Campus Curricula Committee Meeting Agenda
August 9, 2022
8:15am - 9:30am, Bertelsmeyer 110H
(For Faculty Senate Meeting of September 22, 2022)

Review of submitted Course Change forms:

File: 4882 CIV ENG 6718 : Unsaturated Soil Mechanics
File: 1059.1 MECH ENG 6230 : Theory and Design of Plate and Shell Structures
File: 2639.5 NUC ENG 3221 : Reactor Fluid Mechanics
File: 2371.9 NUC ENG 4496 : Nuclear System Design I
File: 1207.1 NUC ENG 5010 : Seminar

Review of submitted Program Change forms:

File: 237.24 BIOMED-MI : Biomedical Engineering Minor
File: 14.19 CH ENG-MS : Chemical Engineering MS
File: 153.80 CP ENG-BS : Computer Engineering BS
File: 155.64 EL ENG-BS : Electrical Engineering BS
File: 302.16 MOBLB&T-CT : Mobile Business and Digital Transformation CT
File: 353.4 SPACE R-CT : Space Resources Certificate
File: 303.5 TCH COM-CT : Professional Communication CT

Review of submitted Experimental Course forms:

File: 4880 COMP SCI 6001.011 : Advanced Virtual Reality
File: 4876 ELEC ENG 6001.007 : Power System Economics and Market Operation
File: 4875 ENGLISH 3001.009 : Vikings: Legends and Lore
File: 4878 HISTORY 3001.008 : Modern Eastern Europe
File: 4879 MIN ENG 6001.004 : Computational Fluid Dynamics for Particulate and Fire Simulations
File: 4877 PSYCH 5001.003 : Organizational Diversity, Equity, and Inclusion

New Business:

Approval of 2022-2023 CCC Calendar
Vote/Confirm new CCC Chair
CCC Google Group email address has changed from ccc-grp@mst.edu to ccc-grp@grp.umsystem.edu.

Course Change Request

New Course Proposal

Date Submitted: 07/11/22 9:24 am

Viewing: **CIV ENG 6718 : Unsaturated Soil Mechanics**

File: 4882

Last edit: 07/19/22 11:25 am

Changes proposed by: seelyj

Requested Effective Change Date	Spring 2023
Department	Civil, Architectural, and Environmental Engineering
Discipline	Civil Engineering (CIV ENG)
Course Number	6718
Title	Unsaturated Soil Mechanics
Abbreviated Course Title	Unsat Soil Mech

Catalog Description

This is an extension of saturated soil mechanics to solve problems in which soils cannot be considered as saturated such as compacted soils, and expansive and collapsible soils in arid or semi-arid regions. Coverage of unsaturated water flow, consolidation, shear strength, and constitutive modelling of unsaturated soils and their applications.

Prerequisites

Civ Eng 3715 or Civ Eng 5715. Civ Eng 6715 is recommended.

Field Trip Statement

na

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

In Workflow

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

Approval Path

1. 07/11/22 10:45 am
   Joel Burken (burken): Approved for RCIVILEN Chair
2. 07/12/22 10:38 am
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:25 am

Required for Majors	No
Elective for Majors	Yes

Justification for new course:

This course has been successfully taught several times. Would like to shorten the title, if possible.

Semesters previously offered as an experimental course

6001- Soil Mechanics for Unsaturated Soils: SP22 - 17, FS20 - 6, FS19 - 3, FS18 - 12, FS17 - 6

Co-Listed Courses:

Stephen Raper (sraper): Approved for Engineering DSCC Chair

4. 07/20/22 1:42 pm Jennifer Pohlsander (jpnfd): Approved for Pending CCC Agenda post
5. 07/22/22 9:33 am Jennifer Pohlsander (jpnfd): Rollback to Pending CCC Agenda post for CCC Meeting Agenda

Course Reviewer Comments

jpnfd (07/11/22 11:35 am): Removed "grad standing," as it is unnecessary for a 6000 level course.
jpnfd (07/12/22 10:37 am): Per email from Civ Eng on 7-11-22. Civ Eng 5715 was added as a prereq.
jpnfd (07/12/22 11:27 am): Enrollment Confirmed
sraper (07/19/22 11:25 am): could change elective for majors to No.
jpnfd (07/22/22 9:33 am): Rollback: Approved in error

Key: 4882

Preview Bridge

Course Change Request

Date Submitted: 05/06/22 3:13 pm

Viewing: **MECH ENG 6230 : Theory and Design of Plate and Shell Structures ~~Theory Of Plates~~**

File: 1059.1

Last edit: 07/19/22 11:54 am

Changes proposed by: nisbett

Programs referencing this course	E MECH-CT: Engineering Mechanics CT CMPM&SM-CT: Composite Matrls & Struct CT

Requested Effective Change Date	Spring 2023 ~~Fall 2014~~
Department	Mechanical & Aerospace Engineering
Discipline	Mechanical Engineering (MECH ENG)
Course Number	6230
Title	Theory and Design of Plate and Shell Structures ~~Theory Of Plates~~
Abbreviated Course Title	Theory Of Plates

Catalog Description

Theoretical backgrounds of plate and cylindrical shell structures. Extensive ~~General~~ coverage of design issues with ~~various approaches to plate problems and~~ the emphasis on ~~application of these methods to~~ practical problems in diverse areas of engineering. ~~problems.~~ Strength, buckling and dynamics of plates manufactured from metals and composites. Review of thermoelastic applications. ~~Special topics include applications to elastic foundations, buckling and energy methods in plate theory.~~

Prerequisites

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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar
10. CAT entry
11. Peoplesoft

Approval Path

1. 05/06/22 3:31 pm David Bayless (djbkqf): Approved for RMECHENG Chair
2. 07/05/22 2:42 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:54 am Stephen Raper (sraper):

	Civ Eng 2210, Math 3304. ~~Math 5325.~~
Field Trip Statement	

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~~				

Justification for change:	Updating to better reflect the course content.
Semesters previously offered as an experimental course	
Co-Listed Courses:	

Course Reviewer Comments	**sraper (07/19/22 11:54 am):** looks like extensive change but I believe it is appropriate and conveys modern understanding.

Key: 1059

Preview Bridge

Course Change Request

Date Submitted: 04/13/22 2:08 pm

Viewing: **NUC ENG 3221 : Reactor Fluid Mechanics**

File: 2639.5

Last approved: 04/13/22 11:42 am

Last edit: 07/12/22 10:17 am

Changes proposed by: schlegelj

Programs referencing this course	NU ENG-BS: Nuclear Engineering BS AP MATH-BS: Applied Mathematics BS MI ENG-BS: Mining Engineering BS
Other Courses referencing this course	In The Prerequisites: AERO ENG 5570 : Plasma Physics I MECH ENG 5570 : Plasma Physics I MIN ENG 5113 : Mine Atmosphere Control MIN ENG 5912 : Mine Power and Drainage NUC ENG 3223 : Reactor Heat Transfer NUC ENG 4257 : Two-phase Flow in Energy Systems - I NUC ENG 4370 : Plasma Physics I NUC ENG 5370 : Plasma Physics I PHYSICS 4543 : Plasma Physics I

Requested Effective Change Date	Spring 2023 ~~8/1/22 Nuc/Min Batch update only~~
Department	Nuclear Eng & Radiation Sci
Discipline	Nuclear Engineering (NUC ENG)
Course Number	3221
Title	Reactor Fluid Mechanics
Abbreviated Course Title	Reactor Fluid Mechanics

In Workflow

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

Approval Path

1. 07/11/22 11:44 am
   AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 07/12/22 10:17 am
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:55 am

Catalog Description

A study of the fundamental principles of incompressible viscous and inviscid flows in ducts, nozzles, tube bundles and applications to nuclear engineering; fluid statics; dimensional analysis and similitude; boundary layer theory.

Prerequisites

Mech Eng 2519 or Mech Eng 2527, ~~2519,~~ Math 3304, Junior standing.

