<del>Course COMP ENG 4160 Not Found</del>	3
<a href="#">COMP ENG 5160</a>	<b>Embedded Processor System Design</b>	3
<a href="#">COMP ENG 5120</a>	Digital Computer Design	3
<a href="#">COMP ENG 5170</a>	Real-Time Systems	3
<a href="#">COMP ENG 5510</a>	Fault-Tolerant Digital Systems	3
Suggested		
<a href="#">COMP ENG 5610</a>	Real-Time Digital Signal Processing	3
<a href="#">COMP ENG 5130</a>	Advanced Microcomputer System Design	3
<a href="#">ELEC ENG 3320</a>	Control Systems	3
<a href="#">ELEC ENG 3100</a>	Electronics I	3
<a href="#">COMP SCI 3100</a>	Software Engineering I	3
<a href="#">COMP ENG 4151</a>	<del>Course COMP ENG 4151 Not Found</del>	3
<a href="#">COMP ENG 5151</a>	<b>Digital Systems Design Laboratory</b>	3

### Embedded Computer Systems

Highly Recommended		
<a href="#">COMP ENG 4151</a>	<del>Course COMP ENG 4151 Not Found</del>	
<a href="#">COMP ENG 4160</a>	<del>Course COMP ENG 4160 Not Found</del>	
<a href="#">COMP ENG 5170</a>	Real-Time Systems	3
<a href="#">COMP ENG 5151</a>	<b>Digital Systems Design Laboratory</b>	3
<a href="#">COMP ENG 5160</a>	<b>Embedded Processor System Design</b>	3
Suggested		
<a href="#">COMP ENG 5610</a>	Real-Time Digital Signal Processing	3
<a href="#">ELEC ENG 3320</a>	Control Systems	3
<a href="#">ELEC ENG 3100</a>	Electronics I	3
<a href="#">COMP SCI 3100</a>	Software Engineering I	3

### Integrated Circuits and Logic Design

Highly Recommended		
<a href="#">COMP ENG 5210</a>	Introduction To VLSI Design	3
<a href="#">COMP ENG 5220</a>	Digital System Modeling	3

Suggested		
<a href="#">ELEC ENG 3100</a>	Electronics I	3
<a href="#">COMP ENG 4151</a>	<del>Course COMP ENG 4151 Not Found</del>	<del>3</del>
<a href="#">COMP ENG 5110</a>	Principles of Computer Architecture	3
<a href="#">COMP ENG 5151</a>	Digital Systems Design Laboratory	3
<a href="#">COMP ENG 5120</a>	Digital Computer Design	3
<a href="#">COMP ENG 5130</a>	Advanced Microcomputer System Design	3
<a href="#">COMP ENG 5510</a>	Fault-Tolerant Digital Systems	3

## Networking and Software Engineering

Highly Recommended		
<a href="#">COMP ENG 5450</a>	Digital Image Processing	3
<a href="#">COMP ENG 5460</a>	Machine Vision	3
<a href="#">COMP ENG 5430</a>	Wireless Networks	3
<a href="#">COMP ENG 5420</a>	Introduction to Network Security	3
Suggested		
<a href="#">COMP ENG 5110</a>	Principles of Computer Architecture	3
<a href="#">COMP SCI 3100</a>	Software Engineering I	3
<del>IS&amp;T 4644</del>	<del>Electronic and Mobile Commerce</del>	<del>3</del>
<a href="#">IS&amp;T 4641</a>	Electronic and Mobile Commerce	3

## Security and Reliability

Highly Recommended		
<a href="#">COMP ENG 5110</a>	Principles of Computer Architecture	3
<a href="#">COMP ENG 5420</a>	Introduction to Network Security	3
Suggested		
<a href="#">COMP ENG 5310</a>	Computational Intelligence	3

**Justification for request** The Communication Elective formalizes the current technical writing requirement for the Computer Engineering B.S. degree program that requires students to take English 3560 or English 1160 (currently given in footnote 13 which states that "Student must take English 3560 or English 1160."). Formalizing the current technical writing requirement also addresses, in part, ABET reviewer comments about clarifying the technical writing requirement in the Computer Engineering B.S. degree program.

### Supporting Documents

**Course Reviewer Comments**

**lahne (10/28/14 9:13 am):** Rollback: .

**kleb6b (11/03/14 2:11 pm):** Rollback: Please address footnote 13 Student must take English 3560 or English 1160.

**kleb6b (02/06/15 3:23 pm):** Delete Comp Eng 4097 from Footnote #3, per April 16, 2012 ECE Faculty Meeting approval

**sraper (02/10/15 1:08 pm):** Changed 5 hours of free electives to 3 hours (prior to the 4 year plan), and changed any 3xxx, 4xxx, 5xxx, and 28xx to 3000, 4000, 5000 and 2800.

**kleb6b (04/07/15 10:16 am):** CCC Meeting changes

**kleb6b (04/10/15 9:02 am):** Rollback: Rollback

**stanleyj (04/10/15 9:11 am):** The justification for the Communication Elective has been updated.

**kleb6b (05/12/15 9:38 am):** Change effective date

**kleb6b (07/15/15 12:38 pm):** Update Communication Elective to 3 credit hours

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Key: 153  
[Preview Bridge](#)

## Program Change Request

Date Submitted: 02/26/15 11:44 am

Viewing: **CV ENG-BS : Civil Engineering BS**

File: 152.14

Last approved: 08/06/14 10:58 am

Last edit: 02/26/15 11:43 am

Changes proposed by: gchen

Catalog Pages [Civil Engineering](#)  
Using this  
Program

Start Term **Fall 2015** ~~8/1/2014~~

Program Code CV ENG-BS

Department Civil, Architectural, and Environmental Engineering

Title Civil Engineering BS

## Program Requirements and Description

### Civil Engineering Bachelor of Science

Entering freshmen desiring to study Civil Engineering will be admitted to the Freshman Engineering Program. They will, however, be permitted, if they wish, to state a Civil 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 Civil Engineering a minimum of **129** ~~128~~ 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 attained in all courses taken in Civil 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:

- 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](#), [HISTORY 1300](#), [HISTORY 1310](#), or [POL SCI 1200](#). The economics course may be either [ECON 1100](#) or [ECON 1200](#). The humanities course must be selected from the approved lists for art, English, foreign languages, music, philosophy, speech and media studies, or theater.
- Depth requirement. Three credit hours must be taken in humanities or social sciences at the 2000-level or above and must be selected from the approved list. This course must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered 1180 will be considered to satisfy this requirement. Students may receive humanities credit for foreign language courses in their native tongue only if the course is at the 4000-level. All courses taken to satisfy the depth requirement must be taken after graduating from high school.
- The remaining two courses are to be chosen from the list of approved humanities/social sciences courses and may include one communications course in addition to [ENGLISH 1120](#).
- Any specific departmental requirements in the general studies area must be satisfied.
- Special topics and special problems and honors seminars are allowed only by petition to and approval by the student's department chair.

The Civil 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.

### In Workflow

- [RCIVILEN Chair](#)
- [CCC Secretary](#)
- [Engineering DSCC Chair](#)
- [Pending CCC Agenda post](#)
- [CCC Meeting Agenda](#)
- [Campus Curricula Committee Chair](#)
- [FS Meeting Agenda](#)
- [Faculty Senate Chair](#)
- [Registrar](#)
- [kristyg](#)

### Approval Path

- 02/26/15 6:33 pm  
wschon: Approved for RCIVILEN Chair
- 02/27/15 8:38 am  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
- 03/12/15 11:39 am  
srafer: Approved for Engineering DSCC Chair

### History

- Sep 27, 2013 by [lahne](#)
- Aug 6, 2014 by [lahne](#)

<b>Freshman Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">FR ENG 1100<sup>2</sup></a>	1	<a href="#">MECH ENG 1720</a>	3
<a href="#">CHEM 1310</a> & <a href="#">CHEM 1319</a>	5	<a href="#">MATH 1215</a>	4
<a href="#">MATH 1214</a>	4	<a href="#">PHYSICS 1135</a>	4
<a href="#">ENGLISH 1120</a>	3	General Ed Elective <sup>1</sup>	3
General Ed Elective <sup>1</sup>	3	General Ed Elective <sup>1</sup>	3
	16		17
<b>Sophomore Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CIV ENG 2401<sup>2</sup></a>	3	<a href="#">MECH ENG 2350</a>	2
<a href="#">CIV ENG 2003<sup>2</sup></a>	3	<a href="#">STAT 3113</a>	3
<a href="#">CIV ENG 2200<sup>2</sup></a>	3	<a href="#">GEO ENG 1150</a>	3
<a href="#">MATH 2222</a>	4	<a href="#">CIV ENG 2210<sup>2</sup></a>	3
<a href="#">PHYSICS 2135</a>	4	<a href="#">CIV ENG 2211<sup>2</sup></a>	1
		<a href="#">MATH 3304</a>	3
	17		15
<b>Junior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">ENG MGT 1210<sup>2</sup></a>	2	<a href="#">CIV ENG 3116<sup>2</sup></a>	3
<a href="#">CIV ENG 3201<sup>2</sup></a>	3	<a href="#">CIV ENG 3842<sup>2</sup></a>	3
<a href="#">CIV ENG 3715<sup>2</sup></a>	3	<a href="#">CIV ENG 3500<sup>2</sup></a>	3
<a href="#">CIV ENG 3330<sup>2</sup></a>	3	<a href="#">CIV ENG 3334<sup>2</sup></a>	4
<a href="#">CIV ENG 2601<sup>2</sup></a>	3	<a href="#">CIV ENG 3220<sup>2</sup></a>	3
General Ed Elective <sup>1</sup>	3		
	17		16
<b>Senior Year</b>			
<b>First Semester</b>	<b>Credits</b>	<b>Second Semester</b>	<b>Credits</b>
<a href="#">CIV ENG 4010<sup>2</sup></a>	1	<a href="#">CIV ENG 4097<sup>2</sup></a>	3
(2) CIV ENG Depth Electives <sup>3,4</sup>	6	CIV ENG Tech Elective <sup>3,5</sup>	3
<a href="#">CIV ENG 4448<sup>2</sup></a>	3	CIV ENG Depth Elective <sup>3,4</sup>	3
<a href="#">CIV ENG 3210<sup>2</sup></a>	3	General Ed Elective <sup>1</sup>	3
General Ed Elective <sup>1</sup>	3	CIV ENG Tech Elective <sup>3,5</sup>	3
	16		15
Total Credits: 129			

<sup>1</sup> 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. One general education elective must be from [ENGLISH 1160](#), [ENGLISH 3560](#), or [SP&M S 1185](#).

<sup>2</sup> A grade of 'C' or better required to satisfy graduation requirements.

<sup>3</sup> A grade of 'C' or better may be required in CE technical and depth elective prerequisite courses. Refer to the Missouri S&T undergraduate catalog for this prerequisite information.

<sup>4</sup> Choose depth electives using Guidelines for Depth and Technical Electives.

<sup>5</sup> Choose technical electives using Guidelines for Depth and Technical Electives.

**Note:** All Civil 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. Students must sign a release form giving the University access to their Fundamentals of Engineering Examination score.

## Guidelines for Depth and Technical Electives

Please consult the Department's Advising Center or your academic advisor for guidelines regarding the selection of depth and technical electives. A maximum total of 6 credit hours of independent study ([CIV ENG 5000](#) or [CIV ENG 4099](#) ) can be used as depth or technical electives in the B.S. Civil Engineering curriculum.

