MISSOURI S&T

MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Minutes of the Campus Curricula Committee Meeting
April 5, 2016
12:30 p.m., Room 106B Parker Hall

Attendees: Kaylon Buckner, Barry Flachsbart, Kristy Giacomelli, Gearoid MacSithigh, Ilene Morgan, Stephen Raper, and Thomas Schuman.

Guests: Bonnie Bachman.

The following curriculum forms were discussed and approved:

Course Change Forms:

File #4304   File #4076

File #4138 was tabled pending further information.

Degree Change Forms:

File #153.35   File #53.7
File #68.2

Experimental Course Forms:

File #4299   File #4303
File #4306   File #4305
File #4300   File #4301

File #4297 was tabled.

The meeting adjourned at 1:35 p.m.

Ilene H. Morgan, Chair
Missouri S&T Campus Curricula Committee

Page 1

Course Inventory Change Request

New Course Proposal

Date Submitted: 02/12/16 1:00 pm

Viewing: **ELEC ENG 6335 : Discrete-Time Neural Network Control**

File: 4304

Last edit: 03/21/16 8:01 am

Changes proposed by: martins

Requested Effective Change Date	Fall 2016
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6335
Title	Discrete-Time Neural Network Control
Abbreviated Course Title	Discrete Neural Control

Catalog Description

Neural network topologies, universal function approximation property, background on Lyapunov stability & dynamic systems, control of a class of nonlinear systems using single and multilayer neural networks, feedback linearization, strict & nonstrict feedback systems, MIMO system, system identification, output feedback control, and hardware implementation.

Prerequisites
Elec Eng 6300.

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. **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. lshelton
11. Peoplesoft

Approval Path

1. 02/12/16 2:47 pm Daryl Beetner (daryl): Approved for RELECENG Chair
2. 02/12/16 2:51 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 03/01/16 11:01 am sraper: Approved for Engineering DSCC Chair
4. 03/21/16 8:02 am Kaylon Buckner (kleb6b):

Justification for
new course:

   Course supports research program of controls faculty in ECE, Mech and Aero
   departments. The course also satisfies the 6xxx graduate course requirement

Semesters
previously
offered as an
experimental
course

   FS 2013 and FS 2015

Co-Listed
Courses:

Course Reviewer
Comments

Approved for	
Pending CCC	
Agenda post	
5.	04/05/16 1:47 pm
	Kaylon Buckner
	(kleb6b):
	Approved for CCC
	Meeting Agenda
6.	04/05/16 4:37 pm
	imorgan:
	Approved for
	Campus Curricula
	Committee Chair

Key: 4304
Preview Bridge

Course Inventory Change Request

New Course Proposal

Date Submitted: 02/01/16 1:15 pm

Viewing: **GEO ENG 1880 : Civic Engagement**

File: 4076

Last edit: 04/05/16 4:38 pm

Changes proposed by: kleb6b

Programs referencing this course	HUM ENG-MI: Humanitarian Engineering and Science Minor

Requested Effective Change Date	Fall 2016
Department	Geosciences and Geological and Petroleum Engineering
Discipline	Geological Engineering (GEO ENG)
Course Number	1880
Title	Civic Engagement
Abbreviated Course Title	Civic Engagement

Catalog Description

Course provides a formal independent study framework so that Humanitarian Engineering & Science Minor students and other students have the opportunity to achieve formal recognition of experiential service learning that may occur during participation in extracurricular programs. Cannot be used for credit towards Geological Engineering B.S.

Prerequisites

Open to undergraduate students pursuing the Humanitarian Engineering and Science Minor.

Field Trip Statement

Students will work with S&T as well as corporate and community partners to formally identify extracurricular projects. Those projects may be executed near the

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. lshelton
11. Peoplesoft

Approval Path

1. 02/01/16 2:31 pm ikuenobe: Approved for RGEOSENG Chair
2. 02/01/16 2:53 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 02/19/16 12:23 pm sraper: Approved for Engineering DSCC Chair
4. 03/21/16 8:03 am Kaylon Buckner (kleb6b): Approved for

S&T campus, the surrounding community, other areas in Missouri or the United States, or foreign countries. The participating students and/or the sponsoring partners will be responsible for the costs associated with the individual experiential service learning projects.