Field Trip Statement

Credit Hours Total: 3	LEC: 3	LAB: 0	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Feb 8, 2021 by schlegelj (2639.1)
2. Apr 13, 2022 by tibbettsmg (2639.4)

Justification for change: Some students from other programs working on a Nuclear Engineering minor or taking this class to satisfy a fluid mechanics requirement have programs where Mech Eng 2527 is required rather than Mech Eng 2519. Mech Eng 2527 is sufficient as a prerequisite to this course for those students.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 2639

Preview Bridge

Course Change Request

Date Submitted: 04/13/22 2:02 pm

Viewing: **NUC ENG 4496 : Nuclear System Design I**

File: 2371.9

Last approved: 04/13/22 11:45 am

Last edit: 07/12/22 10:03 am

Changes proposed by: schlegelj

Catalog Pages referencing this course	Nuclear Engineering
Programs referencing this course	NU ENG-BS: Nuclear Engineering BS
Other Courses referencing this course	In The Prerequisites: NUC ENG 4497 : Nuclear System Design II

Requested Effective Change Date	Spring 2023 ~~8/1/22 Nuc/Min Batch update only~~
Department	Nuclear Eng & Radiation Sci
Discipline	Nuclear Engineering (NUC ENG)
Course Number	4496
Title	Nuclear System Design I
Abbreviated Course Title	Nuclear System Design I

Catalog Description

A preliminary design of a nuclear system (e.g. a fission or fusion nuclear reactor

In Workflow

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

Approval Path

1. 07/11/22 11:44 am
   AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 07/12/22 10:06 am
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:56 am

plant, a space power system, a radioactive waste disposal system).

Prerequisites

Nuc Eng 3223, Nuc Eng 4203 or Nuc Eng 5203; ~~4203;~~ preceded or ~~or~~ accompanied by Nuc Eng 4241 or Nuc Eng 5241. ~~Nuc Eng 4241.~~

Field Trip Statement

Credit Hours Total: 2	LEC: 1	LAB: 1	IND: 0	RSD: 0
Required for Majors	Yes			
Elective for Majors	No			

Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jun 26, 2017 by castanoc (2371.1)
2. Feb 8, 2021 by schlegelj (2371.4)
3. Jun 21, 2021 by schlegelj (2371.6)
4. Apr 13, 2022 by tibbettsmg (2371.8)

Justification for change:

Some senior students have begun taking 5203 or 5241 as part of the Grad Track Pathway option.

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments

Key: 2371

Preview Bridge

Course Change Request

Date Submitted: 05/12/22 11:07 am

Viewing: NUC ENG 5010 ~~4010~~ : Seminar

File: 1207.1

Last edit: 07/19/22 11:56 am

Changes proposed by: castanoc

Requested Effective Change Date	Spring 2023 ~~8/1/22 Nuc/Min Batch update only~~
Department	Nuclear Eng & Radiation Sci
Discipline	Nuclear Engineering (NUC ENG)
Course Number	5010 ~~4010~~
Title	Seminar
Abbreviated Course Title	Seminar

Catalog Description

Discussion of current topics.

Prerequisites

~~Senior standing.~~

Field Trip Statement

Credit Hours Total: 0-6	LEC: 0	LAB: 0	IND: 0	RSD: 0

Required for Majors	Yes ~~No~~
Elective for Majors	No

In Workflow

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

Approval Path

1. 07/11/22 11:44 am
   AYODEJI Alajo (alajoa): Approved for NUC ENG Chair
2. 07/12/22 11:01 am
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:56 am

Justification for change:

Seminars are part of our continuous improvement and is also part of our ABET accreditation providing our students with knowledge of contemporary issues.

Stephen Raper (sraper): Approved for Engineering DSCC Chair

Semesters previously offered as an experimental course

Co-Listed Courses:

Course Reviewer Comments	**jpnfd (07/12/22 11:00 am):** Reverted credit hour change, left as is per dept email 7-12-22 **sraper (07/19/22 11:56 am):** CCC - consider elimination of prereq statement??

Key: 1207

Preview Bridge

Program Change Request

Date Submitted: 04/05/22 2:07 pm

Viewing: BIOMED-MI : Biomedical Engineering Minor

File: 237.24

Last approved: 06/14/19 2:14 pm

Last edit: 07/07/22 9:12 am

Changes proposed by: smiller

Catalog Pages Using this Program
Materials Science and Engineering

Start Term
Fall 2023 ~~2019~~
Program Code
BIOMED-MI
Department
Materials Science & Engineering
Title
Biomedical Engineering Minor

Program Requirements and Description

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. kristyg

Approval Path

1. 07/11/22 10:42 am Michael Moats (moatsm): Approved for RMATSENG Chair
2. 07/11/22 10:47 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:58 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Oct 27, 2014 by rahaman
2. Nov 18, 2014 by kleb6b
3. Jan 23, 2015 by pantaleoa
4. Jan 23, 2015 by pantaleoa
5. Jun 19, 2015 by pantaleoa
6. Jul 21, 2015 by pantaleoa
7. Oct 15, 2015 by F. Scott Miller (smiller)
8. Mar 7, 2016 by F. Scott Miller (smiller)

9. Jun 14, 2019 by F. Scott Miller (smiller)

Biomedical Engineering Minor

Minimum number of credit hours: 15 hours, consisting of one required course, CER ENG 3110: Introduction to Biomedical Engineering , plus at least four courses from an approved list. At least two of the elective courses will be at or above the 4000 level. Core courses used toward a student's major degree requirements cannot be used for the minor degree program in BME. Elective courses used toward a student's major degree requirements or another minor degree program cannot be used unless they are approved by the biomedical engineering program committee.

Elective courses:

BIO SCI 2213	Cell Biology	3
BIO SCI 2219	Cell Biology Laboratory	1
BIO SCI 2223	General Genetics	3
BIO SCI 3313	Microbiology	3
BIO SCI 3319	Microbiology Lab	2
BIO SCI 3333	Human Anatomy and Physiology I	3
BIO SCI 3339	Human Anatomy Physiology I Lab	1
BIO SCI 3343	Human Anatomy and Physiology II	3
BIO SCI 3349	Human Anatomy and Physiology II Laboratory	1
BIO SCI 3483	Biomedical Problems	3
CHEM ENG 4210	Biochemical Reactors	3
BIO SCI 4323	Molecular Genetics	3
BIO SCI 4353	Cancer Cell Biology	3
BIO SCI 4383	Toxicology	3
CHEM 4610	General Biochemistry	3
CHEM 4620	Metabolism	3
BIO SCI 5001	Special Topics	0-6
BIO SCI 5240/MS&E 5210	Tissue Engineering	3
BIO SCI 4666	Nanobiotechnology	3
BIO SCI 6666	Advanced Nanotechnology in Biomedicine	3
MS&E 5310/BIO SCI 5210/CHEM ENG 5200	Biomaterials I	3
CHEM ENG 5320	Introduction to Nanomaterials	3
BIO SCI 5323	Bioinformatics	3
~~STAT 5425~~	~~Course STAT 5425 Not Found~~	~~4~~
ENG MGT 5511	Technical Entrepreneurship	3
STAT 3425	Introduction to Biostatistics	4
MET ENG 4099	Undergraduate Research [1]	0-6

1 Undergraduate Research may be taken in any science or engineering discipline.

Justification for request

Revised course number for Intro to Biostatistics

Supporting Documents

Course Reviewer Comments

esdk3 (07/07/22 9:12 am): corrected term to FS23 - es

Key: 237

Program Change Request

Date Submitted: 04/29/22 2:04 pm

Viewing: CH ENG-MS : Chemical Engineering MS

File: 14.19

Last approved: 06/14/21 11:47 am

Last edit: 05/04/22 12:26 pm

Changes proposed by: jcwang

Catalog Pages Using this Program
Chemical & Biochemical Engineering

Start Term
Fall 2023 ~~2021~~
Program Code
CH ENG-MS
Department
Chemical and Biochemical Engineering
Title
Chemical Engineering MS

Program Requirements and Description

In Workflow

1. **RCHEMENG 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. Evie Sherlock

Approval Path

1. 04/30/22 4:33 pm Hu Yang (huyang): Approved for RCHEMENG Chair
2. 05/04/22 12:27 pm Marita Raper (tibbettsmg): Approved for CCC Secretary
3. 05/12/22 11:56 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Aug 4, 2014 by pantaleoa
2. Oct 7, 2016 by Daniel Forciniti (forcinit)
3. Feb 28, 2018 by Crystal Wilson (wilsoncry)
4. Jun 18, 2018 by marlene
5. Jul 1, 2020 by Christi Luks (luksc)
6. Jun 10, 2021 by Jee C. Wang (jcwang)
7. Jun 14, 2021 by Crystal Wilson

(wilsoncry)

The departmental core courses for the graduate program are CHEM ENG 5100, CHEM ENG 5110, CHEM ENG 5150 and CHEM ENG 5220. All students, except for those in their first semester and in their last semester as PhD students, need to register for 1 credit hour of CHEM ENG 6015 Lecture Series every semester. Lecture Series can be used for a total of 3 credit hours towards graduate students' 6000 level course requirement. ~~requirements.~~

The master of science thesis program consists of a minimum of 30 semester hours, including 9-12 ~~12~~ hours from the departmental graduate core course requirement, with CHEM ENG 5150 being an optional course, ~~requirement~~ plus 6-12 hours of additional coursework. A M.S. thesis from research must also be prepared and defended, which shall include 6-12 credit hours of CHEM ENG 6099. ~~CHEM ENG 6099.~~

A master of science non-thesis program consists of 30 semester hours of coursework, including 12 hours from the departmental graduate core course requirement plus 12 hours of additional coursework within the department. The program of study must include a minimum of 9 credit hours of 6000-level courses in or out of the department, of which up to three can come from CHEM ENG 6015.