## Course Listings by Area

### Construction Engineering

<a href="#">CIV ENG 5442</a>	Construction Planning and Scheduling Strategies	3
<a href="#">CIV ENG 5445</a>	Construction Methods	3
<a href="#">CIV ENG 5446</a>	Management Of Construction Costs	3
<a href="#">CIV ENG 5460</a>	Course CIV ENG 5460 Not Found	3
<a href="#">CIV ENG 5448</a>	<b>Green Engineering: Analysis of Constructed Facilities</b>	<b>3</b>
<a href="#">CIV ENG 5449</a>	Engineering and Construction Contract Specifications	3

### Materials Engineering

<a href="#">CIV ENG 5112</a>	Bituminous Materials	3
<a href="#">CIV ENG 5113</a>	Composition And Properties Of Concrete	3
<a href="#">CIV ENG 5117</a>	Asphalt Pavement Design	3
<a href="#">CIV ENG 5156</a>	<b>Concrete Pavement Design</b>	<b>3</b>

### Environmental Engineering

<a href="#">CIV ENG 3615</a>	Water And Wastewater Engineering	3
<a href="#">CIV ENG 5605</a>	Environmental Systems Modeling	3
<a href="#">CIV ENG 5619</a>	Environmental Engineering Design	3
<a href="#">CIV ENG 5630</a>	Remediation of Contaminated Groundwater and Soil	3
<a href="#">CIV ENG 5640</a>	Environmental Law And Regulations	3
<a href="#">CIV ENG 5642</a>	Sustainability, Population, Energy, Water, and Materials	3
<a href="#">CIV ENG 5650</a>	Public Health Engineering	3
<a href="#">CIV ENG 5660</a>	Introduction To Air Pollution	3
<a href="#">CIV ENG 5662</a>	Air Pollution Control Methods	3
<a href="#">CIV ENG 5665</a>	Indoor Air Pollution	3
<a href="#">CIV ENG 5670</a>	Solid Waste Management	3

### Geotechnical Engineering

<a href="#">CIV ENG 4729</a>	Foundation Engineering	3
<a href="#">CIV ENG 5715</a>	Intermediate Soil Mechanics	3
<a href="#">CIV ENG 5716</a>	Geotechnical Earthquake Engineering	3
<a href="#">CIV ENG 5729</a>	Foundation Engineering II	3
<a href="#">CIV ENG 5744</a>	Geosynthetics in Engineering	3
<a href="#">CIV ENG 5750</a>	Transportation Applications of Geophysics	3

### Water Resources Engineering

<a href="#">CIV ENG 5330</a>	Unsteady Flow Hydraulics	3
<a href="#">CIV ENG 5331</a>	Hydraulics Of Open Channels	3
<a href="#">CIV ENG 5333</a>	<b>Intermediate Hydraulic Engineering</b>	<b>3</b>



<a href="#">CIV ENG 5335</a>	Water Infrastructure Engineering	3
<a href="#">CIV ENG 5337</a>	River Mechanics And Sediment Transport	3
<a href="#">CIV ENG 5338</a>	Hydrologic Engineering	3

## Structural Engineering

<a href="#">CIV ENG 5001</a>	<b>Special Topics (Structural Masonry Design)</b>	<b>0-6</b>
<a href="#">CIV ENG 5118</a>	Smart Materials And Sensors	3
<a href="#">CIV ENG 5203</a>	Applied Mechanics In Structural Engineering	3
<a href="#">CIV ENG 5208</a>	<b>Structural Dynamics</b>	<b>3</b>
<a href="#">CIV ENG 5260</a>	Analysis And Design Of Wood Structures	3
<a href="#">CIV ENG 5205</a>	<b>Structural Analysis II</b>	<b>3</b>
<a href="#">CIV ENG 5206</a>	Low-Rise Building Analysis and Design	3
<a href="#">CIV ENG 5207</a>	Computer Methods of Structural Analysis	3
<a href="#">CIV ENG 5210</a>	Advanced Steel Structures Design	3
<a href="#">CIV ENG 5220</a>	Advanced Concrete Structures Design	3
<a href="#">CIV ENG 5222</a>	Prestressed Concrete Design	3
<a href="#">CIV ENG 5231</a>	Infrastructure Strengthening with Composites	3

## Transportation Engineering

<a href="#">CIV ENG 5250</a>	Air Transportation	3
<a href="#">CIV ENG 5510</a>	Geometric Design Of Highways	3
<a href="#">CIV ENG 5513</a>	Traffic Engineering	3

Justification for request      CIV ENG 2003 course content expanded to include instruction & labs in new computer tools used in academia & industry, increasing credit hours from 2 to 3. The minimum credit hours for CV ENG-BS Program thus increased by 1.

Supporting Documents

Course Reviewer      **kleb6b (11/05/14 10:44 am):** Reorder classes, per Dr. Chen  
 Comments            **sraper (12/08/14 12:49 pm):** Rollback: You have several places with "undefined" and I do not know what you mean by that.  
                              **kleb6b (12/08/14 12:58 pm):** Rollback: You have several places with "undefined" and I do not know what you mean by that.

## Program Change Request

Date Submitted: 04/21/15 11:13 am

Viewing: **PE ENG-BS : Petroleum Engineering BS**

File: 108.1

Last edit: 05/11/15 9:43 am

Changes proposed by: reflori

Catalog Pages Using this Program	<a href="#">Petroleum Engineering</a>
Start Term	<b>Fall 2016</b>
Program Code	PE ENG-BS
Department	Geosciences and Geological and Petroleum Engineering
Title	Petroleum Engineering BS

## Program Requirements and Description

### Bachelor of Science Petroleum Engineering

Entering freshmen desiring to study Petroleum Engineering will be admitted to the Freshman Engineering Program. They will, however, be permitted, if they wish, to state a Petroleum 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. A grade point average of 2.80 or higher is required to enter the Petroleum Engineering program from the Freshman Engineering Program.**  
~~major.~~

For the Bachelor of Science degree in Petroleum Engineering a minimum of 129 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~~ Petroleum Engineering.

~~The Petroleum Engineering curriculum contains a required number of hours in humanities and social sciences as specified by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology.~~ Each student's program of study must contain a minimum of ~~21~~ **16** credit hours of course work ~~in general education from the humanities and must the social sciences areas and should~~ be chosen according to the following rules:

- Six credit hours of English:** All students are required to take ~~ENGLISH 1120 one American history course~~ and either **ENGLISH 3560 (preferred) or ENGLISH 1160 or ENGLISH 1600. one economics course.**
- Nine credit hours of basic humanities and social sciences:** All students are required ~~The history course is to take one history course, one economics course and one humanities course. The history course is to~~ be selected from **HISTORY 1200 HISTORY 1200 , HISTORY 1300 HISTORY 1300 , HISTORY 1310 HISTORY 1310 , or POL SCI 1200 POL SCI 1200 .** The economics course may be either **ECON 1100 ECON 1100 or ECON 1200 ECON 1200 .** ~~The Petroleum Engineering curriculum contains a required number of hours in humanities course must be selected from "The Approved List of Humanities and Social Science Courses social sciences as specified by the Engineering Accreditation Commission of the Accreditation Board for Engineering Degrees" maintained by the Office of Undergraduate Studies. and Technology.~~
- Three credit hours as a depth requirement.** ~~Some disciplines require one humanities course to be selected from the approved lists for art, English, foreign languages, music, philosophy, speech and media studies, or theater.~~ **Three** ~~Of the remaining hours, six~~ credit hours must be taken in humanities or social sciences at the **2000-level 100-level** or above and must be selected from the approved **list. lists.** ~~This course~~ **Each of these courses** must have as a prerequisite one of the humanities or social sciences courses already taken. Foreign language courses numbered **1180 will 70 to 80 can** be considered to **satisfy this requirement.**

### In Workflow

- RGEOENG Chair**
- CCC Secretary**
- Sciences DSCC Chair**
- Engineering DSCC Chair**
- Pending CCC Agenda post**
- CCC Meeting Agenda
- Campus Curricula Committee Chair
- FS Meeting Agenda
- Faculty Senate Chair
- Registrar
- kristyg

### Approval Path

- 04/21/15 9:31 pm  
ikuenobe: Approved for RGEOENG Chair
- 04/22/15 8:04 am  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
- 05/06/15 4:04 pm  
imorgan: Approved for Sciences DSCC Chair
- 06/29/15 9:49 am  
sraپر: Approved for Engineering DSCC Chair

~~be one of these courses.~~ **Students** (~~Students~~ may receive humanities credit for foreign language courses in their native tongue only if the course is at the **4000-level. 300-level.**) **All courses taken to satisfy the depth requirement must be taken after graduating from high school.**

4. **Three credit hours of elective humanities and social sciences from the approved list.**

5. ~~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. Skill courses are not allowed to meet humanities and social sciences requirements except in foreign languages. Students who select the foreign language option are urged to take more than one course. Special topics, special problems courses and special problems and honors seminars are allowed only by petition to and approval by the student's department chair. chairman.~~

The Petroleum Engineering program at Missouri S&T ~~consists is characterized by its focus on the scientific basics of~~ **a strong foundation in math, sciences and engineering fundamentals, plus strong content in the traditional Petroleum Engineering core areas and its innovative application; indeed, the underlying theme of drilling, production this educational program is the application of the scientific basics to engineering practice through attention to problems and reservoir engineering. Two unique features of the curriculum are a strong sequence needs of courses in Geology and Geophysics, plus a two course sequence in finite element analysis and mechanical earth modeling. S&T Petroleum Engineering students are prepared to solve today's problems and tomorrow's. Students learn theory, have ample hands-on experiences in laboratories, and they learn many modern software packages used by the petroleum industry. 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. Students planning on majoring in petroleum engineering should take the following courses.~~

Freshman Year			
First Semester	Credits	Second Semester	Credits
<a href="#">ENGLISH 1120</a>	3	<del>PET ENG 1110</del>	4
<a href="#">FR ENG 1100</a>	1	<a href="#">MATH 1215</a>	4
<a href="#">CHEM 1310</a>	4	<a href="#">GEO ENG 1150</a> or <a href="#">GEOLOGY 1110</a>	3
<a href="#">CHEM 1319</a>	1	<a href="#">GEO ENG 1119</a>	1
<a href="#">HISTORY 1200</a> , or <a href="#">1300</a> , or <a href="#">1310</a> , or <a href="#">POL SCI 1200</a>	3	<a href="#">PHYSICS 1135</a>	4
<a href="#">MATH 1214</a>	4	<a href="#">PET ENG 2510</a>	3
		<a href="#">MECH ENG 1720</a>	3
	16		18
Sophomore Year			
First Semester	Credits	Second Semester	Credits
<a href="#">MATH 2222</a>	4	<a href="#">MATH 3304</a>	3
<a href="#">PHYSICS 2135</a>	4	<a href="#">PET ENG 3520</a>	3
<a href="#">GEOLOGY 3310</a> (Geol 3319 lab optional)	3	<del>PET ENG 3529</del>	4
<del>PET ENG 2640</del>	3	<a href="#">MECH ENG 2350</a>	2
<a href="#">CIV ENG 2200</a>	3	<a href="#">CIV ENG 2210</a>	3
<a href="#">PET ENG 3320</a>	3	<a href="#">ECON 1100</a> or <a href="#">1200</a>	3
		<a href="#">GEOLOGY 3620</a>	3
	17		17
Junior Year			
First Semester	Credits	Second Semester	Credits
<del>GEOLOGY 4511</del>	3	<del>PET ENG 3310</del>	3
<a href="#">GEOPHYS 4231</a>	3	<del>PET ENG 3410</del>	3
<del>PET ENG 3240</del>	3	<a href="#">PET ENG 3330</a>	3
<a href="#">CIV ENG 3330</a>	3	<a href="#">PET ENG 4410</a>	3
<del>ECON 1100</del> or <del>1200</del>	3	<a href="#">PET ENG 4710</a>	3
PET ENG Reservoir Engineering Elective <sup>4</sup>	3	<a href="#">PET ENG 4590</a>	3
<a href="#">GEOLOGY 5513</a>	3	Humanities/Social Sci Elective <sup>2</sup>	3
<a href="#">PET ENG 4210</a>	3		
	15		15
Senior Year			