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

Required for Majors	No

Elective for Majors	No

Pending CCC Agenda post

5. 04/05/16 1:47 pm Kaylon Buckner (kleb6b): Approved for CCC Meeting Agenda

6. 04/05/16 4:38 pm imorgan: Approved for Campus Curricula Committee Chair

Justification for new course:

This course is to be offered for S/U credit. This course cannot be used as credit towards a B.S., M.S., M.E. or Ph.D. in Geological Engineering.

This is a required course for the Humanitarian Engineering and Science Minor. The civic engagement element of the HES Minor addresses Lever 1.1 of the Strategic Plan which requires all undergraduates to participate in some significant experiential learning activity before graduation. The development of a HES Minor is explicitly included in Prioritized Action 1.2. 6 "(d)evelop minor and certificate programs in leadership, entrepreneurship, humanitarian engineering and science, and creativity". Students participating in their civic engagement activities during any future intercession or spring break time periods would help address Prioritized Action 1.2.5.

*Updated prerequisite per Dr. Elmore 2/1/2016; already approved as a new course Fall 2014

Semesters previously offered as an experimental course	0

Co-Listed Courses:

Course Reviewer Comments

kleb6b (02/01/16 1:03 pm): Rollback: Per request
kleb6b (02/01/16 1:13 pm): Rollback: rollback
imorgan (04/05/16 4:38 pm): This is not actually a new course but has to be submitted as a new course because of a glitch in CourseLeaf.

Key: 4076
Preview Bridge

Program Change Request

Date Submitted: 01/21/16 11:21 am

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

File: 153.35

Last approved: 09/21/15 10:16 am

Last edit: 01/21/16 11:21 am

Changes proposed by: stanleyj

Catalog Pages Using this Program	Computer Engineering

Start Term	Fall 2016
Program Code	CP ENG-BS
Department	Electrical and Computer Engineering
Title	Computer Engineering BS

Program Requirements and Description

Bachelor of Science Computer Engineering[1]

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:

1. 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.
2. 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.
3. 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.
4. Any specific departmental requirements in the general studies area must be satisfied.
5. 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 practice through

Approval Path

1. 02/12/16 2:46 pm Daryl Beetner (daryl): Approved for RELECENG Chair
2. 02/12/16 2:51 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 03/01/16 11:01 am sraper: Approved for Engineering DSCC Chair
4. 03/21/16 8:04 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm Kaylon Buckner (kleb6b): Approved for CCC Meeting Agenda
6. 04/05/16 4:35 pm imorgan: Approved for Campus Curricula Committee Chair

History

1. Aug 6, 2014 by Stanley (stanleyj)
2. Aug 13, 2014 by pantaleoa
3. Sep 21, 2015 by Kaylon Buckner (kleb6b)

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 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.