Justification for request
Supporting Documents
Course Reviewer Comments
tibbettsmg (05/04/22 12:26 pm): updated formatting and effective term to Fall 2023.

Key: 14

Program Change Request

Date Submitted: 06/03/22 11:28 am

Viewing: CP ENG-BS : Computer Engineering BS

File: 153.80

Last approved: 05/02/22 1:31 pm

Last edit: 07/05/22 3:58 pm

Changes proposed by: stanleyj

Catalog Pages Using this Program
Computer Engineering

Start Term
Fall 2023 ~~2022~~
Program Code
CP ENG-BS
Department
Electrical and Computer Engineering
Title
Computer Engineering BS

Program Requirements and Description

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. kristyg

Approval Path

1. 06/03/22 2:33 pm Watkins (watkins): Approved for RELECENG Chair
2. 07/05/22 3:58 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:59 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Aug 6, 2014 by Stanley (stanleyj)
2. Aug 13, 2014 by pantaleoa
3. Sep 21, 2015 by kleb6b
4. Apr 25, 2016 by Stanley (stanleyj)
5. Dec 1, 2016 by Stanley (stanleyj)
6. Sep 19, 2017 by Stanley (stanleyj)
7. Jun 18, 2018 by Stanley (stanleyj)
8. Nov 2, 2018 by Stanley (stanleyj)
9. May 2, 2019 by

Stanley (stanleyj)
10. May 14, 2019 by ershenb
11. Mar 3, 2020 by Stanley (stanleyj)
12. May 2, 2022 by Stanley (stanleyj)

Bachelor of Science Computer Engineering[1]

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.

Electrical and Computer Engineering degree programs will require a minimum of 21 credit hours of humanities/social-sciences as specified below:

- ENGLISH 1120
- HISTORY 1200 **or** HISTORY 1300 **or** HISTORY 1310 **or** POL SCI 1200
- ECON 1100 **or** ECON 1200
- Technical Communication Elective: ENGLISH 1160 **or** ENGLISH 3560
- SP&M S 1185
- The remaining minimum of 6 additional credit hours must be three-credit hour lecture courses offered in disciplines in the humanities and social sciences. Humanities courses are defined as those in: Art, English and Technical Communication, Etymology, Foreign Languages, Music, Philosophy, Speech and Media Studies, and Theatre. Social Sciences courses are defined as those in: Economics, History, Political Science, and Psychology. Study abroad courses may count as H/SS courses. H/SS courses numbered 2001, 3001, and 4001 (experimental courses) may also be used to complete these elective requirements.

Courses in business, education, information science and technology, or any other discipline not listed above will **not** satisfy the humanities/social sciences elective requirement, although such courses may count toward general education requirements. Transfer credits from other universities in sociology and general humanities may count as humanities or social science electives.

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 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	COMP SCI 1500	3
MATH 1214 or 1211[3,21]	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 1200[3]	3
PHYSICS 2135[3,4]	4	COMP SCI 1575	3
	16		16

Junior Year

First Semester	Credits	Second Semester	Credits
COMP ENG 3110[3,8]	3	COMP ENG Elective A[3,14]	3
COMP ENG 3150[3,6,8]	3	ELEC ENG 3410[3,6,9]	3
COMP ENG 3151[3,6,8]	1	COMP SCI 3800 or 2500[3]	3
ELEC ENG 2200[3,6,7]	3	STAT 3117[12]	3
ELEC ENG 2201[3,6,7]	1	Communication Elective [13]	3
Mathematics Elective[10]	3		
SP&M S 1185[13]	3		
	17		15

Senior Year

First Semester	Credits	Second Semester	Credits
COMP ENG 5410[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	Professional Development Elective[20]	3
Engineering Science Elective [11]	3	Free Elective[18]	3
COMP ENG Elective B[3,19]	3		
	16		15
Total Credits: 128			

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 Foundational Engineering and Computing Seminars.

3 A minimum grade of "C" must be attained in MATH 1214 or MATH 1211, MATH 1215, MATH 2222, and MATH 3304, PHYSICS 1135 and PHYSICS 2135 (or their equivalents), COMP SCI 1570, COMP SCI 1580, COMP SCI 1575, COMP SCI 1200, COMP SCI 2500 or COMP SCI 3800, COMP ENG 2210, COMP ENG 2211, COMP ENG 3150, COMP ENG 3151, COMP ENG 3110,COMP ENG 5410, COMP ENG 4096, and ELEC ENG 2100, ELEC ENG 2101, ELEC ENG 2120, ELEC ENG 2200, ELEC ENG 2201, and ELEC ENG 3410 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 .

10

Students must take one of the following courses:

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 one of MECH ENG 2340, MECH ENG 2519, MECH ENG 2527, PHYSICS 2311, PHYSICS 2401, CHEM 2210, BIO SCI 2213, BIO SCI 2223, CIV ENG 2200, MECH ENG 2350, PHYSICS 2305, PHYSICS 4311, CER ENG 4240, or 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 SP&M S 1185 with the ROTC sequence of MIL ARMY 4250 and MIL ARMY 4500 or MIL AIR 4110 and MIL AIR 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, COMP SCI 4010, COMP SCI 5600, and Comp Sci 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, 4096, and 4097, and COMP SCI 2002 and COMP SCI 3610 and COMP SCI 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. Students admitted to the accelerated BS/MS program must satisfy Cp Eng Electives B and C with 5xxx or 6xxx-level courses and a minimum grade of B.

20

Students must take one of the following courses: BUS 5980, ECON 4430, ECON 5337, ENG MGT 2310, ENG MGT 3320, ENG MGT 4110, ENG MGT 5514, PHILOS 3225.

21

The course combination MATH 1210 and MATH 1211 may be taken in place of MATH 1214.

An accelerated BS/MS program is optional.

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
~~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 Architecture and Embedded Systems

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
Suggested		
COMP ENG 5610	Real-Time Digital Signal Processing	3
COMP ENG 5130	Advanced Microcomputer System Design	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, and Dependability

Highly Recommended		
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 5510	Fault-Tolerant Digital Systems	3

Accelerated BS/MS Program Option for EE and CpE Majors

Electrical engineering or computer engineering undergraduates in ECE at Missouri S&T may opt to apply for an accelerated BS/MS ECE program where a student can achieve both degrees faster than if pursuing the degrees separately. The degrees may be BS EE and MS EE, BS CpE and MS CpE, BS EE and MS CpE, or BS CpE and MS EE. The benefits of the program for admitted students are:

- Undergraduate and graduate courses may be chosen with greater flexibility,
- Up to nine hours of 5000-level or above ECE coursework may apply to both the BS and MS requirements,
- The classes taken for shared BS/MS credit may be taken at the lower undergraduate tuition rate,
- The GRE is not required for admission,
- Other graduate credit courses may be taken anytime after entering the program, and
- Work on a thesis project may begin before the BS requirements are completed.

To be eligible for the accelerated BS/MS ECE program, an EE or CpE undergraduate must be at or beyond the junior level with a minimum of 60 credit hours and must have completed 18 credit hours of EE and/or CpE courses at Missouri S&T with at least a 3.50 GPA in the ECE courses. To be admitted, the student must complete the program application and must have the recommendation of an ECE faculty member who agrees to serve as the graduate thesis advisor. No other MS degree requirements are changed. The MS degree must be for the thesis option. The program may be combined with existing honors research and emphasis area options. Admitted students will have both undergraduate and graduate records in the Registrar's Office.