First Semester	Credits	Second Semester	Credits
<a href="#">MECH ENG 2527</a>	3	<a href="#">PET ENG 4097</a>	3
<a href="#">PET ENG 4010</a> <sup>3</sup>	1	<del>ENGLISH 1600</del> <sup>6</sup>	<del>3</del>
<a href="#">PET ENG 4520</a>	3	<a href="#">GEO ENG 4115</a>	3
<a href="#">PET ENG 4720</a>	3	Hum/Soc Sci Elective <sup>2</sup>	3
PET ENG Elective <sup>5</sup>	3	PET ENG Elective <sup>5</sup>	3
Humanities/Social Sci Elective <sup>2</sup>	3	<a href="#">ENGLISH 3560</a>	<b>3</b>
	16		15
Total Credits: 129			

<sup>1</sup> All freshmen Petroleum Engineering students must enroll in [CHEM 1100](#).

<sup>2</sup> Humanities/Social Science electives are to be selected from a list of approved courses as published by the department. Petroleum Engineering students are especially encouraged to study foreign languages

<sup>3</sup> All Petroleum 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 to becoming a registered professional engineer. This requirement is part of Missouri S&T assessment process as described in Assessment Requirements found elsewhere in this catalog. Students must sign a release form giving the University access to their Fundamentals of Engineering Examination score.

<sup>4</sup> This is a reservoir engineering elective. Students should choose from [PET ENG 4511](#), [PET ENG 4531](#), [PET ENG 4611](#), [PET ENG 4311](#), or [PET ENG 4621](#).

<sup>5</sup> Select Petroleum Engineering electives in accordance with interest area. Students interested in reservoir engineering select from topics in advanced reservoir engineering, simulation, natural gas engineering, and formation characterization. Students interested in drilling/completions and production select petroleum electives such as advanced drilling, well completions, stimulation. Other general interest petroleum electives may be selected as available.

<sup>6</sup> Students may also select [ENGLISH 1160](#) or [ENGLISH 1600](#).

The total number of credit hours required for a degree in Petroleum Engineering is 129.

Petroleum Engineering students must earn the grade of "C" or better in all Petroleum Engineering courses to receive credit toward graduation.

Justification for request      Various course changes needed. Also, we introduced a new course, Petrophysics, in the Sophomore Fall semester to give students the knowledge base they need for reservoir engineering.

Supporting Documents

Course Reviewer Comments      **kleb6b (03/17/15 9:35 am)**: Change Pet Eng 3330 in Junior Year, First Semester to Pet Eng 4210, per Dr. Flori  
**kleb6b (04/07/15 8:06 am)**: Rollback: Requested Rollback per Dr. Flori  
**kleb6b (04/22/15 8:04 am)**: Changed Effective Term to Fall 2016  
**imorgan (05/06/15 4:04 pm)**: My understanding is that this department does not need input from Sciences-DSCC for 2015-16.  
**kleb6b (05/08/15 10:40 am)**: Change per Dr. Raper  
**kleb6b (05/08/15 10:43 am)**: Edit  
**sraper (05/11/15 9:43 am)**: Changes made per Dr. Flori (email) 1. In the curriculum we should have English 3560 Technical Writing (instead of English 1160). In the prefatory remarks, we need: 1. Six credit hours of English: All students are required to take English 1120 and either English 3560 (preferred) or English 1160 or English 1600. In the Footnote (footnote 6), we need: Students may also select English 1160 or English 1600. \*email Monday, May 11, 2015 8:43 a.m.

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 06/09/15 2:29 pm

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

File: 4219

Last edit: 06/10/15 8:02 am

Changes proposed by: baur

Programs referencing this course	<u><a href="#">ARC ENG-BS: Architectural Engineering BS</a></u>
Requested Effective Change Date	Spring 2016
Department	Civil, Architectural, and Environmental Engineering
Discipline	Architectural Engineering (ARCH ENG)
Course Number	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  
Math 3304 and Phys 2135.

Field Trip Statement

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

Required 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. Ishelton
11. Peoplesoft

### Approval Path

1. 06/09/15 4:35 pm  
wschon:  
Approved for RCIVILEN Chair
2. 06/10/15 12:00 pm  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 06/29/15 9:46 am  
sraper: Approved for Engineering DSCC Chair

Elective for  
Majors

No

Justification for  
new course:

This course will provide the architectural engineering program greater depth in building electrical systems. It is intended to replace EE 2801 as a pre-requisite to ArchE 3805 (a CC form for ArchE 3805 is being submitted simultaneously as is a DC form for the BSArchE program). ArchE 3805 will be re-structured to focus more on lighting systems and illumination (the CC form for ArchE 3805 will also address this change).

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.

Co-Listed  
Courses:

Course Reviewer  
Comments

**kleb6b (06/09/15 2:27 pm):** Rollback: Rollback per Dr. Baur

Key: 4219

[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 06/09/15 2:40 pm

Viewing: **ARCH ENG 3805 : Building Electrical and Lighting Systems**

File: 2069.1

Last edit: 06/09/15 4:38 pm

Changes proposed by: baur

Programs referencing this course [ARC ENG-BS: Architectural Engineering BS](#)

Requested Effective Change Date **Spring 2016** ~~Fall 2014~~

Department Civil, Architectural, and Environmental Engineering

Discipline Architectural Engineering (ARCH ENG)

Course Number 3805

Title Building ~~Electrical and~~ Lighting Systems

Abbreviated Course Title **Bldg Light Syst** ~~Bldg Elect & Lighting Systems~~

Catalog Description

Design and specifications for interior and exterior building ~~electrical and~~ illumination **systems.** ~~systems, including electrical and lighting loads, branch circuits, grounding and switching.~~ Work includes study of applicable NFPA 70 (NEC) and related building codes.

Prerequisites

~~Elec Eng 2800 and~~ Arch Eng **3803 and Arch Eng 3804.**

Field Trip Statement

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

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

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. Ishelton
11. Peoplesoft

Approval Path

1. 06/09/15 4:39 pm  
wschon:  
Approved for RCIVILEN Chair
2. 06/10/15 12:00 pm  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 06/29/15 9:47 am  
srafer: Approved for Engineering DSCC Chair

## Majors

Elective for  
Majors

No

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Justification for  
change:

The justification for changing the course is to provide the architectural engineering program greater depth in building lighting systems with the possibility developing additional materials in the building systems area (a CC form for ArchE 3803 is being submitted simultaneously since it is a new prerequisite requirement as is a DC form for the BSArchE program).

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:

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Course Reviewer  
Comments

**kleb6b (06/03/15 3:24 pm):** Rollback: Edit prerequisite  
**kleb6b (06/09/15 2:27 pm):** Rollback: Rollback per Dr. Baur

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# Course Inventory Change Request

A deleted record cannot be edited

## Course Deactivation Proposal

Date Submitted: 04/01/15 3:30 pm

Viewing: **ART 1190 : Achieving a Life of Art**

File: 2267.1

Last edit: 04/01/15 3:30 pm

Changes proposed by: denises

Requested	Fall 2014
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Art (ART)
Course Number	1190
Title	Achieving a Life of Art
Abbreviated Course Title	Achieving a Life of Art

### Catalog

#### Description

An introduction to the profession and practice of art in its various forms. This is a Residential College Course.

#### Prerequisites

#### Field Trip Statement

Credit Hours	LEC: .5	LAB: 0	IND: 0	RSD: 0
Total: 0.5				

Required for Majors	No
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Elective for Majors	No
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Justification for change:

### In Workflow

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

### Approval Path

1. 06/08/15 2:53 pm  
lance: Approved for RPHILOSO Chair
2. 06/08/15 2:55 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/08/15 3:20 pm  
ivliyeva: Approved for Arts & Humanities DSCC

Update per Luce Myers

Chair

Semesters

previously offered

as an

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

Key: 2267  
[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 06/29/15 12:50 pm

Viewing: **CER ENG 3110 : Introduction to Biomedical Engineering**

File: 4231

Last edit: 07/27/15 10:16 am

Changes proposed by: smiller

Requested	Spring 2016
Effective Change Date	
Department	Materials Science & Engineering
Discipline	Ceramic Engineering (CER ENG)
Course Number	3110
Title	Introduction to Biomedical Engineering
Abbreviated Course Title	Intro to BioMed Engr

### Catalog

#### Description

This course will provide an introduction to the interdisciplinary field of biomedical engineering. The molecular, cellular, physiological and engineering principles that govern the field will be covered. Applications that will include biomaterials, tissue engineering, biomechanics, bioimaging, bioinstrumentation, bio-nanotechnology and artificial organs.

#### Prerequisites

Junior standing or above.

#### Field Trip

#### Statement

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

Required for Majors	No
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Elective for	Yes
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### In Workflow

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

### Approval Path

1. 06/29/15 12:59 pm  
huebner:  
Approved for  
RMATSENG Chair
2. 07/06/15 8:11 am  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 07/27/15 10:16 am  
srafer: Approved for Engineering DSCC Chair

## Majors

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Justification for new course: Required core course to support Biomedical Engineering Minor degree program

Semesters previously offered as an experimental course Not applicable

Co-Listed Courses:

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Course Reviewer Comments **sraper (07/27/15 10:16 am):** Added Junior standing or above for prereq per Scott Miller's email.