Freshman Year			
First Semester	**Credits**	**Second Semester**	**Credits**
FR ENG 1100[2]	1	MECH ENG 1720	3
MATH 1214[3]	4	MATH 1215[3]	4
CHEM 1310	4	PHYSICS 1135[3,4]	4
CHEM 1319	1	ECON 1100 or 1200	3
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	Elective-Hum or Soc (any level)[5]	3
ENGLISH 1120	3		
	16		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**
ELEC ENG 2100[3,6,7]	3	COMP ENG 2210[3,6,8]	3
ELEC ENG 2101[3,6]	1	COMP ENG 2211[3,6]	1
MATH 2222[3]	4	ELEC ENG 2120[3,7,9]	3
COMP SCI 1570[3]	3	MATH 3304[3]	3
COMP SCI 1580[3]	1	COMP SCI 1510[3]	3
PHYSICS 2135[3,4]	4	COMP SCI 1200[3]	3
	16		16
Junior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
COMP ENG 3110	3	COMP ENG Elective A[3,14]	3
COMP ENG 3150	3	ELEC ENG 3410[3,6,9]	3
~~COMP ENG 3551[3,6,8]~~	~~1~~	COMP SCI 3800[3]	3
COMP ENG 3151[3,6,8]	**1**	STAT 3117[12]	3
ELEC ENG 2200[3,6,7]	3	Communication Elective [13]	3
ELEC ENG 2201[3,6,7]	1		
Mathematics Elective[10]	3		
SP&M S 1185[13]	3		
	17		15
Senior Year			
First Semester	**Credits**	**Second Semester**	**Credits**
COMP ENG 5410 or COMP SCI 5600[3]	3	COMP ENG Elective D[3,15,16]	3
COMP ENG Elective C[3,15,16]	3	COMP ENG Elective E[3,15,16]	3
COMP ENG 4096[3,17]	1	COMP ENG 4097[3,17]	3
Elective-Hum or Soc (any level)[5]	3	Elective-Hum or Soc (upper level)[5]	3
Engineering Science Elective [11]	3	Free Elective[18]	3
COMP ENG Elective B[3,19]	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. Students may replace SpMS 1185 with the ROTC sequence of Mil Army 4250 and 4500 or Mil Air 4110 and 4120
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		
COMP ENG 5310	Computational Intelligence	3
ELEC ENG 5370	Introduction To Neural Networks & Applications	3
COMP ENG 6310	**Markov Decision Processes**	**3**
Suggested		
ELEC ENG 5330	Fuzzy Logic Control	3
COMP ENG 5450	**Digital Image Processing**	**3**
COMP ENG 5460	**Machine Vision**	**3**

Computer ~~Computers and~~ Architecture and Embedded ~~Computer~~ Systems

~~Highly Recommended~~		
~~COMP ENG 5170~~	~~Real-Time Systems~~	~~3~~
~~COMP ENG 5151~~	~~Digital Systems Design Laboratory~~	~~3~~
~~COMP ENG 5160~~	~~Embedded Processor System Design~~	~~3~~
~~Suggested~~		
~~COMP ENG 5610~~	~~Real-Time Digital Signal Processing~~	~~3~~
~~ELEC ENG 3320~~	~~Control Systems~~	~~3~~
~~ELEC ENG 3100~~	~~Electronics I~~	~~3~~
~~COMP SCI 3100~~	~~Software Engineering I~~	~~3~~

Highly Recommended		
COMP ENG 5110	**Principles of Computer Architecture**	**3**
COMP ENG 5120	Digital Computer Design	3
COMP ENG 5151	Digital Systems Design Laboratory	3
COMP ENG 5160	Embedded Processor System Design	3
COMP ENG 5170	Real-Time Systems	3
~~COMP ENG 5510~~	~~Fault-Tolerant Digital Systems~~	~~3~~
Suggested		
COMP ENG 5610	Real-Time Digital Signal Processing	3
COMP ENG 5130	Advanced Microcomputer System Design	3
~~ELEC ENG 3320~~	~~Control Systems~~	~~3~~
ELEC ENG 3100	Electronics I	3
COMP SCI 3100	Software Engineering I	3

Integrated Circuits and Logic Design

Highly Recommended		
COMP ENG 2210	**Introduction to Digital Logic**	**3**
COMP ENG 5210	Introduction To VLSI Design	3
COMP ENG 5220	Digital System Modeling	3
COMP ENG 6210	**Digital Logic**	**3**
Suggested		
ELEC ENG 3100	Electronics I	3
COMP ENG 5110	Principles of Computer Architecture	3
COMP ENG 5151	Digital Systems Design Laboratory	3
COMP ENG 5120	Digital Computer Design	3
COMP ENG 5130	Advanced Microcomputer System Design	3

COMP ENG 5510	Fault-Tolerant Digital Systems	3

Networking, Security, ~~Networking~~ and Dependability ~~Software Engineering Security and Reliability~~