The Accelerated program application must be completed within one semester after the shared-credit courses are completed. Courses taken for shared credit will be identified on this application form and on Graduate Form 1, which is submitted after the student enters the graduate program. The nine hours of shared-credit coursework will be taken as undergraduate credit, and may not be undergraduate research, special problems, or transfer courses (a co-listed course can only apply for these undergraduate requirements if it is under an EE or CpE registration. Note that the choice of EE or CpE registration may affect how a course can apply within an MS program.) An additional nine credit hours of coursework for graduate credit (beyond the shared BS/MS credits) can be taken while in the undergraduate program by applying for dual undergraduate/graduate enrollment. Taking additional courses for graduate credit will require formal application to the graduate program. Acceptance to the MS degree from the Accelerated Program is automatic so long as the student meets ECE graduate student academic performance requirements. To remain in the program, the student must maintain good standing within the undergraduate EE or CpE program and must maintain continuous enrollment at Missouri S&T. If the student exits the program before completion of the MS degree requirements or fails to maintain continuous enrollment at Missouri S&T, the shared-credit courses may not apply toward graduate requirements in the event of future readmission.

The student is responsible for checking on how dual-enrollment status and graduate coursework will affect scholarships and other financial aid. Once you become a graduate student, you **are not** eligible for Federal Pell Grants, though are still eligible for Federal Financial Aid and will be eligible for fellowships and teaching/research assistantships. International students should check with international affairs during completion of an accelerated BS/MS to ensure immigration status will be maintained throughout the program.

Justification for request

CpE 3150 and CpE 3110 are core CpE BS program courses. Both courses require a C or better grade. CpE 2210 is a prerequisite for both courses. CpE 3150 is the lecture course for CpE 3151. If a student drops CpE 3150, the student needs to drop the lab CpE 3151 as well. These footnotes, for whatever reason, are missing and need to be specified.

CpE 6310 (Markov Decision Processes) has been removed from the Highly Recommended course list for Computational Intelligence because it is a graduate level course. Similarly, CpE 6210 (Digital Logic) has been removed from the Highly Recommended course list for Integrated Circuits and Logic Design because it is a graduate level course. CpE 6440 (Network Performance Analysis) and CpE 6510 (Resilient Networks) are removed from the Highly Recommended course list for Networking, Security, and Dependability because they are graduate level courses.

Supporting Documents

~~RE_ Accelerated BS_MS Program.pdf~~

~~Accelerated BS_MS program website.docx~~

Course Reviewer Comments

jpnfd (07/05/22 3:58 pm): Updated term to FS23

Key: 153

Program Change Request

Date Submitted: 05/23/22 12:57 pm

Viewing: EL ENG-BS : Electrical Engineering BS

File: 155.64

Last approved: 05/02/22 1:30 pm

Last edit: 07/11/22 10:09 am

Changes proposed by: kte

Catalog Pages Using this Program
Electrical Engineering

Start Term
Fall 2023 ~~2022~~
Program Code
EL ENG-BS
Department
Electrical and Computer Engineering
Title
Electrical Engineering BS

Program Requirements and Description

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. kristyg

Approval Path

1. 05/24/22 3:31 pm Watkins (watkins): Approved for RELECENG Chair
2. 07/11/22 10:18 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:59 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Aug 6, 2014 by Watkins (watkins)
2. Aug 13, 2014 by pantaleoa
3. Apr 25, 2016 by Watkins (watkins)
4. Jun 18, 2018 by Watkins (watkins)
5. May 15, 2019 by Mehdi Ferdowsi (ferdowsi)
6. Mar 3, 2020 by ershenb
7. Oct 28, 2020 by Marita Raper (tibbettsmg)
8. Oct 1, 2021 by

Crystal Wilson (wilsoncry)
9. May 2, 2022 by Stanley (stanleyj)

Bachelor of Science
Electrical Engineering[1]

For the Bachelor of Science degree in Electrical 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 Electrical Engineering.

Electrical and Computer Engineering degree programs will require a minimum of 21 credit hours of humanities/social-sciences as specified below:

- ENGLISH 1120
- HISTORY 1200 **or** HISTORY 1300 **or** HISTORY 1310 **or** POL SCI 1200
- ECON 1100 **or** ECON 1200
- Technical Communication Elective: ENGLISH 1160 **or** ENGLISH 3560
- SP&M S 1185
- The remaining minimum of 6 additional credit hours must be three-credit hour lecture courses offered in disciplines in the humanities and social sciences. Humanities courses are defined as those in: Art, English and Technical Communication, Etymology, Foreign Languages, Music, Philosophy, Speech and Media Studies, and Theatre. Social Sciences courses are defined as those in: Economics, History, Political Science, and Psychology. Study abroad courses may count as H/SS courses. H/SS courses numbered 2001, 3001, and 4001 (experimental courses) may also be used to complete these elective requirements.

Courses in business, education, information science and technology, or any other discipline not listed above will **not** satisfy the humanities/social sciences elective requirement, although such courses may count toward general education requirements. Transfer credits from other universities in sociology and general humanities may count as humanities or social science electives.

The Electrical 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.

Free Electives Footnote:

Students are required to take five hours of free electives in consultation with their 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
CHEM 1310	4	MATH 1215[3]	4
CHEM 1319	1	PHYSICS 1135[3,4]	4
MATH 1214 or 1211[3, 21]	4	ECON 1100 or 1200	3
HISTORY 1200, or 1300, or 1310, or POL SCI 1200	3	Elective-Hum or Soc Sci (any level)[5]	3
ENGLISH 1120	3		
	16		17
Sophomore Year			
First Semester	**Credits**	**Second Semester**	**Credits**

ELEC ENG 2100[3,6,7]	3	ELEC ENG 2200[3,6,7,10]	3
ELEC ENG 2101[3,6]	1	ELEC ENG 2201[3,6,7]	1
MATH 2222[3]	4	ELEC ENG 2120[3,7,9]	3
COMP ENG 2210[3,6,8]	3	MATH 3304[3]	3
COMP ENG 2211[3,6]	1	Engineering Science Elective[11]	3
PHYSICS 2135[3,4]	4	COMP SCI 1500	3
	16		16

Junior Year

First Semester	Credits	Second Semester	Credits
ELEC ENG 3100[3,6,9,10]	3	ELEC ENG 3600[3,9]	4
ELEC ENG 3101[3,6,9,10]	1	El Eng Elective A[10,14,19]	3
ELEC ENG 3320	3	ELEC ENG 3430	3
ELEC ENG 3321	1	ELEC ENG 3431	1
SP&M S 1185[13]	3	STAT 3117[12]	3
MATH 3108	3	Communication Elective [13]	3
	14		17

Senior Year

First Semester	Credits	Second Semester	Credits
El Eng Power Elective[3,6,9,15]	3	El Eng Elective C[10,14]	3
El Eng Power Elective Lab[3,6,9,15]	1	El Eng Elective E[17,19]	3
El Eng Elective B[10,14]	3	ELEC ENG 4097	3
El Eng Elective D[10,16,19]	3	Professional Development Elective[20]	3
ELEC ENG 4096[3]	1	Free Elective[18]	3
Free Elective[18]	3		
Elective-Hum or Soc Sci (any level)[5]	3		
	17		15
Total Credits: 128			

1 The minimum number of hours required for a degree in Electrical Engineering is 128.

2 Students that transfer after their freshman year are not required to enroll in FR ENG 1100.

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), ELEC ENG 2100, ELEC ENG 2101, ELEC ENG 2120, ELEC ENG 2200, ELEC ENG 2201, ELEC ENG 3320, ELEC ENG 3321, ELEC ENG 3430, ELEC ENG 3431, ELEC ENG 3100, ELEC ENG 3101, and ELEC ENG 3600, the ELEC ENG power elective (ELEC ENG 3500 and ELEC ENG 3501 or ELEC ENG 3540 and ELEC ENG 3541), ELEC ENG 4096 and COMP ENG 2210 and COMP ENG 2211. 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 last week to drop a class must also drop the corequisite lab.