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Key: 4231

[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 05/26/15 1:28 pm

Viewing: **CHEM 1310 : General Chemistry I**

File: 1759.1

Last edit: 07/31/15 10:20 am

Changes proposed by: woelkk

Catalog Pages referencing this course	<a href="#">Freshman Engineering Program</a>
Programs referencing this course	<a href="#">AE ENG-BS: Aerospace Engineering BS</a> <a href="#">AP MATH-BS: Applied Mathematics BS</a> <a href="#">ARC ENG-BS: Architectural Engineering BS</a> <a href="#">BIO SC-BA: Biological Sciences BA</a> <a href="#">BIO SC-BS: Biological Sciences BS</a> <a href="#">CH ENG-BS: Chemical Engineering BS</a> <a href="#">CHEM-BA: Chemistry BA</a> <a href="#">CHEM-BS: Chemistry BS</a> <a href="#">CHEM-MI: Chemistry Minor</a> <a href="#">CMP SC-BS: Computer Science BS</a> <a href="#">CP ENG-BS: Computer Engineering BS</a> <a href="#">CR ENG-BS: Ceramic Engineering BS</a> <a href="#">CV ENG-BS: Civil Engineering BS</a> <a href="#">EL ENG-BS: Electrical Engineering BS</a> <a href="#">ENG MG-BS: Engineering Management BS</a> <a href="#">EV ENG-BS: Environmental Engineering BS</a> <a href="#">GE ENG-BS: Geological Engineering BS</a> <a href="#">GL&amp;GPH-BS: Geology and Geophysics BS</a> <a href="#">MC ENG-BS: Mechanical Engineering BS</a> <a href="#">MI ENG-BS: Mining Engineering BS</a> <a href="#">MT ENG-BS: Metallurgical Engineering BS</a> <a href="#">NU ENG-BS: Nuclear Engineering BS</a> <a href="#">PE ENG-BS: Petroleum Engineering BS</a> <a href="#">PHYSIC-BS: Physics BS</a> <a href="#">PRE-MED-MI: Pre-Medicine Minor</a>
Other Courses referencing this course	<p>In The Prerequisites:</p> <a href="#">ARCH ENG 2103 : Architectural Materials And Methods Of Construction</a> <a href="#">BIO SCI 4493 : General Virology</a>

## In Workflow

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

## Approval Path

1. 05/26/15 1:41 pm  
woelk (woelkk):  
Approved for  
RCHEMIST Chair
2. 05/26/15 1:47 pm  
Kaylon Buckner (kleb6b):  
Approved for CCC  
Secretary
3. 07/31/15 10:21 am  
imorgan:  
Approved for  
Sciences DSCC  
Chair

[CHEM 1111 : Invitational Seminar](#)[CHEM 1320 : General Chemistry](#)[CHEM 2210 : Organic Chemistry I](#)[EXP ENG 5514 : Display Fireworks Manufacturing](#)[GEOLOGY 2610 : Mineralogy And Crystallography](#)[GEOLOGY 2611 : Physical Mineralogy And Petrology](#)[GEOLOGY 3410 : Introduction To Geochemistry](#)[MET ENG 5640 : Microfabrication Materials And Processes](#)[PET ENG 2510 : Properties Of Hydrocarbon Fluids](#)[PET ENG 4821 : Environmental Petroleum Applications](#)Requested **Spring 2016** ~~Fall 2014~~

Effective Change

Date

Department Chemistry

Discipline Chemistry (CHEM)

Course Number 1310

Title General Chemistry I

Abbreviated General Chemistry I

Course Title

Catalog Description A comprehensive study of ~~the general principles of~~ chemistry **concepts** with **focus emphasis** on the **atomic fundamental laws** and **molecular nature of matter**. ~~their application in practical computations.~~ **Fundamental scientific principles will be applied to solve chemistry problems and describe macroscopic physical properties.**

Prerequisites Entrance requirements.

Field Trip Statement

Credit Hours LEC: 2 LAB: 0 IND: 0 RSD: 2 Total: 4

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

Elective for Majors No

Justification for change: updated course description

Semesters previously offered as an experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 1759

[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 05/26/15 1:30 pm

Viewing: **CHEM 1320 : General Chemistry II**

File: 1885.1

Last edit: 07/31/15 10:35 am

Changes proposed by: woelkk

Catalog Pages referencing this course	<a href="#">Freshman Engineering Program</a>
Programs referencing this course	<a href="#">BIO SC-BA: Biological Sciences BA</a> <a href="#">BIO SC-BS: Biological Sciences BS</a> <a href="#">CH ENG-BS: Chemical Engineering BS</a> <a href="#">CHEM-BA: Chemistry BA</a> <a href="#">CHEM-BS: Chemistry BS</a> <a href="#">CHEM-MI: Chemistry Minor</a> <a href="#">CR ENG-BS: Ceramic Engineering BS</a> <a href="#">EV ENG-BS: Environmental Engineering BS</a> <a href="#">MT ENG-BS: Metallurgical Engineering BS</a> <a href="#">PHYSIC-BS: Physics BS</a> <a href="#">PRE-MED-MI: Pre-Medicine Minor</a>
Other Courses referencing this course	<u>In The Prerequisites:</u> <a href="#">BIO SCI 3313 : Microbiology</a> <a href="#">CHEM 2510 : Analytical Chemistry I</a> <a href="#">CHEM ENG 2100 : Chemical Engineering Material &amp; Energy Balances</a> <a href="#">ENV ENG 3603 : Chemical Fundamentals Of Environmental Engineering</a>
Requested Effective Change Date	<b>Spring 2016</b> <del>Fall 2014</del>
Department	Chemistry
Discipline	Chemistry (CHEM)
Course Number	1320
Title	General Chemistry II
Abbreviated	General Chemistry II

## In Workflow

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

## Approval Path

1. 05/26/15 1:42 pm woelk (woelkk): Approved for RCHEMIST Chair
2. 05/26/15 1:47 pm Kaylor Buckner (kleb6b): Approved for CCC Secretary
3. 07/31/15 10:35 am imorgan: Approved for Sciences DSCC Chair



## Course Title

Catalog Description **In-depth analysis of chemical reactions with an introduction to thermodynamics and kinetics including applications to electrochemistry and nuclear chemistry.**

~~Continuation of course Chem 1310 with some emphasis on descriptive chemistry. The ionic theory and mass laws are introduced and applied at advantageous points in the lecture.~~

Prerequisites Chem 1310 **with a grade of "C" or better** and **Chem 1319.**

Field Trip Statement

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

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

Elective for Majors No

Justification for change: updated course description

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments **imorgan (07/31/15 10:35 am):** Bio Sci has concerns about the change of prerequisite.

# Course Inventory Change Request

Date Submitted: 07/10/15 3:53 pm

Viewing: **CHEM 2220 : Organic Chemistry II**

File: 1098.1

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

Changes proposed by: tschuman

Programs referencing this course	<a href="#">BIO SC-BA: Biological Sciences BA</a> <a href="#">BIO SC-BS: Biological Sciences BS</a> <a href="#">CH ENG-BS: Chemical Engineering BS</a> <a href="#">CHEM-BA: Chemistry BA</a> <a href="#">CHEM-BS: Chemistry BS</a> <a href="#">PRE-MED-MI: Pre-Medicine Minor</a>
Other Courses referencing this course	In The Prerequisites: <a href="#">BIO SCI 4393 : Immunology</a> <a href="#">CHEM 3510 : Analytical Chemistry II</a> <a href="#">CHEM 4210 : Intermediate Organic Chemistry I</a> <a href="#">CHEM 4220 : Intermediate Organic Chemistry II</a> <a href="#">CHEM 4297 : Organic Synthesis And Spectroscopic Analysis</a> <a href="#">CHEM 4610 : General Biochemistry</a> <a href="#">CHEM 4810 : Chemistry And Inherent Properties Of Polymers</a> <a href="#">CHEM 4850 : Fundamentals Of Protective Coating I</a> <a href="#">CHEM 5210 : Fundamentals of Organic Reactions</a> <a href="#">CHEM 5220 : Synthetic Organic Chemistry</a> <a href="#">CHEM 5510 : Introduction to Chemical Analysis</a> <a href="#">CHEM 5610 : Biochemistry</a> <a href="#">CHEM 5810 : Introduction to Polymeric Materials</a> <a href="#">CHEM 5850 : Introduction to Coating Chemistry</a> <a href="#">CHEM 6250 : Spectrometric Identification of Organic Compounds</a> <a href="#">CHEM 6650 : Free Radicals In Biochemistry</a> <a href="#">CHEM 6840 : Polymer Physical Chemistry And Analysis</a>

Requested Effective Change Date	<b>Spring 2016</b> <del>Fall 2014</del>
Department	Chemistry
Discipline	Chemistry (CHEM)
Course Number	2220

## In Workflow

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

## Approval Path

1. 07/14/15 5:47 pm  
woelk (woelkk):  
Approved for RICHEMIST Chair
2. 07/15/15 8:07 am  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 07/31/15 10:36 am  
imorgan:  
Approved for Sciences DSCC Chair

Title	Organic Chemistry II
Abbreviated Course Title	Organic Chemistry II
Catalog Description	This course consists of three parts. The first part will cover aromaticity and reactions of aromatic compounds, the second part will cover carbonyl compounds, amines and their reactions, and the third part will cover bioorganic compounds that include carbohydrates, aminoacids, peptides, proteins, lipids, nucleosides, nucleotides, and nucleic acids.
Prerequisites	<b>Grade of "C" or better in Chem 2210.</b> <del>Chem 2210.</del>
Field Trip Statement	
Credit Hours	LEC: 4      LAB: 0      IND: 0      RSD: 0      Total: 4
Required for Majors	No
Elective for Majors	No
Justification for change:	Organic Division within Chemistry Dept. desires students entering this course (2220) to have achieved a level of competency (in the 2210 prerequisite) to help ensure success in this course. Students who do not do well in 2210 historically fail the 2220 course.
Semesters previously offered as an experimental course	
Co-Listed Courses:	
Course Reviewer Comments	

# Course Inventory Change Request

Date Submitted: 02/26/15 11:22 am

Viewing: **CIV ENG 2003 : Engineering Communications and Computations**

File: 195.1

Last edit: 04/08/15 1:58 pm

Changes proposed by: gchen

Programs referencing this course  
[CV ENG-BS: Civil Engineering BS](#)  
[EV ENG-BS: Environmental Engineering BS](#)

Other Courses referencing this course  
In The Catalog Description:  
[ARCH ENG 2003 : Engineering Communications](#)  
In The Prerequisites:  
[CIV ENG 3500 : Transportation Engineering](#)

Requested Effective Change Date  
 Fall ~~2014~~ **2015**

Department Civil, Architectural, and Environmental Engineering

Discipline Civil Engineering (CIV ENG)

Course Number 2003

Title Engineering Communications **and Computations**

Abbreviated Course Title **Eng Comm & Comp**~~Engr~~

~~Communications~~

Catalog Description

**Programming** ~~Introduction to programming concepts~~ and software tools (**including computer aided design and** ~~computer-aided design~~ drafting, **computer-based computer** mathematics, word processing, **spreadsheet, and spreadsheets, and** presentation software) with application to ~~written and oral communication in professional civil~~ and **emphasis on written, graphical, and oral communication in professional civil and** architectural engineering practice.

Prerequisites ~~Sophomore standing.~~

Field Trip

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. Ishelton
11. Peoplesoft

Approval Path

1. 02/26/15 6:32 pm wschon: Approved for RCIVILEN Chair
2. 02/27/15 8:38 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 03/12/15 11:38 am sraper: Approved for Engineering DSCC Chair

## Statement

Credit Hours      LEC: ~~2~~<sup>1</sup>      LAB: 1      IND: 0      RSD: 0      Total: ~~3~~<sup>2</sup>Required for  
Majors      **Yes**Elective for  
Majors      **No**

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Justification for  
change:      Course content expanded to include instruction & labs in new computer tools used  
in academia & industry.