~~Highly Recommended~~		
~~COMP ENG 5110~~	~~Principles of Computer Architecture~~	~~3~~
~~COMP ENG 5420~~	~~Introduction to Network Security~~	~~3~~
~~Suggested~~		
~~COMP ENG 5310~~	~~Computational Intelligence~~	~~3~~

Highly Recommended		
~~COMP ENG 5450~~	~~Digital Image Processing~~	~~3~~
~~COMP ENG 5460~~	~~Machine Vision~~	~~3~~
COMP ENG 5420	Introduction to Network Security	3
COMP ENG 5430	Wireless Networks	3
COMP ENG 6440	**Network Performance Analysis**	**3**
COMP ENG 6510	**Resilient Networks**	**3**
Suggested		
~~COMP ENG 5110~~	~~Principles of Computer Architecture~~	~~3~~
~~COMP SCI 3100~~	~~Software Engineering I~~	~~3~~
~~IS&T 4641~~	~~Electronic and Mobile Commerce~~	~~3~~
COMP ENG 5510	**Fault-Tolerant Digital Systems**	**3**

| Justification for request | There have been numerous faculty leave the Computer Engineering department at Missouri S&T since the current Emphasis Areas were adopted over 10 years ago. New faculty hires over this time period have had backgrounds and research interests in different areas not necessarily matching up with the current Emphasis Areas. The Computer Engineering faculty adopted new Emphasis area changes for the Computer Engineering, BS program in order to make the Emphasis Areas more reflective of current Computer Engineering faculty backgrounds and research areas. In addition to adopting new Emphasis Areas, the Highly Recommended and Suggested courses for each Emphasis Area have been updated based on currently offered courses and Computer Engineering faculty recommendations for those Emphasis Areas. As noted with the Emphasis Area description, students pursuing a Computer Engineering BS degree can optionally declare an Emphasis Area to guide their choices for Computer Engineering elective courses. Declaring an Emphasis Area is not a requirement for completion of a Computer Engineering BS degree program, and an Emphasis Area declaration is not shown on the student's transcript. Emphasis Areas for Computer Engineering BS degree program provide students with technical paths, background, and skills options that students may pursue in the Elective Areas of their degree programs. The Emphasis Area changes for the Computer Engineering, BS program were approved by the Computer Engineering faculty on October 28, 2015, as recorded in the Computer Engineering faculty meeting minutes. The ECE Academy was consulted and approved the need to update the Emphasis Areas.

The following documents are included with this DC form to support the MDHE Program Change request to be submitted to he.academicprogramactions@dhe.mo.gov: |
|---|---|

1) "FormPC-CpE BS Degree Program Emphasis Area Changes - Oct 2015.docx"
contains the MDHE Program Change form
2) "FormPC-BeforeAfter and Rationale for Emphasis Area Changes.docx" contains the
before and after curriculum (Emphasis Areas with Highly Recommended and Suggest
courses) with rationale for the change request. The rationale for the change request
has been copied above.

CpE 3551 should be numbered as CpE 3151 (which is the correct course number).

Change the speech requirement
"SpMS 1185-Speech 3 hrs" with no footnote
to
"SpMS 1185-Speech 3 hrs" with footnote 13
"13) Students may replace English 3560 with English 1160. Students may replace
SpMS 1185 with the ROTC sequence of Mil Army 4250 and 4500 or Mil Air 4110 and
4120"

Justification
The speech ROTC change will allow a 6-credit hour course sequence in Army and Air
Force ROTC at the senior level to replace the 3-credit-hour, lower-level speech
requirement and would not change our writing requirement. The proposal is strongly
supported by the commanders of the S&T Army ROTC and Air Force ROTC
Departments and was approved by the ECE faculty.