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/or 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 3500, ELEC ENG 3540, ELEC ENG 3501, ELEC ENG 3541, ELEC ENG 3320,ELEC ENG 3321, ELEC ENG 3430,ELEC ENG 3431, ELEC ENG 3100, ELEC ENG 3101, or ELEC ENG 3600, or other courses with ELEC ENG 2120 as a prerequisite.

10

Students must earn a passing grade on the ELEC ENG Advancement Exam III (associated with ELEC ENG 2200) before they enroll in ELEC ENG 3100 and ELEC ENG 3101 or other courses with ELEC ENG 2200 as a prerequisite.

11

Students must take MECH ENG 2340, MECH ENG 2519, MECH ENG 2527, PHYSICS 2305, PHYSICS 2311, PHYSICS 2401, NUC ENG 3103, CHEM 2210, BIO SCI 2213, or BIO SCI 2223. The following pairs of course are substitutions: CIV ENG 2200 and MECH ENG 2350 or ENG MGT 2110 and ENG MGT 3310.

12

Students may replace STAT 3117 with STAT 3115 or STAT 5643.

13

Students must take ENGLISH 3560 or ENGLISH 1160. Students may replace SP&M S 1185 with the ROTC sequence of MIL ARMY 4250 and MIL ARMY 4500 or MIL AIR 4110 and MIL AIR 4120.

14

ELEC ENG Electives A, B, and C must be chosen from ELEC ENG 56XX, ELEC ENG 3500, ELEC ENG 3540, ELEC ENG 3410, ELEC ENG 3250, ELEC ENG 3340, ELEC ENG 3440, ELEC ENG 3120, and COMP ENG 3150. Only one ELEC ENG 56XX course may be used.

15

The ELEC ENG Power Elective may be satisfied with ELEC ENG 3500 and ELEC ENG 3501 or ELEC ENG 3540 and ELEC ENG 3541.

16

ELEC ENG Elective D must be a 4XXX-level or above ELEC ENG or COMP ENG course with at least a 3-hour lecture component. ELEC ENG 4000 , ELEC ENG 5000, COMP ENG 4000, COMP ENG 5000, ELEC ENG 4099, COMP ENG 4099, ELEC ENG 4096, COMP ENG 4096, ELEC ENG 4097, COMP ENG 4097, ELEC ENG 5070, COMP ENG 5070, ELEC ENG 5085, ELEC ENG 58XX, and COMP ENG 58XX may not be used for Elective D.

17

ELEC ENG Elective E may be any 3XXX-level or above ELEC ENG or COMP ENG course except ELEC ENG 3002, ELEC ENG 38XX, ELEC ENG 4096, ELEC ENG 4097, and ELEC ENG 5070 and ELEC ENG 5085 and COMP ENG 3002, COMP ENG 38XX, COMP ENG 4000, COMP ENG 4096, COMP ENG 4097, and COMP ENG 5070.

18

Students are required to take six hours of free elective in consultation with their academic advisors. Credits that do not count toward this requirement are deficiency courses (such as algebra and trigonometry) and extra credits from courses meeting other requirements. Any courses outside of engineering and science must be at least three credit hours. ELEC ENG 28XX, ELEC ENG 38XX, ELEC ENG 4096, ELEC ENG 4097, COMP ENG 28XX, COMP ENG 38XX, COMP ENG 4096 and COMP ENG 4097 may not be used for free electives. No more than one credit hour of ELEC ENG 3002 or COMP ENG 3002 may be applied to the BS degree for free electives.

19

Students that pursue an optional degree emphasis area have restricted options for El Eng Electives A, D, and E. Students admitted to the accelerated BS/MS program must satisfy El Eng Electives D and E with 5xxx or 6xxx-level courses and a minimum grade of B.

20

Students must take one of the following courses: BUS 5980, ECON 4430, ECON 5337, ENG MGT 2310, ENG MGT 3320, ENG MGT 4110, ENG MGT 5514, or PHILOS 3225.

21

Both MATH 1210 and MATH 1211 may be taken in place of MATH 1214. A C or better grade is required in both courses.

All Electrical Engineering students are encouraged to take the fundamentals of Engineering Examination prior to graduation. It is the first step toward becoming a registered professional engineer.

An accelerated BS/MS program and a formal emphasis in circuits and electronics, optics and devices, controls and systems, communications and signal processing, power and energy, electromagnetics, or computer engineering are optional.

Emphasis Areas for Electrical Engineering

Circuits and Electronics, Communications and Signal Processing, Computer Engineering, Controls and Systems, Electromagnetics, Optics and Devices, Power and Energy

A declared emphasis area is not required. A student may choose to obtain an Electrical Engineering degree without a formal emphasis or may choose to

obtain an Electrical Engineering degree with a declared emphasis in one or more of the emphasis areas of electrical engineering. A major change request is required to add the emphasis area option to the degree program.

For students who seek an Electrical Engineering degree without a formal emphasis, these emphasis areas may guide the choice of their ELEC ENG Electives A, B, C, D, and E as well as their free electives. Students should consult with their advisors on such course selections.

For students who seek an Electrical Engineering degree with a declared emphasis, courses in the declared emphasis area will be applied to ELEC ENG Electives A, D, and E in the degree requirements. For students who choose to have multiple emphasis areas, the additional courses will apply to ELEC ENG Elective B or C and free elective requirements. Students should seek guidance from their advisors on emphasis areas and on courses that are relevant to more than one emphasis area. Students may have an emphasis area or emphasis areas listed on their transcript by completing three three-credit-hour courses in electrical and computer engineering from the designated lists with at least one of the courses being at the 4XXX-level or above. This requirement will be satisfied by completing the relevant ABC Elective course, a 4XXX-level or above course for Elective D, and another 3XXX-level or above course for Elective E from the designated listing. The required ELEC ENG courses ELEC ENG 3320, ELEC ENG 3430, ELEC ENG 3100, and ELEC ENG 3600 and the course used to satisfy the power requirement (ELEC ENG 3500 or ELEC ENG 3540) may not be used to meet the three course requirement. Transfer courses do not apply to emphasis areas. A co-listed course may count toward both areas. Experimental courses ELEC ENG 3001, ELEC ENG 4001, ELEC ENG 5001, COMP ENG 3001, COMP ENG 4001, or COMP ENG 5001 require departmental approval to apply toward an emphasis area.

Circuits and Electronics		
ELEC ENG 3120	Electronics II	3
ELEC ENG 41XX and ELEC ENG 51XX Courses		
Communications and Signal Processing		
ELEC ENG 3410	Digital Signal Processing	3
ELEC ENG 3440	Digital Communications II	3
ELEC ENG 44XX and ELEC ENG 54XX Courses		
Computer Engineering		
ELEC ENG 3410, COMP ENG 3XXX-level or above Courses (Excluding COMP ENG 3000, COMP ENG 4000, COMP ENG 5000, COMP ENG 3002, COMP ENG 4096, COMP ENG 4097, and COMP ENG 5070) See the COMP ENG degree program for details on COMP ENG areas.		
Controls and Systems		
ELEC ENG 3340	Basic Programmable Logic Controllers	3
ELEC ENG 43XX and ELEC ENG 53XX Courses		
Electromagnetics		
ELEC ENG 46XX and ELEC ENG 56XX Courses		
Optics and Devices		
ELEC ENG 3250	Electronic And Photonic Devices	3
ELEC ENG 42XX and ELEC ENG 52XX Courses		
Power and Energy		
ELEC ENG 3500	Electromechanics	3
ELEC ENG 3540	Power System Design And Analysis	3
ELEC ENG 5150	Photovoltaic Systems Engineering	3
ELEC ENG 5520	Power Electronics	3
ELEC ENG 5521	Power Electronics Laboratory	2
ELEC ENG 45XX and ELEC ENG 55XX Courses		

Accelerated BS/MS Program Option for EE and CpE Majors

Electrical engineering or computer engineering undergraduates in ECE at Missouri S&T may opt to apply for an accelerated BS/MS ECE program where a

student can achieve both degrees faster than if pursuing the degrees separately. The degrees may be BS EE and MS EE, BS CpE and MS CpE, BS EE and MS CpE, or BS CpE and MS EE. The benefits of the program for admitted students are:

- Undergraduate and graduate courses may be chosen with greater flexibility,
- Up to nine hours of 5000-level or above ECE coursework may apply to both the BS and MS requirements,
- The classes taken for shared BS/MS credit may be taken at the lower undergraduate tuition rate,
- The GRE is not required for admission,
- Other graduate credit courses may be taken anytime after entering the program, and
- Work on a thesis project may begin before the BS requirements are completed.