Semesters  
previously  
offered as an  
experimental  
courseCo-Listed      ARCH ENG 2003 - Engineering Communications  
Courses:

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Course Reviewer  
Comments

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# Course Inventory Change Request

## New Course Proposal

Date Submitted: 03/11/15 5:01 pm

Viewing: **COMP ENG 1200 : Introduction to Digital Electronics**

File: 4205

Last edit: 05/12/15 9:54 am

Changes proposed by: stanleyj

Requested	Fall 2015
Effective Change Date	
Department	Electrical and Computer Engineering
Discipline	Computer Engineering (COMP ENG)
Course Number	1200
Title	Introduction to Digital Electronics
Abbreviated Course Title	Intro to Digital Elect

### Catalog

#### Description

Introduction to electronics and digital circuit design including combinational logic and sequential circuits using circuit design tools, logic gates, integrated circuits and field programmable gate arrays. This course provides S&T equivalent credit for the Project Lead The Way Digital Electronics course.

#### Prerequisites

None

#### Field Trip

#### Statement

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

Required for	No
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#### Majors

Elective for	No
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#### Majors

#### Justification for

### In Workflow

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

### Approval Path

1. 05/12/15 9:35 am  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 05/12/15 9:42 am  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/23/15 10:30 am  
srafer: Approved for Engineering DSCC Chair

new course: This is to be offered only as transfer credit for students completing the Digital Electronics through the Project Lead The Way (PLTW) program. Several S&T courses are currently available that provide college credit for PLTW courses taken in high school, including Biological Sciences 1983, Biological Sciences 1993, Biological Sciences 1946, Biological Sciences 1943, and Mechanical Engineering 1720.

This course will not be taught in the classroom at S&T, but, rather, will serve as a placeholder to provide college credit. This course is not included in the required curriculum for the Computer Engineering BS degree program, but provides an introduction to computer engineering that will better prepare students for the computer engineering curriculum.

Missouri S&T has hosted training for high school teachers for PLTW Pathway to Engineering courses since 2006, which includes the Digital Electronics course. The number of classroom hours required for high school students to complete the PLTW Digital Electronics course is at least two times the number of hours required for a comparable Introduction to Computer Engineering (Comp Eng 2210) course offered at S&T; hence, the 3 credit hour assignment. All students taking Digital Electronics course must take a nationally administered exam through PLTW.

The justification for skipping the EC stage is that the content of the PLTW Digital Electronics course is fundamental knowledge for computer engineers and is covered in core computer engineering courses in greater depth. Hence, there is nothing experimental about the content of this course. Designating this course as experimental would detract and make the course less valuable to students as transcriptable S&T credit. Skipping the EC stage will allow for the course to be more easily recognized as containing introductory college material and would avoid the confusion of progressing from an EC to regular course designation.

\*Needs to be catalog suppressed.

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer **kleb6b (05/12/15 9:54 am):** \*Needs to be catalog suppressed.

Comments

# Course Inventory Change Request

Date Submitted: 05/22/15 11:39 am

Viewing: **COMP ENG 5450 : Digital Image Processing**

File: 2375.2

Last approved: 04/28/14 3:47 pm

Last edit: 05/22/15 11:39 am

Changes proposed by: martins

Programs referencing this course [CP ENG-BS: Computer Engineering BS](#)

Other Courses referencing this course In The Catalog Description:  
[ELEC ENG 5450 : Digital Image Processing](#)

Requested Effective Change Date **Summer 2016** ~~Spring 2015~~

Department Electrical and Computer Engineering

Discipline Computer Engineering (COMP ENG)

Course Number 5450

Title Digital Image Processing

Abbreviated Course Title Digital Image Processing

Catalog Description  
Fundamentals of human perception, sampling and quantization, image transforms, enhancement, restoration, channel and source coding.

Prerequisites  
**At least one of the following:** Elec Eng **3400**, Elec Eng **3410**, Elec Eng **3420**, or prior **exposure to Fourier Transforms and consent of the instructor. 3410**

Field Trip Statement

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

## In Workflow

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

## Approval Path

1. 06/12/15 2:30 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 2:32 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:46 am  
sraper: Approved for Engineering DSCC Chair



Total: 3

Required for  
Majors No

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

### History

1. Apr 28, 2014 by  
lahne (2375.1)

---

Justification for  
change: To update prerequisites

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed  
Courses: ELEC ENG 5450 - Digital Image Processing

---

Course Reviewer  
Comments

Key: 2375  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 05/22/15 11:44 am

Viewing: **COMP ENG 5460 : Machine Vision**

File: 180.3

Last approved: 04/28/14 4:00 am

Last edit: 05/22/15 11:44 am

Changes proposed by: martins

Programs  
referencing this  
course

[CP ENG-BS: Computer Engineering BS](#)

Other Courses  
referencing this  
course

In The Catalog Description:  
[ELEC ENG 5460 : Machine Vision](#)

Requested  
Effective Change  
Date

Spring ~~2015~~ **2016**

Department

Electrical and Computer Engineering

Discipline

Computer Engineering (COMP ENG)

Course Number

5460

Title

Machine Vision

Abbreviated  
Course Title

Machine Vision

Catalog  
Description

Image information, image filtering, template matching, histogram transformations, edge detection, boundary detection, region growing and pattern recognition.  
Complementary laboratory exercises are required.

Prerequisites

**At least one of the following: Elec Eng 3400, Elec ~~Comp~~-Eng 3410, Elec Eng 3420, 2210 and preceded or prior exposure to Fourier Transforms and consent of the instructor. accompanied by Elec Eng 3410.**

Field Trip  
Statement

In Workflow

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

Approval Path

1. 06/12/15 2:31 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 2:32 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:46 am  
srafer: Approved for Engineering DSCC Chair

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

Total: 3

Required for  
Majors              No

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

#### History

1. Apr 28, 2014 by  
lahne (180.1)

---

Justification for  
change:              To update the prerequisites.

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed              ELEC ENG 5460 - Machine Vision  
Courses:

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Course Reviewer  
Comments

# Course Inventory Change Request

Date Submitted: 06/12/15 1:36 pm

Viewing: **COMP ENG 6330 : Clustering Algorithms**

File: 2280.1

Last edit: 06/12/15 1:36 pm

Changes proposed by: martins

Catalog Pages  
referencing this  
course [Information Science and Technology](#)

Other Courses  
referencing this  
course In The Catalog Description:  
[COMP SCI 6405 : Clustering Algorithms](#)  
[STAT 6239 : Clustering Algorithms](#)  
[SYS ENG 6214 : Clustering Algorithms](#)

Requested  
Effective Change  
Date **Spring 2016-Fall 2014**

Department Electrical and Computer Engineering

Discipline Computer Engineering (COMP ENG)

Course Number 6330

Title Clustering Algorithms

Abbreviated  
Course Title Clustering Algorithms

Catalog  
Description

An introduction to cluster analysis and clustering algorithms rooted in computational intelligence, computer science and statistics. Clustering in sequential data, massive data and high dimensional data. Students will be evaluated by individual or group research projects and research presentations.

Prerequisites

At least one graduate course in statistics, data mining, algorithms, computational intelligence, or neural networks, consistent with student's degree program.

Field Trip  
Statement

In Workflow

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

Approval Path

1. 06/12/15 2:33 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 2:36 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:46 am  
srafer: Approved for Engineering DSCC Chair

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

Required for  
Majors              No

Elective for  
Majors              No

---

Justification for  
change:              To update co-listed courses using new 4 digit numbers

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed  
Courses:              ELEC ENG 6340 - Clustering Algorithms  
                            SYS ENG 6214 - Clustering Algorithms  
                            COMP SCI 6405 - Clustering Algorithms  
                            ~~AND-STAT 6239 - Course Not Found~~  
                            **STAT 6239 - Clustering Algorithms**

---

Course Reviewer    **kleb6b (06/12/15 1:35 pm):** Rollback: Correct, per Sandy  
Comments

## Course Inventory Change Request

Date Submitted: 05/22/15 11:14 am

Viewing: **ELEC ENG 5160 : Computer-Aided Network Design**

File: 705.1

Last edit: 06/12/15 2:36 pm

Changes proposed by: martins

Requested **Spring 2016** ~~Fall 2014~~  
 Effective Change  
 Date  
 Department Electrical and Computer Engineering  
 Discipline Electrical Engineering (ELEC ENG)  
 Course Number 5160  
 Title Computer-Aided Network Design  
 Abbreviated Comput-Aided Netwrk Des  
 Course Title

### Catalog

#### Description

Analysis and design of active and passive electric networks. Theory and computer application, including methods for automatic formulation of network state equations, network tolerance, network optimization, and device modeling.

#### Prerequisites

Elec Eng **3100**. ~~3100, 267~~.

#### Field Trip

#### Statement

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

Total: 3

Required for No

#### Majors

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

#### Majors

### Justification for

#### change:

To delete EE 267 (Course no longer taught)

### In Workflow

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

### Approval Path

1. 06/12/15 2:34 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 2:36 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:46 am  
srafer: Approved for Engineering DSCC Chair

Semesters

previously offered

as an

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 705

[Preview Bridge](#)

## Course Inventory Change Request

Date Submitted: 05/22/15 11:18 am

Viewing: **ELEC ENG 5170 : Introduction To Circuit Synthesis**

File: 904.1

Last edit: 06/12/15 3:32 pm

Changes proposed by: martins

Requested **Spring 2016** ~~Fall 2014~~  
 Effective Change  
 Date  
 Department Electrical and Computer Engineering  
 Discipline Electrical Engineering (ELEC ENG)  
 Course Number 5170  
 Title Introduction To Circuit Synthesis  
 Abbreviated Intro/Circuit Synthesis  
 Course Title

### Catalog

#### Description

Fundamentals of linear circuit theory. Matrix formulation, and topological methods as applied to circuit analysis. Properties of network functions and introductory network synthesis.

#### Prerequisites

Elec Eng **3400**. ~~267~~

#### Field Trip

#### Statement

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

Total: 3

Required for      No

#### Majors

Elective for      **Yes** ~~No~~

#### Majors

### Justification for

#### change:

To delete EE 267 (Course no longer taught)

### In Workflow

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

### Approval Path

1. 06/12/15 3:27 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 3:32 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:46 am  
sraپر: Approved for Engineering DSCC Chair



Semesters

previously offered

as an

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 904

[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 05/22/15 11:24 am

Viewing: **ELEC ENG 5320 : Neural Networks ~~For~~ Control and Applications**

File: 2076.1

Last edit: 06/12/15 3:00 pm

Changes proposed by: martins

Catalog Pages  
referencing this  
course

[Systems Engineering](#)

Requested **Spring 2016** ~~Fall 2014~~  
Effective Change  
Date

Department Electrical and Computer Engineering

Discipline Electrical Engineering (ELEC ENG)

Course Number 5320

Title Neural Networks ~~For~~ Control and Applications

Abbreviated  
Course Title Neural Netwrks ~~For~~ Cntrl App

Catalog  
Description

Introduction to artificial neural networks and various supervised and unsupervised learning techniques. Detailed analysis of some of the neural networks that are used in control and identification of dynamical systems. Applications of neural networks in the area of Control. Case studies and a term project.