Supporting Documents	
Course Reviewer Comments	**kleb6b (01/20/16 2:21 pm):** Rollback: Rollback Request **daryl (01/21/16 9:11 am):** Rollback: please change "Computers" to "Computer" in the emphasis area (see email)

Key: 153
Preview Bridge

Program Change Request

Date Submitted: 02/16/16 3:08 pm

Viewing: **ETHICS-MI : Ethics Minor**

File: 53.7

Last approved: 04/28/14 10:49 am

Last edit: 02/17/16 10:29 am

Changes proposed by: denises

Catalog Pages Using this Program	Philosophy

Start Term	**Fall 2016** 8/1/2014
Program Code	ETHICS-MI
Department	Arts, Languages, & Philosophy
Title	Ethics Minor

Program Requirements and Description

Ethics Minor

To qualify, all students must take 15 hours of course work from the following list of which at least 6 hours are from the 4000-level:

PHILOS 1105	Introduction To Philosophy	3
PHILOS 1115	Introduction To Logic	3
PHILOS 1130	**Introduction to Ethics**	**3**

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. kristyg

Approval Path

1. 02/17/16 9:53 am audram: Approved for RPHILOSO Chair
2. 02/17/16 10:30 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 02/17/16 10:47 am dewittp: Approved for Arts & Humanities DSCC Chair
4. 03/21/16 8:05 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm Kaylon Buckner (kleb6b): Approved for CCC Meeting Agenda
6. 04/05/16 4:37 pm imorgan: Approved for Campus Curricula Committee Chair

History

1. Apr 28, 2014 by ivliyeva

PHILOS 1175	Comparative Religious Philosophy	3
PHILOS 3223	Bioethics	3
PHILOS 3225	Engineering Ethics	3
PHILOS 3235	Business Ethics	3
PHILOS 4335	Philosophy Of Religion	3
PHILOS 4340	Social Ethics	3
PHILOS 4350	Environmental Ethics	3
PHILOS 4360	Foundations Of Political Conflict	3
PHILOS 4368	Law and Ethics in E-Commerce	3

Justification for request	To expand the Philosophy curriculum offerings for the minor
Supporting Documents	
Course Reviewer Comments	**kleb6b (02/17/16 10:29 am):** Put new course in correct order

Key: 53
Preview Bridge

Program Change Request

Date Submitted: 02/01/16 11:46 am

Viewing: **GEOT-ME : Geotechnics ME**

File: 68.2

Last approved: 07/23/15 10:54 am

Last edit: 02/01/16 1:02 pm

Changes proposed by: norbert

Catalog Pages Using this Program	Geotechnics
Start Term	Fall **2016** 2015
Program Code	GEOT-ME
Department	Geosciences and Geological and Petroleum Engineering
Title	Geotechnics ME

Program Requirements and Description

Course Requirements

The M.E. degree program will require 30 semester hours of graduate credit **in 4000, 5000,** in 300 and **6000 level** 400 level courses. The following four core courses (12 hours) are required:

Approval Path

1. 02/01/16 12:47 pm ikuenobe: Approved for RGEOSENG Chair
2. 02/01/16 1:02 pm Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 02/14/16 9:41 am imorgan: Approved for Sciences DSCC Chair
4. 03/01/16 11:01 am sraper: Approved for Engineering DSCC Chair
5. 03/21/16 8:06 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
6. 04/05/16 1:47 pm Kaylon Buckner (kleb6b): Approved for CCC Meeting Agenda
7. 04/05/16 4:39 pm imorgan: Approved for Campus Curricula Committee Chair

History

1. Jul 23, 2015 by pantaleoa

GEO ENG 5381	Intermediate Subsurface Hydrology And Contaminant Transport Mechs
GEO ENG 5471	Rock Engineering
GEO ENG 5441	Engineering Geology And Geotechnics
CIV ENG 5715	Intermediate Soil Mechanics
or MIN ENG 6842	Advanced Rock Mechanics

An additional 18 hours of coursework are required, included a 3 hour industrial (practice oriented) project (**GEO ENG 6400).** ~~GEO ENG 6000).~~ Of the total 30 credit hours required to obtain the degree, a maximum of nine (9) credit hours of graduate-level work with a minimum grade of "B" can be transferred from other another institution, as long as the courses have not been used towards another degree, and have been approved by the student's advisor. The balance of the credit hours must be taken through Missouri S&T. A minimum of fifteen (15) credit hours must be geological engineering courses.