To be eligible for the accelerated BS/MS ECE program, an EE or CpE undergraduate must be at or beyond the junior level with a minimum of 60 credit hours and must have completed 18 credit hours of EE and/or CpE courses at Missouri S&T with at least a 3.50 GPA in the ECE courses. To be admitted, the student must complete the program application and must have the recommendation of an ECE faculty member who agrees to serve as the graduate thesis advisor. No other MS degree requirements are changed. The MS degree must be for the thesis option. The program may be combined with existing honors research and emphasis area options. Admitted students will have both undergraduate and graduate records in the Registrar's Office.

The Accelerated program application must be completed within one semester after the shared-credit courses are completed. Courses taken for shared credit will be identified on the application form and on Graduate Form 1, which is submitted after the student enters the graduate program. The nine hours of shared-credit coursework will be taken as undergraduate credit, and may not be undergraduate research, special problems, or transfer courses (a co-listed course can only apply for these undergraduate requirements if it is under an EE or CpE registration. Note that the choice of EE or CpE registration may affect how a course can apply within an MS program.) An additional nine credit hours of coursework for graduate credit (beyond the shared BS/MS credits) can be taken while in the undergraduate program by applying for dual undergraduate/graduate enrollment. Taking additional courses for graduate credit will require formal application to the graduate program. Acceptance to the MS degree program from the Accelerated program is automatic so long as the student meets ECE graduate student academic performance requirements. To remain in the Accelerated program, the student must maintain good standing within the undergraduate EE or CpE program and must maintain continuous enrollment at Missouri S&T. If the student exits the program before completion of the MS degree requirements or fails to maintain continuous enrollment at Missouri S&T, the shared-credit courses may not apply toward graduate requirements in the event of future readmission.

The student is responsible for checking on how dual-enrollment status and graduate coursework will affect scholarships and other financial aid. Once you become a graduate student, you **are not** eligible for Federal Pell Grants, though are still eligible for Federal Financial Aid and will be eligible for fellowships and teaching/research assistantships. International students should check with international affairs during completion of an accelerated BS/MS to ensure immigration status will be maintained throughout the program.

Justification for request

Exclude ELEC ENG 5085 from ELEC ENG Elective D and ELEC ENG Elective E. ELEC ENG 5085 is a MS-level internship course, not appropriate for a BS degree.

Supporting Documents

~~Accelerated BS_MS program website.docx~~

~~RE_ Accelerated BS_MS Program.pdf~~

Course Reviewer Comments

jpnfd (07/11/22 10:08 am): Updated formatting on footnote 16 and 17.

jpnfd (07/11/22 10:09 am): Updated term to Fall 2023.

Key: 155

Program Change Request

Date Submitted: 07/01/22 4:23 pm

Viewing: MOBLB&T-CT : Mobile Business and Digital Transformation ~~Tech~~ CT

File: 302.16

Last approved: 07/19/21 2:37 pm

Last edit: 07/11/22 9:52 am

Changes proposed by: cecq8z

Catalog Pages Using this Program
Information Science and Technology

Start Term
Fall 2023 ~~2021~~
Program Code
MOBLB&T-CT
Department
Business and Information Technology
Title
Mobile Business and Digital Transformation ~~Tech~~ CT

Program Requirements and Description

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. FS Meeting Agenda
8. Faculty Senate Chair
9. Registrar

Approval Path

1. 07/06/22 10:54 am Cassie Elrod (cassa): Approved for RINFSCTE Chair
2. 07/11/22 9:57 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/11/22 10:59 am Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

History

1. Jun 12, 2019 by ershenb
2. Apr 2, 2021 by Cecil Eng Huang Chua (cchua)
3. Jun 10, 2021 by Cecil Eng Huang Chua (cchua)
4. Jul 19, 2021 by Marita Raper (tibbettsmg)

Mobile Business and Digital Transformation ~~Tech~~

Interest in the use of mobile technology and digital transformation among organizations has seen a strong, upward trend over the past few years. Indeed, many organizations now have Chief Digital Officers, whose role differs from the Chief Information Officer. The CDO's role is principally centered around positioning the organization to leverage emerging technologies, in contrast to the CIO's role of supporting existing technologies.

People capable of creating and maintaining digital technology strategies are needed.

This certificate is designed to cover managing emerging technologies. The focus will be on allowing an organization to make decisions in this dynamic domain.

A student admitted to this graduate certificate must complete four courses:

Three courses from the following list:	
IS&T 5335	Fundamentals of Mobile Technology for Business
IS&T 6641	Advanced Digital Commerce and IoT Analytics
IS&T 6654	Advanced Web Design and Digital Media Studies
IS&T 5251	Management and Leadership of Technological Innovation
IS&T 6723	Artificial Intelligence, Robotics, and Digital Transformation
ERP 5240	Enterprise Application Development and Software Security
Elective courses (choose one):	
ERP 5210	Performance Dashboard, Scorecard and Data Visualization
ERP 5310	Supply Chain Management Systems in an ERP Environment
ERP 6610	Advanced Customer Relationship Management in ERP Environment
IS&T 5652	Advanced Web Development
IS&T 5886	Prototyping Human-Computer Interactions
IS&T 5168	Law and Ethics in E-Commerce
IS&T 5680	Digital Media Development and Interactive Design
MKT 5310	Digital Marketing and Promotions

Justification for request

Name change to reflect modern thinking

Supporting Documents

MS&T PC November 2021.pdf

Revised Proposal for Mobile Business & Tech Graduate Certificate.pdf

Course Reviewer Comments

esdk3 (07/06/22 10:54 am): corrected program code; it must remain MOBLB&T-CT - es

jpnfd (07/11/22 9:52 am): Updated start term to Fall 2023.

Key: 302

Program Change Request

Date Submitted: 06/01/22 5:33 pm

Viewing: SPACE R-CT : Space Resources Certificate

File: 353.4

Last approved: 07/01/20 1:39 pm

Last edit: 07/11/22 9:35 am

Changes proposed by: gertschl

Catalog Pages Using this Program
Geological Engineering

Start Term
Fall 2023 ~~2020~~
Program Code
SPACE R-CT
Department
Geosciences and Geological and Petroleum Engineering
Title
Space Resources Certificate

Program Requirements and Description

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. kristyg

Approval Path

1. 06/02/22 10:14 am Jeff Cawlfield (jdc): Approved for RGEOSENG Chair
2. 07/11/22 9:39 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:57 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

History

1. Jul 1, 2020 by David Borrok (borrokd)

The graduate certificate program in Space Resources is designed to provide a pathway for non-aerospace engineering professionals to enter the emerging field of space-based resource discovery and production.

The Space Resources Certificate Program is open to all persons holding a B.S., M.S., or Ph.D. degree in, Geological Engineering, Geotechnics, Civil Engineering, Mining Engineering, Ceramic Engineering, Chemical Engineering, Metallurgical Engineering or Aerospace Engineering or who are currently accepted into a graduate degree program in one of these fields at Missouri S&T. Once admitted to the program, the student must take the four designated courses (provided in the curriculum section). In order to receive a Graduate Certificate, the student must have an average cumulative grade point of 3.0 or better in the certificate courses. Once admitted to the program, a student will be given three years to complete the program.

Students admitted to the Space Resources Certificate Program will have non-degree graduate status, however, they will earn graduate credit for the

courses they complete. If the student completes the four-course sequence with a grade of B or better in each of the courses taken, they, upon application, will be admitted to their choice of graduate degree programs in either Geological Engineering or Geotechnics. Admission to other engineering programs will be at the discretion of those programs. The certificate credits taken by the students admitted to the graduate degree program will count towards their degree. Students who do not have all of the prerequisite courses necessary to begin the courses in the Space Resources Certificate Program will be allowed to take "bridge" courses at either the graduate or undergraduate level to prepare for the formal certificate courses.