Prerequisites  
Elec Eng **3320. 265-**

Field Trip  
Statement

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

Required for No

## In Workflow

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

## Approval Path

1. 06/12/15 2:41 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 3:00 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:46 am  
sraper: Approved for Engineering DSCC Chair

## Majors

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

---

Justification for  
change: To delete EE 265 (Course no longer taught) and update course name

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer  
Comments

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Key: 2076  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 05/22/15 11:25 am

Viewing: **ELEC ENG 5330 : Fuzzy Logic Control**

File: 2530.1

Last edit: 06/12/15 3:00 pm

Changes proposed by: martins

Programs  
referencing this  
course

[CP ENG-BS: Computer Engineering BS](#)

Requested  
Effective Change  
Date

**Spring 2016** ~~Fall 2014~~

Department

Electrical and Computer Engineering

Discipline

Electrical Engineering (ELEC ENG)

Course Number

5330

Title

Fuzzy Logic Control

Abbreviated  
Course Title

Fuzzy Logic Control

## Catalog

### Description

A mathematical introduction to the analysis, synthesis, and design of control systems using fuzzy sets and fuzzy logic. A study of the fundamentals of fuzzy sets, operations on these sets, and their geometrical interpretations. Methodologies to design fuzzy models and feedback controllers for dynamical systems. Various applications and case studies.

### Prerequisites

Elec Eng **3320. 265-**

### Field Trip

### Statement

Credit Hours

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

Required for  
Majors

No

## In Workflow

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

## Approval Path

1. 06/12/15 2:40 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 3:00 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:46 am  
srafer: Approved for Engineering DSCC Chair

Elective for  
Majors

Yes ~~No~~

---

Justification for  
change:

To delete EE 265 (Course no longer taught)

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer  
Comments

Key: 2530  
[Preview Bridge](#)

## Course Inventory Change Request

Date Submitted: 05/22/15 11:28 am

Viewing: **ELEC ENG 5400 : Digital Signal Processing II**

File: 958.1

Last edit: 06/12/15 3:01 pm

Changes proposed by: martins

Other Courses referencing this course

In The Catalog Description:  
[ELEC ENG 6400 : Advanced Digital Signal Processing](#)

In The Prerequisites:  
[ELEC ENG 6400 : Advanced Digital Signal Processing](#)

Requested Effective Change Date: **Spring 2016** ~~Fall 2014~~

Department: Electrical and Computer Engineering

Discipline: Electrical Engineering (ELEC ENG)

Course Number: 5400

Title: Digital Signal Processing II

Abbreviated Course Title: Digital **Signl** ~~Signal~~-Process II

Catalog Description: Spectral representations, sampling, quantization, z-transforms, digital filters and discrete transforms including the Fast Fourier transform.

Prerequisites: Elec Eng **3410 or Elec Eng 3420.** ~~267.~~

Field Trip Statement

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

Required for Majors: No

Elective for Majors: No

### In Workflow

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

### Approval Path

1. 06/12/15 2:42 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 3:01 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:45 am  
sraper: Approved for Engineering DSCC Chair

---

Justification for change: To delete EE 267 (Course no longer taught) and to update course name

Semesters previously offered as an experimental course

Co-Listed Courses:

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Course Reviewer Comments

# Course Inventory Change Request

Date Submitted: 05/22/15 1:00 pm

Viewing: **ELEC ENG 5650 : Microwave and ~~And~~ Millimeter Wave Engineering And Design**

File: 486.1

Last edit: 07/15/15 1:45 pm

Changes proposed by: martins

Requested **Spring 2016**~~Fall 2014~~  
 Effective Change  
 Date  
 Department Electrical and Computer Engineering  
 Discipline Electrical Engineering (ELEC ENG)  
 Course Number 5650  
 Title Microwave **and** ~~And~~ Millimeter Wave Engineering And Design  
 Abbreviated Course Title Microwave&Millimtr Wave

## Catalog

### Description

Introduce senior and graduate students to the concept of microwave **and an** millimeter wave engineering **and passive and** component design such as waveguide, **cavities**, couplers, detectors, mixers, etc., including network theory **and and** scattering matrix. Finally, their **specific** application in **the design of** various microwave circuits will be discussed.

### Prerequisites

Elec Eng ~~3100~~, 3600.

### Field Trip

### Statement

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

Total: 3

Required for Majors No

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

Majors

## In Workflow

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

## Approval Path

1. 06/12/15 2:43 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 3:01 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:45 am  
srafer: Approved for Engineering DSCC Chair



Justification for change: To update catalog description and prerequisites

Semesters previously offered as an experimental course

Co-Listed Courses:

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Course Reviewer  
Comments

## Course Inventory Change Request

Date Submitted: 05/22/15 11:30 am

Viewing: **ELEC ENG 6400 : Advanced Digital Signal Processing II**

File: 1281.1

Last edit: 05/22/15 11:30 am

Changes proposed by: martins

Requested **Spring 2016** ~~Fall 2014~~  
 Effective Change  
 Date  
 Department Electrical and Computer Engineering  
 Discipline Electrical Engineering (ELEC ENG)  
 Course Number 6400  
 Title **Advanced** Digital Signal Processing II  
 Abbreviated **Adv Digital Signl Proces**  
 Course Title ~~Digital Signal Proc II~~

### Catalog

#### Description

Continuation of Elec Eng 5400. Effects of discrete noise sources in digital signal processing; discrete spectral analysis of random signals; discrete time signal detection, estimation, and filtering algorithms.

#### Prerequisites

Elec Eng 5400 and 5420 or 5440 or Stat 5643.

#### Field Trip

#### Statement

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

Required for Majors      No

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

#### Justification for change:

To update course name

#### In Workflow

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

#### Approval Path

1. 06/12/15 2:43 pm  
Daryl Beetner (daryl): Approved for RELECENG Chair
2. 06/12/15 3:01 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:45 am  
srafer: Approved for Engineering DSCC Chair

Semesters

previously offered

as an

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 1281

[Preview Bridge](#)

## Course Inventory Change Request

A deleted record cannot be edited

### Course Deactivation Proposal

Date Submitted: 04/01/15 3:27 pm

Viewing: **MUSIC 1133 : Highland Pipe Band**

File: 1466.1

Last edit: 04/01/15 3:27 pm

Changes proposed by: denises

Requested	Fall 2014
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Music (MUSIC)
Course Number	1133
Title	Highland Pipe Band
Abbreviated Course Title	Highland Pipe Band

#### Catalog

##### Description

A musical unit of bagpipes and drums for performance at campus, military, and other functions. An elective not to satisfy humanities elective. Consent of instructor required.

##### Prerequisites

##### Field Trip

##### Statement

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

Total: 1

Required for Majors	No
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Elective for Majors	No
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##### Justification for

#### In Workflow

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

#### Approval Path

1. 06/08/15 2:53 pm  
lance: Approved for RPHILOSO Chair
2. 06/08/15 2:55 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/08/15 3:20 pm  
ivliyeva: Approved for Arts & Humanities DSCC

change:

Update per Lorie Francis.

Chair

Semesters

previously offered

as an

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

Key: 1466  
[Preview Bridge](#)

## Course Inventory Change Request

A deleted record cannot be edited

### Course Deactivation Proposal

Date Submitted: 04/01/15 3:28 pm

Viewing: **MUSIC 1142 : Collegium Musicum - King'S Musicke**

File: 2465.1

Last edit: 06/08/15 3:21 pm

Changes proposed by: denises

Requested	Fall <del>2014</del> <b>2015</b>
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Music (MUSIC)
Course Number	1142
Title	Collegium Musicum - King'S Musicke
Abbreviated Course Title	Colleg - King's Musicke

#### Catalog

##### Description

Study and performance of renaissance and early Baroque instrumental music using historical reproductions of period instruments and appropriate performance techniques. Performances on and off campus each semester. A skills course, not a humanities elective.

##### Prerequisites

Consent of instructor and audition.

##### Field Trip

##### Statement

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

Total: 1

Required for	No
--------------	----

Majors

Elective for	No
--------------	----

Majors

#### In Workflow

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

#### Approval Path

1. 06/08/15 2:53 pm  
lance: Approved for RPHILOSO Chair
2. 06/08/15 2:55 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/08/15 3:21 pm  
ivliyeva: Approved for Arts & Humanities DSCC

Justification for  
change:

Update per Lorie Francis

Chair

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer  
Comments

Key: 2465  
[Preview Bridge](#)

# Course Inventory Change Request

A deleted record cannot be edited

## Course Deactivation Proposal

Date Submitted: 04/01/15 3:28 pm

Viewing: **MUSIC 1143 : Collegium Musicum - Madrigal Singers**

File: 1171.1

Last edit: 06/08/15 3:21 pm

Changes proposed by: denises

Requested	Fall <del>2014</del> <b>2015</b>
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Music (MUSIC)
Course Number	1143
Title	Collegium Musicum - Madrigal Singers
Abbreviated Course Title	Colleg - Madrigal Singrs

### Catalog

#### Description

Study and performance of renaissance and early Baroque vocal music using performance techniques appropriate to the period. Performances on and off campus each semester. A skills course, not a humanities elective.

#### Prerequisites

Consent of instructor and audition.

#### Field Trip

#### Statement

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

Total: 1

Required for	No
--------------	----

#### Majors

Elective for	No
--------------	----

#### Majors

#### Justification for

### In Workflow

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

### Approval Path

1. 06/08/15 2:52 pm  
Denise: Approved for RPHILOSO Chair
2. 06/08/15 2:55 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/08/15 3:21 pm  
Ivliyeva: Approved for Arts & Humanities DSCC



change:

Update per Lorie Francis

Chair

Semesters

previously offered

as an

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

Key: 1171

[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 06/10/15 9:03 am

Viewing: **NUC ENG 4345 : Applied Mathematics in Nuclear Engineering**

File: 4228

Last edit: 06/24/15 10:37 am

Changes proposed by: gmueller

Requested	Spring 2016
Effective Change Date	
Department	Mining & Nuclear Engineering
Discipline	Nuclear Engineering (NUC ENG)
Course Number	4345
Title	Applied Mathematics in Nuclear Engineering
Abbreviated Course Title	Applied Math in NE

### Catalog

#### Description

Application of ordinary and partial differential equations in the solution of nuclear engineering problems, particularly with the neutron kinetics equations, Bessel's equation and special functions, eigenvalue problems, Green's function, integral methods and transformations.

#### Prerequisites

Nuc Eng 4203.

#### Field Trip

#### Statement

None

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

Required for Majors: No

Elective for Majors: Yes

### In Workflow

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

### Approval Path

1. 06/24/15 10:34 am  
reflori: Approved for RMINNUCL Chair
2. 06/24/15 10:37 am  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/29/15 9:53 am  
srafer: Approved for Engineering DSCC Chair

Justification for new course: This elective nuclear engineering course has been taught two times before as an experimental course in FS2008 (25 Students) and FS2013 (20 Students). Thus, we would like to request a permanent course number.

Semesters previously offered as an experimental course: FS2008 (25 Students) and FS2013 (20 Students).

Co-Listed Courses:

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Course Reviewer  
Comments

Key: 4228  
[Preview Bridge](#)

# Course Inventory Change Request

## New Course Proposal

Date Submitted: 02/06/15 3:43 pm

Viewing: **PET ENG 3320 : Petrophysics**

File: 4189

Last edit: 05/12/15 10:42 am

Changes proposed by: reflori

Programs referencing this course	<a href="#">PE ENG-BS: Petroleum Engineering BS</a>
Requested Effective Change Date	Fall 2015
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	3320
Title	Petrophysics
Abbreviated Course Title	Petrophysics

**Catalog Description**  
 Fundamental properties of petroleum reservoir rocks, including lithology, porosity, absolute permeability, pore surface area, relative and effective permeability, fluid saturations, rock wettability, capillary characteristics, acoustic properties, and electrical properties. Darcy's law for single phase linear horizontal and tilted flow and radial flow.