Justification for request	Request that the GE 6000 (Special Problems) course be replaced by GE 6400 (Practice Oriented Program) for the Industrial (practice oriented) project requirement of the Geotechnics ME. The GE 6400 class was specifically created for the Geotechnics ME. It replaces the GE 6000 (Special Topics) class. There was in the past confusion as to whether a GE 6000 class was a practice oriented project, or just a special study class. In addition Grad Faculty rules allow only a single GE 6000 class for a master's degree.
Supporting Documents	
Course Reviewer Comments	**ikuenobe (02/01/16 9:30 am):** Rollback: Correction needed in courses requirements: replace 300 and 400 level courses with 5000 and 6000 in the description. **kleb6b (02/01/16 1:02 pm):** Effective term

Key: 68
Preview Bridge

Course Inventory Change Request

New Experimental Course Proposal

Date Submitted: 02/01/16 5:10 pm

Viewing: **AERO ENG 6001.001 : Control of Networked Multiagent Systems**

File: 4299

Last edit: 02/02/16 8:40 am

Changes proposed by: nisbett

Requested Effective Change Date	Fall 2016
Department	Mechanical & Aerospace Engineering
Discipline	Aerospace Engineering (AERO ENG)
Course Number	6001
Topic ID	001
Experimental Title	Control of Networked Multiagent Systems
Experimental Abbreviated Course Title	Control Multiagent Sys
Instructors	Tansel Yucelen

Experimental Catalog Description

An introduction to the basics of networked multiagent systems control. Throughout the course both synthesis and analysis of control laws for networked multiagent systems (particularly including large-scale modular systems and multivehicle systems) will be presented based on stability, robustness, and optimality considerations.

Prerequisites

Mech Eng 5481 or Aero Eng 5481.

Field Trip Statement

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. 02/02/16 8:34 am drallmei: Approved for RMECHENG Chair
2. 02/02/16 8:40 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 02/19/16 12:23 pm sraper: Approved for Engineering DSCC Chair
4. 03/21/16 8:07 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm Kaylon Buckner (kleb6b): Approved for CCC

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

Meeting Agenda

6. 04/05/16 4:35 pm imorgan: Approved for Campus Curricula Committee Chair

Justification for new course:

This is an important area of current research in the controls field.

Semester(s) previously taught

None

Co-Listed Courses: MECH ENG 6001 - Special Topics

Course Reviewer Comments

Key: 4299
Preview Bridge

Course Inventory Change Request

New Experimental Course Proposal

Date Submitted: 02/12/16 9:56 am

Viewing: **BIO SCI 2001.001 : Mammal Ecology**

File: 4303

Last edit: 03/15/16 10:16 am

Changes proposed by: niyogid

Requested Effective Change Date	Summer 2016
Department	Biological Sciences
Discipline	Biological Sciences (BIO SCI)
Course Number	2001
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. Field trips will be conducted at a new field station. There is no cost for these trips.

Prerequisites

Bio Sci 1223 or Bio Sci 2263.

Field Trip Statement

Field trips to S&T's field station in Phelps County will be required. There is no cost for these trips. Given the timing of course offering (one week intensive class at end of May), there will be no conflict between this class and its field trips and other S&T

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. 02/16/16 7:45 pm huangy: Approved for RBIOLSCI Chair
2. 02/17/16 8:05 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 03/15/16 10:17 am imorgan: Approved for Sciences DSCC Chair
4. 03/21/16 8:07 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm Kaylon Buckner (kleb6b):

classes.