The following course is required:		
GEO ENG 5810	Fundamentals of Space Resources	3
One of the following Space Mechanics courses is required:		
AERO ENG 3613	Aerospace Mechanics I	3
AERO ENG 5313	Intermediate Dynamics of Mechanical and Aerospace Systems	3
AERO ENG 5614	Spaceflight Mechanics	3
One of the following Exploration courses is required:		
GEO ENG 5144	Remote Sensing Technology	3
GEO ENG 5443	Subsurface Exploration	3
~~GEOLOGY 4731~~	~~Course GEOLOGY 4731 Not Found~~	~~3~~
One of the following Processing courses is required:		
CHEM ENG 4110	Chemical Engineering Process Dynamics And Control	3
CHEM ENG 5110	Intermediate Chemical Reactor Design	3
CHEM ENG 5190	Plantwide Process Control	3
MS&E 6120	Thermodynamics and Phase Equilibria	3

Justification for request

To add a new course and replace a course that is no longer offered, all with the goal of increasing the rigor and applicability of the program.

Supporting Documents

~~App Ltrs Space Resources.pdf~~

~~MDHE Approvals DEC 2019.pdf~~

Course Reviewer Comments

jpnfd (07/05/22 3:09 pm): Updated term to FS2023 JP

jpnfd (07/11/22 9:35 am): Removed Geology 4731 per GGPE email 7-7-22 Changed "Once" to "One"

Key: 353

Program Change Request

Date Submitted: 06/03/22 8:03 am

Viewing: TCH COM-CT : Professional ~~Technical~~ Communication CT

File: 303.5

Last approved: 08/03/21 10:33 am

Last edit: 07/05/22 3:27 pm

Changes proposed by: kswenson

Catalog Pages Using this Program
Technical Communication

Start Term
Fall 2023 ~~2021~~
Program Code
TCH COM-CT
Department
English and Technical Communication
Title
Professional ~~Technical~~ Communication CT

Program Requirements and Description

In Workflow

1. **RENGLISH 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. Evie Sherlock

Approval Path

1. 03/08/22 5:05 pm Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 03/09/22 1:06 pm Marita Raper (tibbettsmg): Rollback to Initiator
3. 06/03/22 8:03 am Kristine Swenson (kswenson): Approved for RENGLISH Chair
4. 07/05/22 3:28 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 07/05/22 3:35 pm Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

History

1. Jun 13, 2019 by ershenb
2. Jun 10, 2021 by Kristine Swenson (kswenson)
3. Aug 3, 2021 by

Crystal Wilson
(wilsoncry)

Professional ~~Technical~~ Communication Graduate Certificate

The graduate certificate in professional ~~technical~~ communication serves current Missouri S&T graduate students in any discipline; individuals who already have undergraduate or graduate degrees and are seeking to add value to their degrees; and current industry employees who need to hone their communication skills to remain competitive in the market and better serve their employers.

The certificate may be pursued either online or on campus.

The following 4 courses* (totaling 12 credit hours) will be required for the certificate:

TCH COM 5510	Technical Editing
TCH COM 5530	Usability Studies
TCH COM 5550	Advanced Proposal Writing
TCH COM 5560	Web-Based Communication

These four courses ~~are~~ also count ~~required~~ for the M.S. in technical communication and could be applied ~~counted~~ toward that degree if the certificate student pursued ~~later decided to go on for~~ the M.S. subsequently or at the same time.

*

Course substitutions may be permitted by the department in some circumstances.

Justification for request
Changing the title of this certificate would bring it more into line with its actual content and would differentiate it from the MS degree, allowing students to benefit from gaining the certificate alongside the MS in technical communication.
Supporting Documents
MS&T PC GCT May 2022.pdf
GCT Professional Com_revised.pdf
Course Reviewer Comments
tibbettsmg (03/09/22 1:06 pm): Rollback: please attach MDHE approval documentation and resubmit. MR
jpnfd (07/05/22 3:27 pm): Updated term to FS23JP

Key: 303

Course Change Request

New Experimental Course Proposal

Date Submitted: 06/14/22 10:51 am

Viewing: **COMP SCI 6001.011 : Advanced Virtual Reality**

File: 4880

Last edit: 07/01/22 11:38 am

Changes proposed by: zhupe

Requested Effective Change Date	Fall 2022
Department	Computer Science
Discipline	Computer Science (COMP SCI)
Course Number	6001
Topic ID	011
Experimental Title	Advanced Virtual Reality
Experimental Abbreviated Course Title	Advanced Virtual Reality
Instructors	Chaman Sabharwal

Experimental Catalog Description

Special Effects, Animation; Rigid body dynamics (deformation, shattering, destruction); Fluid dynamics (smoke, fire, rain); Rendering (lights, camera), Digital Assets, Dynamics of landslides, earthquakes, volcanos, tornados, and oceans. In addition to Engineering, virtual reality applications to Business, Education, Health, Psychology will be included.

Prerequisites

A grade of "C" or better in Comp Sci 5407.

In Workflow

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

Approval Path

1. 06/15/22 2:32 pm Samuel Frimpong (frimpong): Approved for RCOMPSCI Chair
2. 07/01/22 11:39 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:51 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

Field Trip Statement					
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3

Justification for new course:	Education and Training: The pandemic forced us to go online. While platforms like Zoom help to facilitate lectures, meetings and collaboration, Virtual reality can help students to stay focused, understand complex materials easily and retain in long term memory. But it's not just academia using VR for education. Retailers, tech companies, and even the military are using tools to help train their workers. Healthcare: VR helps professionals train and prepare for real-world scenarios, including surgery. VR is also being used to explore mental health treatment. Automotive: Virtual Reality emphasizes experimentation, without a costly prototype. This saves time when designing and redesigning exterior and interior components. Companies like Tesla are taking this a step further to their virtual showrooms. Users can sit in a car and explore new features and customizations right from their headset. The list of Virtual Reality applications is endless. This course fills the need of depart for graduate level course in Virtual Reality.
Semester(s) previously taught	
Co-Listed Courses:	
Course Reviewer Comments	**jpnfd (07/01/22 11:38 am):** Updated prereq formatting

Key: 4880

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 05/09/22 1:27 pm

Viewing: **ELEC ENG 6001.007 : Power System Economics and Market Operation**

File: 4876

Last edit: 07/19/22 11:52 am

Changes proposed by: boru

Requested Effective Change Date	Spring 2023
Department	Electrical and Computer Engineering
Discipline	Electrical Engineering (ELEC ENG)
Course Number	6001
Topic ID	007
Experimental Title	Power System Economics and Market Operation
Experimental Abbreviated Course Title	Power Econ
Instructors	Rui Bo

Experimental Catalog Description

This course will introduce the economic operation of power systems under market environment. It will cover fundamental concepts of microeconomics, organization, and operation of electricity markets, market participants strategies, operational reliability and ancillary services, network congestion and related LMP and transmission rights.

Prerequisites

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. CAT entry
8. Registrar

Approval Path

1. 05/24/22 3:32 pm Watkins (watkins): Approved for RELECENG Chair
2. 07/01/22 11:51 am Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/19/22 11:52 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

Elec Eng 3540 and Elec Eng 5540 are preferred, but not required.

Field Trip Statement					
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3

Justification for new course:	This course will introduce to students the latest development in economic operation of power systems and its market organization. It will complement the existing electrical engineering course catalog. The content of this course lies in the intersection of electrical engineering, economics, operation research and computer engineering. The course will not only teach students important analytical and practical engineering skills, but also enhance student professional development by offering insights into the actual operation of the contemporary power systems and electricity markets.
Semester(s) previously taught	N/A
Co-Listed Courses:	
Course Reviewer Comments	**jpnfd (07/01/22 11:50 am):** Modified abbreviated title. Update prereq formatting. **sraper (07/19/22 11:52 am):** you may consider the prereqs as is or modify.

Key: 4876

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 05/05/22 12:03 pm

Viewing: **ENGLISH 3001.009 : Vikings: Legends and Lore**

File: 4875

Last edit: 07/01/22 11:59 am

Changes proposed by: kswenson

Requested Effective Change Date	Spring 2023
Department	English and Technical Communication
Discipline	English (ENGLISH)
Course Number	3001
Topic ID	009
Experimental Title	Vikings: Legends and Lore
Experimental Abbreviated Course Title	Vikings
Instructors	Eric Bryan

Experimental Catalog Description

This course explores the literary and historical evidence for the lives, conquests, and customs of the Vikings and others of the medieval North during the Viking Age (roughly the eighth to the eleventh century), with special attention given to the Viking and Scandinavian presence in the British Isles.

Prerequisites

English 1120.