**Prerequisites**  
 Preceded or accompanied by Pet Eng 2510 and Phys 1135.

**Field Trip Statement**

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

### In Workflow

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

### Approval Path

1. 02/07/15 12:00 pm  
 ikuenobe:  
 Approved for RGEOSENG Chair
2. 02/09/15 9:21 am  
 Kaylon Buckner (kleb6b):  
 Approved for CCC Secretary
3. 02/17/15 10:08 am  
 sraper: Approved for Engineering DSCC Chair
4. 04/09/15 12:18 pm

Required for  
Majors Yes

Elective for  
Majors No

Justification for  
new course:

Most of this content is currently in Pet Eng 3520 Reservoir Engineering, but this is more foundational to reservoir engineering. Placing this in its own focused class enables Pet Eng 3520 to more fully develop true reservoir engineering concepts.

Semesters

previously offered  
as an  
experimental  
course

None. This is a required course.

Co-Listed

Courses:

Course Reviewer **kleb6b (05/12/15 10:42 am):** Rollback: Pending DC form

Comments

Kaylon Buckner  
(kleb6b):  
Approved for  
Pending CCC  
Agenda post  
5. 05/12/15 10:42  
am  
Kaylon Buckner  
(kleb6b): Rollback  
to Pending CCC  
Agenda post for  
CCC Meeting  
Agenda

Key: 4189

[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 01/19/15 10:50 am

Viewing: **PET ENG 4710 : Finite Element Analysis with Applications in Petroleum Engineering**

File: 1975.1

Last edit: 02/09/15 9:22 am

Changes proposed by: reflori

Programs [PE ENG-BS: Petroleum Engineering BS](#)  
referencing this course

Requested Effective Change Date  
Fall **2015** ~~2014~~

Department Geosciences and Geological and Petroleum Engineering

Discipline Petroleum Engineering (PET ENG)

Course Number 4710

Title Finite Element Analysis with Applications in Petroleum Engineering

Abbreviated Course Title FEA Applied in Pet Eng

### Catalog Description

This course introduces finite element analysis (FEA) methods and applications of FEA in subsurface engineering. The course is intended to provide a fundamental understanding of FEA software and experience in creating meshes for petroleum reservoirs or other subsurface features.

### Prerequisites

Pet Eng 3520, Geology 3310, and Math 3304.

### Field Trip Statement

Credit Hours LEC: **2-3** LAB: 1 IND: 0 RSD: 0  
Total: **3-4**

### In Workflow

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

### Approval Path

1. 02/07/15 12:01 pm  
ikuenobe:  
Approved for RGEOSENG Chair
2. 02/09/15 9:22 am  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 06/29/15 9:49 am  
sraper: Approved for Engineering DSCC Chair

Required for  
Majors **No**

Elective for  
Majors **No**

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Justification for  
change: Making other Pet Eng curriculum changes. Reducing this to 3 hrs to keep total degree  
credit hours at 129.

Semesters  
previously offered  
as an  
experimental  
course

Co-Listed  
Courses:

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Course Reviewer  
Comments

Key: 1975  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 06/23/15 4:43 pm

Viewing: **PET ENG 6231 : Drilling Optimization**

File: 2185.4

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

Last edit: 06/23/15 4:43 pm

Changes proposed by: reflori

Requested	Spring 2016
Effective Change Date	
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Petroleum Engineering (PET ENG)
Course Number	6231
Title	Drilling Optimization
Abbreviated Course Title	Drilling Optimization

**Catalog**

**Description**

Optimization of the drilling process based on geomechanical model of the subsurface. Topics include drilling hydraulics, drilling bits, selection of operational parameters and analysis of drilling time and cost.

**Prerequisites**

Pet Eng **4210**. ~~3210~~.

**Field Trip**

**Statement**

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

Total: 3

Required for      No

Majors

Elective for      No

Majors

**Justification for**

**In Workflow**

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

**Approval Path**

1. 06/24/15 10:11 pm  
ikuenobe:  
Approved for  
RGEOSENG Chair
2. 06/25/15 7:48 am  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 06/29/15 9:55 am  
sraper: Approved for Engineering DSCC Chair

**History**



change:

Pet Eng 4210 is the correct pre-requisite.

1. May 4, 2015 by  
reflori (2185.1)

Semesters

previously offered

as an

experimental

course

Co-Listed

Courses:

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Course Reviewer

Comments

Key: 2185  
[Preview Bridge](#)

# Course Inventory Change Request

Date Submitted: 07/22/15 6:01 pm

Viewing: **PHILOS 3205 : Early Modern Philosophy**~~History Of Philosophy II~~

File: 1754.1

Last edit: 07/22/15 6:01 pm

Changes proposed by: denises

Requested	<b>Spring 2016</b> <del>Fall 2014</del>
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Philosophy (PHILOS)
Course Number	3205
Title	<b>Early Modern Philosophy</b> <del>History Of Philosophy II</del>
Abbreviated Course Title	<b>Early Modern Philosophy</b> <del>Hist Of Philosophy II</del>

Catalog

Description

**Principal figures in** ~~A study of selected philosophical works from Descartes to Hegel to Kant emphasizing~~ **the development of rationalism, empiricism, problems of knowledge and skepticism in early modern Europe, from Descartes through Hume.** ~~reality.~~

Prerequisites

**A previous class in philosophy is recommended.** ~~An introductory (below 2000) level Philosophy course.~~

Field Trip

Statement

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

Required for Majors **No**

Elective for Majors **Yes**

In Workflow

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

Approval Path

1. 07/23/15 8:01 am lance: Approved for RPHILOSO Chair
2. 07/23/15 8:06 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 07/23/15 2:41 pm ivliyeva: Approved for Arts & Humanities DSCC Chair

Justification for change: This is part of an online collaborative program with UMSL to reduce the need to offer these classes independently at MST and UMSL.

Semesters previously offered as an experimental course

Co-Listed Courses:

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Course Reviewer Comments **lance (02/23/15 2:15 pm):** Rollback: Second line of description--I bet they mean Augustine instead of August.  
**kleb6b (02/23/15 3:10 pm):** Rollback: Cannot change course # and title  
**kleb6b (02/23/15 3:58 pm):** Rollback: Rollback  
**kleb6b (07/06/15 8:15 am):** Rollback: Lecture or lab hours?

Key: 1754  
[Preview Bridge](#)

## Course Inventory Change Request

### New Experimental Course Proposal

Date Submitted: 05/20/15 1:22 pm

Viewing: **BIO SCI 4001.001 : Mammal Ecology**

File: 4215

Last edit: 07/31/15 10:19 am

Changes proposed by: niyogid

Requested	Fall 2015
Effective Change Date	
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	4001
Topic ID	001
Experimental Title	Mammal Ecology
Experimental Abbreviated Course Title	Mammal Ecology
Instructors	staff

#### Experimental Catalog Description

This course will build from basic knowledge of human biology and explore the ecology and adaptations of the major mammalian orders. A survey of local mammals and explorations of the field techniques used to study mammal ecology will be integrated.

Prerequisites Bio Sci 1223 or Bio Sci 2263.

Field Trip Statement Field trips (about 10 total) will be conducted at a new field station. There is no cost for these trips.

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

Justification for new course: This new class will fill a need for students interested in wildlife ecology, management, and conservation.

#### 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. Registrar

#### Approval Path

1. 05/20/15 5:43 pm aronstam: Approved for RBIOLSCI Chair
2. 05/21/15 8:01 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 07/31/15 10:19 am imorgan: Approved for Sciences DSCC Chair

Semester(s) NA  
previously taught

Co-Listed  
Courses:

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Course Reviewer **imorgan (07/31/15 10:19 am)**: One member of the DSCC expressed concern about  
Comments possible conflicts between the field trips and other classes in the student's schedule.

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Key: 4215

[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 05/26/15 4:45 pm

Viewing: **CHEM 6001.001 : Advanced Analytical Techniques for Small Biomolecules and Nanoparticles**

File: 4217

Last edit: 07/29/15 3:21 pm

Changes proposed by: woelkk

Requested            Fall 2015

Effective Change  
Date

Department        Chemistry

Discipline         Chemistry (CHEM)

Course Number    6001

Topic ID            001

Experimental  
Title                Advanced Analytical Techniques for Small Biomolecules and Nanoparticles

Experimental  
Abbreviated        Adv. Anal. Techniques

Course Title

Instructors        Yinfa Ma

Experimental  
Catalog  
Description

The class is designed to teach graduate students how to use advanced analytical techniques for quantitative analysis of small biomolecules in biological and environmental samples at ultra-low levels (ng/L) or even at single nanoparticle level. Techniques include LC-MS/MS, single-particles inductively-coupled-plasma mass spectrometry (SP-ICP-MS), and others.

Prerequisites      CHEM 5510 or CHEM 5710 or CHEM 6510 or CHEM 6555.

Field Trip  
Statement

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

### In Workflow

1. RCHEMIST Chair
2. CCC Secretary
3. Sciences DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. Registrar

### Approval Path

1. 05/26/15 4:48 pm  
woelk (woelkk):  
Approved for  
RCHEMIST Chair
2. 05/27/15 7:45 am  
Kaylon Buckner  
(kleb6b):  
Approved for CCC  
Secretary
3. 07/31/15 10:37  
am  
imorgan:  
Approved for  
Sciences DSCC  
Chair

Justification for new course: Identification and quantification of small biomolecules and nanoparticles in biological and environmental samples have not been systematically taught in any of S&T's analytical chemistry courses. Due to the wide applications and potential of these techniques, it is crucial that graduate students, especially those specialized in analytical chemistry, understand how to conduct qualitative and quantitative analyses of small biomolecules and nanoparticles in biological and environmental matrices.

Semester(s) previously taught

Co-Listed Courses:

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Course Reviewer Comments

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Key: 4217  
[Preview Bridge](#)

## Course Inventory Change Request

### New Experimental Course Proposal

Date Submitted: 05/12/15 5:15 pm

Viewing: **COMP SCI 1001.001 : Data Structures Laboratory**

File: 4210

Last edit: 07/29/15 3:21 pm

Changes proposed by: tauritzd

Requested	Spring 2016
Effective Change Date	
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	1001
Topic ID	001
Experimental Title	Data Structures Laboratory
Experimental Abbreviated Course Title	Data Structures Lab
Instructors	TBD

#### Experimental Catalog Description

Hands-on instruction in programming development tools such as version control systems, integrated development environments, debuggers, profilers, and event-based programming environments. Exercises will complement the concepts presented in COMP SCI 1510.

Prerequisites Accompanied or preceded by COMP SCI 1510.

Field Trip Statement n/a

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

Justification for new course: This lab addresses a weakness identified by ABET in preparing our students to connect to application domains and use modern development methods.