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

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

Semester(s)
previously taught   none

Co-Listed
Courses:

Course Reviewer **imorgan (03/15/16 10:16 am):** Corrected minor typos.
Comments

Approved for CCC
Meeting Agenda
6. 04/05/16 4:35 pm
   imorgan:
   Approved for
   Campus Curricula
   Committee Chair

Key: 4303
Preview Bridge

Course Inventory Change Request

New Experimental Course Proposal

Date Submitted: 02/24/16 10:55 am

Viewing: **CHEM 4001.001 : Principles of Neurochemistry**

File: 4306

Last edit: 03/15/16 10:18 am

Changes proposed by: nercal

Requested Effective Change Date	Fall 2016
Department	Chemistry
Discipline	Chemistry (CHEM)
Course Number	4001
Topic ID	001
Experimental Title	Principles of Neurochemistry
Experimental Abbreviated Course Title	Neurochem
Instructors	Nuran Ercal and Daniel Hier

Experimental Catalog Description

Neurochemistry is a senior undergraduate-level course that explores the biochemistry of the nervous system. Clinical correlations are emphasized. The course will be of interest to chemistry, biology, psychology, and pre-medical students.

Prerequisites

Chem 4610.

Field Trip Statement

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

Justification for new course:

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. 02/24/16 12:37 pm
   woelk (woelkk):
   Approved for RCHEMIST Chair
2. 02/24/16 1:03 pm
   Kaylon Buckner (kleb6b):
   Approved for CCC Secretary
3. 03/15/16 10:18 am
   imorgan:
   Approved for Sciences DSCC Chair
4. 03/21/16 8:09 am
   Kaylon Buckner (kleb6b):
   Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm
   Kaylon Buckner

This course was already offered as a 6000-level course; however, we believe that it is more suited for the upper-level undergraduate students.

Semester(s)
previously taught
  FS2014 as Chem 6001

Co-Listed
Courses:

| Course Reviewer Comments | **imorgan (03/15/16 10:18 am):** Added prerequisite with approval of department based on DSCC discussion. |

(kleb6b):
Approved for CCC
Meeting Agenda

6. 04/05/16 4:35 pm
   imorgan:
   Approved for
   Campus Curricula
   Committee Chair

Key: 4306
Preview Bridge

Course Inventory Change Request

New Experimental Course Proposal

Date Submitted: 02/17/16 11:31 am

Viewing: **MECH ENG 5001.001 : Introduction to Microfluidics**

File: 4305

Last edit: 02/17/16 11:48 am

Changes proposed by: nisbett

Requested Effective Change Date	Summer 2016
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	5001
Topic ID	001
Experimental Title	Introduction to Microfluidics
Experimental Abbreviated Course Title	Intro to Microfluidics
Instructors	Dr. Cheng Wang, Dr. K.M. Isaac

Experimental Catalog Description

Topics include overview of microfluidics, basic principles and scaling laws, microfabrication techniques, experimental measurements, electrohydrodynamics, magnetofluidics, acoustofluidics, and applications in engineering and sciences. Emphasis will be on the fundamental understanding of transport phenomena at the microscale.

Prerequisites

Math 2222, Phys 2135 or equivalent, and one from the following list: Mech Eng 3131, Aero Eng 3131, Chem Eng 3100, Chem 3410, Elec Eng 3600, Civ Eng 3330, Cer Eng 3410.

Field Trip Statement

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. 02/17/16 11:41 am drallmei: Approved for RMECHENG Chair
2. 02/17/16 11:48 am Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 03/01/16 11:01 am sraper: Approved for Engineering DSCC Chair
4. 03/21/16 8:10 am Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm Kaylon Buckner

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

Justification for new course:

This course covers an important area of current and developing research.