Field Trip

In Workflow

1. **RENGLISH Chair**
2. **CCC Secretary**
3. **Arts & Humanities DSCC Chair**
4. **Pending CCC Agenda post**
5. CCC Meeting Agenda
6. Campus Curricula Committee Chair
7. CAT entry
8. Registrar

Approval Path

1. 05/05/22 12:04 pm
   Kristine Swenson (kswenson): Approved for RENGLISH Chair
2. 07/01/22 11:59 am
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/01/22 2:53 pm
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

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

Justification for new course:	Despite the ever-growing cultural interest in the Vikings—as evinced by texts/media such as Vikings, The Northmen, and The Last Kingdom—the lives and literature of the Viking Age are poorly represented in the classroom. This lack of coverage in the classroom has become a problem, especially in the United States, where 'Viking' symbols and identities have made their way into extremist groups. A correction of sorts is needed: Who were the Vikings, really? Where they anything more than seagoing murderers and thieves? Did they live according to a heroic ethic or merely a bloodthirsty one? And what status ought they hold in our modern cultural memory? This course enables students to answer these questions with particular focus on the Vikings in the British Isles because here, in the United States, we have inherited a predominately (though not wholly) British popular memory of the Vikings.
Semester(s) previously taught	N/A
Co-Listed Courses:	

Course Reviewer Comments	**jpnfd (07/01/22 11:59 am):** Removed "equivalent" from prereq, not necessary.

Key: 4875

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 05/26/22 10:35 am

Viewing: **HISTORY 3001.008 : Modern Eastern Europe**

File: 4878

Last edit: 07/05/22 2:02 pm

Changes proposed by: bruening

Requested Effective Change Date	Spring 2023
Department	History and Political Science
Discipline	History (HISTORY)
Course Number	3001
Topic ID	008
Experimental Title	Modern Eastern Europe
Experimental Abbreviated Course Title	Modern Eastern Europe
Instructors	Andrew Behrendt

Experimental Catalog Description

This course surveys the history of Eastern Europe from the 17th century to the present, with special emphasis on the politics of nationalism, the Second World War, and the socialist era. In addition, it will explore the region's cultural diversity through literature, film, games, and cuisine.

Prerequisites

History 1100, History 1200, History 1300, History 1310, or Pol Sci 1200.

Field Trip

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. CAT entry
8. Registrar

Approval Path

1. 05/26/22 10:36 am
   Michael Bruening (bruening): Approved for RHISTORY Chair
2. 07/05/22 2:03 pm
   Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/05/22 3:34 pm
   Petra Dewitt (dewittp): Approved for Arts & Humanities DSCC Chair

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

Justification for new course:	With Russia's 2022 invasion of Ukraine, there is significant new interest in the history of Ukraine and the rest of Eastern Europe. This course will help students understand the historical background to this conflict, as well as the peoples and cultures throughout eastern Europe.
Semester(s) previously taught	This course has not previously been offered.
Co-Listed Courses:	
Course Reviewer Comments	

Key: 4878

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 07/05/22 3:09 pm

Viewing: **MIN ENG 6001.004 : Computational Fluid Dynamics for Particulate and Fire Simulations**

File: 4879

Last edit: 07/05/22 3:33 pm

Changes proposed by: caseysc

Requested Effective Change Date	Spring 2023
Department	Mining and Explosives Engineering
Discipline	Mining Engineering (MIN ENG)
Course Number	6001
Topic ID	004
Experimental Title	Computational Fluid Dynamics for Particulate and Fire Simulations
Experimental Abbreviated Course Title	CFD for Par and Fire Sim
Instructors	Dr. Guang Xu

Experimental Catalog Description

This course will cover introductory aspects of Computational Fluid Dynamics (CFD) and apply it to solve particulate and fire simulation problems. This course will study discretization methods including finite difference mehtods and finite volume method, and basic numerical schemes and analysis methods for solving the Enler and Navier-Stoke equations.

Prerequisites

In Workflow

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

Approval Path

1. 06/06/22 11:25 am
   Kwame Awuah-Offei (kwamea): Approved for MINEXP ENG Chair
2. 07/05/22 2:14 pm
   Jennifer Pohlsander (jpnfd): Rollback to Initiator
3. 07/05/22 3:14 pm
   Kwame Awuah-Offei (kwamea): Approved for MINEXP ENG

Math 3108, Civ Eng 3330, Comp Sci 1972, and Comp Sci 1982.

Field Trip Statement

None

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

Justification for new course:

No existing course that teachers using CFD to simulate particulates and fire. This course will be useful for students in the research of air and water pollution, fire simulation, and other fluid related topics.

Semester(s) previously taught: None

Co-Listed Courses:

Course Reviewer Comments

jpnfd (07/05/22 2:14 pm): Rollback: Please correct prereq. More detail to come in follow up email.

jpnfd (07/05/22 3:33 pm): Updated prereq formatting

Chair

4. 07/05/22 3:34 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
5. 07/19/22 11:55 am Stephen Raper (sraper): Approved for Engineering DSCC Chair

Key: 4879

Preview Bridge

Course Change Request

New Experimental Course Proposal

Date Submitted: 05/09/22 4:28 pm

Viewing: **PSYCH 5001.003 : Organizational Diversity, Equity, and Inclusion**

File: 4877

Last edit: 07/05/22 2:30 pm

Changes proposed by: burnsde

Requested Effective Change Date	Spring 2023
Department	Psychological Science
Discipline	Psychology (PSYCH)
Course Number	5001
Topic ID	003
Experimental Title	Organizational Diversity, Equity, and Inclusion
Experimental Abbreviated Course Title	Organizational Diversity
Instructors	Dr. Jessica Cundiff

Experimental Catalog Description

This course will examine social psychological theory and research on barriers and opportunities for promoting diversity, equity, and inclusion in organizations. Content will focus on psychological mechanisms of stereotyping, bias, and stigma, as well as strategies for creating inclusive and equitable workplaces.

Prerequisites Graduate standing.

In Workflow

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

Approval Path

1. 05/23/22 3:20 pm Susan Murray (murray): Approved for RPSYCHOL Chair
2. 07/05/22 2:30 pm Jennifer Pohlsander (jpnfd): Approved for CCC Secretary
3. 07/05/22 7:33 pm Cecil Eng Huang Chua (cchua): Approved for Social Sciences DSCC Chair

Field Trip Statement					
Credit Hours	LEC: 3	LAB: 0	IND: 0	RSD: 0	Total: 3

Justification for new course:	This course will serve as an elective for our Master's degree program in Industrial-Organizational Psychology. Our students are eager for a course devoted to diversity, equity, and inclusion (DEI) topics, as indicated by our recent student surveys and personal discussions. There are currently no graduate courses at S&T that focus on DEI topics, and this course helps fill that gap. Offering coursework in DEI will help S&T remain competitive with other I-O Psychology graduate programs as well as make our students marketable to future employers.
Semester(s) previously taught	
Co-Listed Courses:	

Course Reviewer Comments

Key: 4877

Preview Bridge

2022-2023
CCC Calendar

MISSOURI S&T

MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Formerly University of Missouri-Rolla

8:15am – 9:30am in Bertelsmeyer 110H

CCC INFORMATION	Department submission to Registrar *Fridays*	DSCC submission to Registrar *Fridays*	CCC Meeting *Thursdays beginning September 2022*	Faculty Senate Meeting *Thursdays*
EC forms for Fall 2022	July 8, 2022	July 22, 2022	August 9, 2022	September 22, 2022
Affecting CC forms for Spring 2023 & Summer 2023	July 8, 2022	July 22, 2022	August 9, 2022	September 22, 2022
Non-affecting CC forms for Spring 2023	August 26, 2022	September 9, 2022	September 29, 2022	October 20, 2022
Non-affecting CC forms for Summer 2023	September 16, 2022	September 30, 2022	October 20, 2022	November 10, 2022
EC forms for Spring 2023	November 4, 2022	November 18, 2022	December 8, 2022	January 26, 2023
Affecting CC forms for Fall 2023	December 16, 2022	January 6, 2023	January 26, 2023 March 2, 2023 (If needed)	February 16, 2023 March 23, 2023
EC forms for Summer 2023	March 3, 2023	March 17, 2023	April 6, 2023	April 27, 2023
DC forms & Non-affecting CC forms for Fall 2023	April 7, 2023	April 14, 2023	May 4, 2023	June 1, 2023
EC forms for Fall 2023				TBD

Official dates for Spring 2023 CCC Meetings will be determined at a later date.