#### In Workflow

1. RCOMPSCI Chair
2. CCC Secretary
3. Sciences DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. Registrar

#### Approval Path

1. 05/12/15 6:04 pm  
Sajal Das (sdas):  
Approved for RCOMPSCI Chair
2. 05/13/15 7:40 am  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 07/31/15 11:11 am  
imorgan:  
Approved for Sciences DSCC Chair



Semester(s)        None  
previously taught

Co-Listed  
Courses:

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Course Reviewer  
Comments

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Key: 4210  
[Preview Bridge](#)

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 05/13/15 9:20 pm

Viewing: **IS&T 4001.001 : Human and Organizational Factors in Information Assurance**

File: 4212

Last edit: 07/15/15 1:53 pm

Changes proposed by: barryf

Requested	Spring 2016
Effective Change Date	
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	4001
Topic ID	001
Experimental Title	Human and Organizational Factors in Information Assurance
Experimental Abbreviated Course Title	Information Assurance
Instructors	Nathan Twyman

Experimental Catalog Description

This class provides an in-depth examination of human and organizational factors in cybersecurity and information assurance. Examines current challenges to protecting the integrity, availability, and confidentiality of information, as well as tools, methods, principles, and analytics for fraud prevention, insider threat detection, and forensic investigations.

Prerequisites IS&T 3333 or IS&T 6336 or Comp Sci 3600 or another introductory cybersecurity or information assurance course.

Field Trip Statement

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

In Workflow

1. **RBUSADMN Chair**
2. **CCC Secretary**
3. **Social Sciences DSCC Chair**
4. **Pending CCC Agenda post**
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. Registrar

Approval Path

1. 05/13/15 9:38 pm  
siauk: Approved for RBUSADMN Chair
2. 05/15/15 7:42 am  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 05/18/15 4:22 pm  
barryf: Approved for Social Sciences DSCC Chair

Justification for new course: This area continues to grow in importance.

Note that IS&T 6001 is being proposed in parallel. It will be taught with IS&T 4001; the 6001 course will have additional projects and homework.

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

## Course Inventory Change Request

### New Experimental Course Proposal

Date Submitted: 08/03/15 9:25 am

Viewing: **IS&T 5001.001 : Privacy and Information Security**

### Law

File: 4241

Last edit: 08/03/15 9:31 am

Changes proposed by: barryf

Requested	Fall 2015
Effective Change Date	
Department	Business and Information Technology
Discipline	Info Science & Technology (IS&T)
Course Number	5001
Topic ID	001
Experimental Title	Privacy and Information Security Law
Experimental Abbreviated Course Title	Privacy & Info Sec. Law
Instructors	Randy Canis, J.D.

**Experimental Catalog Description**  
 Explores a variety of issues concerning the use, disclosure, and protection of information (personal, organizational, health, and financial) from a legal perspective. A focus on understanding, planning, protecting, and responding to data breaches and other information risk and threats. Case studies based on litigation are reviewed and analyzed.

**Prerequisites**  
 Understanding of Management Information Systems

**Field Trip Statement**

<b>Credit Hours</b>	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
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**Justification for new course:**  
 New experimental course.

**Semester(s)**

#### In Workflow

1. **RBUSADMN Chair**
2. CCC Secretary
3. Social Sciences DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. Registrar

previously taught

Co-Listed

Courses:

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Course Reviewer

Comments

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Key: 4241

[Preview Bridge](#)

## Course Inventory Change Request

### New Experimental Course Proposal

Date Submitted: 05/13/15 9:20 pm

Viewing: **IS&T 6001.001 : Advanced Human and Organizational Factors in Information Assurance**

File: 4213

Last edit: 07/15/15 1:56 pm

Changes proposed by: barryf

Requested Spring 2016

Effective Change  
Date

Department Business and Information Technology

Discipline Info Science & Technology (IS&T)

Course Number 6001

Topic ID 001

Experimental Title Advanced Human and Organizational Factors in Information Assurance

Experimental Abbreviated Adv. Info Assurance

Course Title

Instructors Nathan Twyman

Experimental

Catalog

Description

This class provides an in-depth examination of human and organizational factors in cybersecurity and information assurance. Examines current challenges to protecting the integrity, availability, and confidentiality of information, as well as tools, methods, principles, and analytics for fraud prevention, insider threat detection, and forensic investigations.

Prerequisites IS&T 3333 or IS&T 6336 or Comp Sci 3600 or another introductory cybersecurity or information assurance course.

Field Trip

Statement

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

#### In Workflow

1. RINFSCTE Chair

2. CCC Secretary

3. Social Sciences  
DSCC Chair

4. Pending CCC  
Agenda post

5. CCC Meeting  
Agenda

6. Campus Curricula  
Committee Chair

7. Registrar

#### Approval Path

1. 05/13/15 9:39

pm

siauk: Approved  
for RINFSCTE  
Chair

2. 05/15/15 7:42

am

Kaylon Buckner  
(kleb6b):  
Approved for CCC  
Secretary

3. 05/18/15 4:22

pm

barryf: Approved  
for Social Sciences  
DSCC Chair

Justification for new course: This area continues to grow in importance.

Note that IS&T 4001 is being proposed in parallel. It will be taught with IS&T 6001; the 6001 course will have additional projects and homework.

Semester(s) previously taught

Co-Listed Courses:

Course Reviewer Comments

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 07/06/15 9:56 am

Viewing: **MECH ENG 6001.001 : Advanced Optical Materials and Structures**

File: 4233

Last edit: 07/06/15 9:56 am

Changes proposed by: kleb6b

Requested            Fall 2015

Effective Change

Date

Department        Mechanical & Aerospace Engineering

Discipline         Mechanical Engineering (MECH ENG)

Course Number    6001

Topic ID            001

Experimental Title    Advanced Optical Materials and Structures

Experimental Abbreviated Course Title    Adv Optical Materials

Instructors

Xiaodong Yang

Experimental Catalog Description

Description

Fundamental principles and advanced topics in optical materials and structures covering areas of photonics, plasmonics and metamaterials, and nanofabrication techniques.

Prerequisites

Elec Eng 5200 or equivalent.

Field Trip Statement

Statement

Credit Hours

LEC: 3

LAB: 0

IND: 0

RSD: 0

Total: 3

Justification for new course:

This is an important area for current research in mechanical engineering and other fields.

### 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. Registrar

### Approval Path

1. 07/06/15 10:00 am  
drallmei:  
Approved for RMECHENG Chair
2. 07/06/15 10:01 am  
Kaylon Buckner (kleb6b):  
Approved for CCC Secretary
3. 07/27/15 10:16 am  
sraper: Approved for Engineering DSCC Chair



Semester(s)        None  
previously taught  
Co-Listed  
Courses:

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Course Reviewer  
Comments

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Key: 4233

[Preview Bridge](#)



Justification for new course: This course takes fundamentals from Mechanical Earth Modeling (MEM) and builds upon them by including advanced topics such as alternative failure criterion to Mohr-Coulomb, analysis using pore pressure coupling, static material property estimation from dynamic well log measurements, and stresses near cased wellbores. The course will discuss the application of MEM to multiple petroleum engineering problems in Production, Reservoir, and Drilling Engineering. These topics are not covered Advanced Mechanical Earth Modeling Course which is a 6xxx level course which focuses on the numerical modeling side of MEM. This will help to improve our offering for undergraduate and graduate students interested in elective courses in MEM, which is a cornerstone for the Petroleum Engineering Program.

Semester(s) previously taught NA

Co-Listed Courses:

Course Reviewer Comments

# Course Inventory Change Request

## New Experimental Course Proposal

Date Submitted: 06/24/15 4:26 pm

Viewing: **PHILOS 3001.TBD : Kant and 19th Century Philosophy**

File: 4230

Last edit: 07/06/15 10:45 am

Changes proposed by: denises

Requested	Spring 2016
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Philosophy (PHILOS)
Course Number	3001
Topic ID	TBD
Experimental Title	Kant and 19th Century Philosophy
Experimental Abbreviated Course Title	Kant & 19th Century Phil
Instructors	Finch, Jonathan

### Experimental Catalog Description

Study of major 19th century philosophers, including Kant, Hegel, Nietzsche, Mill, and Pierce. The 20th century is difficult to understand without evaluating the 19th century background concepts.

### Prerequisites

Any philosophy course below 3000 is recommended.

### Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
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Justification for new course: Will be part of an online collaborative agreement with UMSL

### In Workflow

1. RPHILOS Chair
2. CCC Secretary
3. Arts & Humanities DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. Registrar

### Approval Path

1. 06/29/15 4:04 pm  
lance: Approved for RPHILOS Chair
2. 07/06/15 8:14 am  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 07/06/15 10:45 am  
ivliyeva: Approved for Arts & Humanities DSCC Chair

Semester(s)        None  
previously taught

Co-Listed  
Courses:

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Course Reviewer  
Comments

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Key: 4230

[Preview Bridge](#)

## Course Inventory Change Request

### New Experimental Course Proposal

Date Submitted: 05/22/15 8:28 am

Viewing: **POL SCI 4001.001 : Environmental Politics and Policy**

File: 4216

Last edit: 07/15/15 2:03 pm

Changes proposed by: lgragg

Requested	Spring 2016
Effective Change Date	
Department	History and Political Science
Discipline	Political Science (POL SCI)
Course Number	4001
Topic ID	001
Experimental Title	Environmental Politics and Policy
Experimental Abbreviated Course Title	Environmental Politics
Instructors	David Robertson

#### Experimental Catalog Description

This course explores environmental ideas and public policy toward land use, water and air pollution, energy, global warming, solid and hazardous waste, endangered species, population growth and international environmental co-operation.

#### Prerequisites

Political Science 1200, History 1300, History 1310, or consent of instructor.

#### Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
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Justification for new course: This is a course for visiting Maxwell C. Weiner Distinguished Professor of the Humanities who will be on campus in the spring 2016 semester.

#### In Workflow

1. RHISTORY Chair
2. CCC Secretary
3. Arts & Humanities DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. Registrar

#### Approval Path

1. 05/22/15 8:28 am  
lgragg: Approved for RHISTORY Chair
2. 05/22/15 8:32 am  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 05/22/15 8:43 am  
ivliyeva: Approved for Arts & Humanities DSCC Chair

Semester(s) N/A  
previously taught

Co-Listed  
Courses:

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Course Reviewer  
Comments

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Key: 4216  
[Preview Bridge](#)

## Course Inventory Change Request

### New Experimental Course Proposal

Date Submitted: 06/08/15 1:31 pm

Viewing: **THEATRE 2001.001 : Voice, Diction and Interpretation**

File: 4218

Last edit: 07/15/15 2:03 pm

Changes proposed by: denises

Requested	Spring 2016
Effective Change Date	
Department	Arts, Languages, & Philosophy
Discipline	Theatre (THEATRE)
Course Number	2001
Topic ID	001
Experimental Title	Voice, Diction and Interpretation
Experimental Abbreviated Course Title	Voice and Diction
Instructors	Jeanne Stanley

Experimental Catalog Description

Training the speaking voice; study of vocal mechanism, breathing, projection, articulation, enunciation; practical application of speaking principles in oral interpretation reading; mastering clarity of speech through vocal exercises.

Prerequisites

None

Field Trip Statement

Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3
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Justification for This it to create the co listed SP&M S 2001 Voice, Diction and Interpretation course.

In Workflow

1. RPHILOSO Chair
2. CCC Secretary
3. Arts & Humanities DSCC Chair
4. Pending CCC Agenda post
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. Registrar

Approval Path

1. 06/08/15 2:52 pm  
lance: Approved for RPHILOSO Chair
2. 06/08/15 2:55 pm  
Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 06/08/15 3:22 pm  
ivliyeva: Approved for Arts & Humanities DSCC Chair



new course:

Semester(s)      Spring 2013

previously taught

Co-Listed      SP&M S 2001 - Special Topics

Courses:

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Course Reviewer

Comments

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Key: 4218

[Preview Bridge](#)