Semester(s) previously taught

Spring 2012

Co-Listed Courses:

AERO ENG 5001 - Special Topics

Course Reviewer Comments

(kleb6b): Approved for CCC Meeting Agenda

6. 04/05/16 4:39 pm imorgan: Approved for Campus Curricula Committee Chair

Key: 4305
Preview Bridge

Course Inventory Change Request

New Experimental Course Proposal

Date Submitted: 02/08/16 5:02 pm

Viewing: **MET ENG 5001.001 : Hydrometallurgy I**

File: 4300

Last edit: 02/19/16 12:23 pm

Changes proposed by: moatsm

Requested Effective Change Date	Fall 2016
Department	Materials Science & Engineering
Discipline	Metallurgical Engineering (MET ENG)
Course Number	5001
Topic ID	001
Experimental Title	Hydrometallurgy I
Experimental Abbreviated Course Title	Hydromet I
Instructors	Michael Moats

Experimental Catalog Description

This course will examine the fundamentals and practice of leaching and solution purification. A review of relevant thermodynamics and kinetics will be included. Descriptions of commercial unit operations will be presented.

Prerequisites

A grade of "C" or better in either Cer Eng 3230 or Met Eng 3220.

Field Trip Statement

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

Justification for new course:

Approval Path

1. 02/08/16 5:25 pm
   Richard Brow (brow): Approved for RMATSENG Chair
2. 02/09/16 8:02 am
   Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 02/19/16 12:23 pm
   sraper: Approved for Engineering DSCC Chair
4. 03/21/16 8:11 am
   Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm
   Kaylon Buckner (kleb6b):

The course is being offered to expand the number of courses offered to MSE and Min Eng students in extractive metallurgy. This is in response to comments made during graduating senior exit interviews. The course is also being added to allow Prof. Moats to provide greater in-depth instruction to graduate researchers in this area.

Semester(s) previously taught

This course was taught as MET ENG 4001 in Fall 2014. The level of the material presented warrants a re-classification as a 5000 level course.

Co-Listed Courses:

Course Reviewer Comments

sraper (02/19/16 12:23 pm): Modified description via email approval.

Approved for CCC Meeting Agenda

6. 04/05/16 4:39 pm imorgan: Approved for Campus Curricula Committee Chair

Key: 4300

Preview Bridge

Course Inventory Change Request

New Experimental Course Proposal

Date Submitted: 02/11/16 9:57 am

Viewing: **MIN ENG 6001.002 : Mining Property Disclosure**

File: 4301

Last edit: 02/11/16 10:15 am

Changes proposed by: kabp3

Requested Effective Change Date	Fall 2016
Department	Mining & Nuclear Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	6001
Topic ID	002
Experimental Title	Mining Property Disclosure
Experimental Abbreviated Course Title	Min Prop Disclosure
Instructors	Kwame Awuah-Offei

Experimental Catalog Description

Definitions and requirements for public disclosure by public companies engaged in mining operations. Discussions on US and international regulatory environment for public disclosure on mining properties: Exploration results, mineral resources and mineral reserves. Principles for producing compliant and effective disclosure on mining properties.

Prerequisites

Field Trip Statement

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

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. **Registrar**

Approval Path

1. 02/11/16 10:06 am
   reflori: Approved for RMINNUCL Chair
2. 02/11/16 10:15 am
   Kaylon Buckner (kleb6b): Approved for CCC Secretary
3. 02/19/16 12:25 pm
   sraper: Approved for Engineering DSCC Chair
4. 03/21/16 8:11 am
   Kaylon Buckner (kleb6b): Approved for Pending CCC Agenda post
5. 04/05/16 1:47 pm
   Kaylon Buckner

Justification for
new course:

  Nothing like this is offered in the catalog. But such a course will provide advanced
preparation for our students to become mining professionals (engineers, scientists,
legal and finance professionals in mining) who are able to meet professional and
legal standards regarding public reporting on a mining company's most important
assets.

Semester(s)
previously taught   None

Co-Listed
Courses:

Course Reviewer   **reflori (02/11/16 9:48 am):** Rollback: At Dr. Kwame's request.
Comments

(kleb6b):
Approved for CCC
Meeting Agenda

6. 04/05/16 4:39 pm
imorgan:
Approved for
Campus Curricula
Committee Chair

Key: 4301
Preview Bridge