Agenda
Campus Curricula Committee Meeting
May 4, 2011
11 a.m. Room 117 Fulton Hall

Approval of the April 6, 2011 minutes.

Review of submitted DC forms:
DC 0382, Petroleum Engineering, Bachelor of Science, effective Fall 2011.

DC 0387, Metallurgical Engineering, Bachelor of Science, effective Fall 2011.

DC 0388, Electrical Engineering, Bachelor of Science, effective Fall 2011.

DC 0389, Philosophy, minor in Philosophy of Technology, effective Fall 2012.

DC 0390, Arts, Languages, & Philosophy, minor in Ethics, effective Fall 2012.

Review of submitted CC forms:
CC 8088, Architectural Engineering 371, Mechanical Engineering 371, Environmental Controls, effective Fall 2011

CC 8089, Mechanical Engineering 371, Environmental Control, effective Fall 2011.

CC 8124, Physics 455, Advanced Chaos, Fractals, and Nonlinear Dynamics, effective Fall 2011.

CC 8138, Environmental Engineering 365, Civil Engineering 365, Architectural Engineering 365, Sustainability, Population, Energy, Water, and Materials, effective Fall 2012.

CC 8140, Electrical Engineering 371, Grounding and Shielding, effective Spring 2012.

CC 8141, Economics 348, Sustainable Economics, effective Spring 2012.

CC 8143, Civil Engineering 356, Concrete pavement Design, effective Spring 2012.

CC 8144, History 221, Making of Modern Germany, effective Spring 2012.

CC 8145, Geology 481, Geodynamics, effective Fall 2011.

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CC 8146, Petroleum Engineering 481, Geodynamics, effective Fall 2011.

CC 8147, Mining Engineering 235, Underground Mine Design, effective Spring 2012.

Review of submitted EC forms:
EC 2331, Nuclear Engineering 301, Monte Carlo Approach to Reactor Analysis, effective Fall 2011.

EC 2337, Architectural Engineering 301, Building performance and System Optimization, effective Fall 2011.

EC 2338, Architectural Engineering 301, Civil Engineering 301, Structural Masonry Design, effective Fall 2011.

EC 2339, Nuclear Engineering 301, Radiochemistry and nuclear Forensics, effective Spring 2012.

EC 2340, Biological Sciences 201, Vegetation of the Ozarks, effective Summer 2011.

EC 2341, Chemistry 401, Nuclear Magnetic Resonance Spectroscopy and Imaging, effective Fall 2011.

EC 2342, Speech & Media 201, Environmental Communication & the Public Sphere, effective Fall 2011.

EC 2343, Explosives Engineering 301, Commercial Display Fireworks Manufacturing, effective Fall 2011.

Tabled Items:
DC 0384, Sustainability minor, approved effective Fall 2011. A proposal to create a multi-disciplinary undergraduate minor program in sustainability. **Tabled**

Special Agenda Item:
The committee will be determining the date for the August meeting to review EC forms only that have been collected over the summer and will also be electing the 2011-2012 CCC chair at this meeting.

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Effective Year: 2011
Effective Term: Summer ☐ **Fall** ☒ **Spring** ☐
(Creating or modifying a degree program must be effective for a Fall term)

DC # 0382-2011-PE-000-00

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:
Petroleum Engineering BS

Department: Geological Sciences and Engineering

Briefly describe action requested (Attach documentation as appropriate):
1. Freshman Year, Spring Semester: Change title of Petr 121 to Introduction to Petroleum Engineering.
2. Sophomore Year, Spring Semester: Drop Mining 331 Rock Mechanics requirement.
3. Sophomore Year, Spring Semester: Move IDE 110 from Senior Year, Fall Semester.
4. Sophomore Year, Fall Semester: Move Geol 220 Structural Geology here from Fall of Jr year. Geo 220 has 4 credit hours, so the hour total will be 18.
5. Sophomore Year, Spring Semester: Replace Geo 332 with Geo 223 Stratigraphy and Sedimentation
6. Junior Year, Fall Semester: Move Geol 340 here from Fall of Soph year. Hour total is 18.
7. Junior Year, Fall Semester: Move PE 341 Well Testing to Senior Year, Fall Semester.
8. Junior Year, Fall Semester: Replace the moved PE 341 with PE Reservoir Engineering Elective.
9. Junior Year, Fall Semester: Change the number, Pet Eng 331 to Pet Eng 313.
10. Senior Year, Fall Semester: Replace the moved IDE 110 with PE 341 Well Testing (moved from Junior Year, Fall Semester)
11. Change footnote 4) to be footnote 5).
12. Add a new footnote 4 which reads: 4) This is a reservoir engineering elective. Students should choose from Petr 329, 360, 335, 308 or 320.
13. Below footnote 5 the statement should read: The total number of credit hours required for a

Recommended by Department: _____ (Chair signature) Date: 2-10-11

Recommended by: Steve Valkenburg (Chair signature) Date: 4/8/11
Discipline Specific Curricula Committee

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

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Petroleum Engineering Curriculum (Feb 2011)

FRESHMAN YEAR

First Semester	Hrs	Second Semester	Hrs
Fr Eng 10 - Study and Careers in Engineering	1	Math 15 - Calculus for Engineers II	4
Chem 1 - General Chemistry	4	Physics 23 - Engineering Physics	4
Chem 2 - General Chemistry Laboratory1	1	IDE 20 - Eng Design with Computer Applications	3
Math 14 - Calculus for Engineers I	4	Ge Eng 50 or Geo 51 - Geology for Engineers/Physical Geology	3
History 112, Hist 175, Hist 176 or Poly Sci 90	3	**Pet Eng 121 - Intro to Petroleum Engineering**	1
English 20 - Exposition and Argumentation	3		
	16		15

SOPHMORE YEAR

First Semester	Hrs	Second Semester	Hrs
Math 22 - Calc w/Analytic Geom III	4	Math 204 - Elem Diff Equations	3
Physics 24 - Eng. Physics II	4	Pet Eng 241 - Petroleum Reservoir Engineering	3
Geo 220 - Structural Geology	4	Pet Eng 242 - Petroleum Reservoir Lab	1
Pet Eng 240 - Properties of Petroleum Fluids	3	IDE 150 - Dynamics	2
IDE 50 - Statics	3	**IDE 110 - Mechanics of Materials**	3
		Geo 223 - Stratigraphy and Sedimentation	3
	18		15

JUNIOR YEAR

First Semester	Hrs	Second Semester	Hrs
Geo 340 - Petroleum Geology	3	Mech Eng 227 - Thermal Analysis	3
Geop 377 - Seismic Interpretation (3D Seismic)	3	Pet Eng 316 - Well Performance and Production Systems	3
Pet Eng 313 - Drilling and Well Design	3	Pet Eng 232 - Well Logging	3
Cv Eng 230 - Fluid Mechanics	3	Humanities/ Social Sci Elective[2]	3
Econ 121 or 122 - Prin of Economics	3	Pet Eng 338 - Finite Element Analysis with Applications in Petroleum Engineering	4
Pet Eng Reservoir Engineering Elective[4]	3		
	18		16

SENIOR YEAR

First Semester	Hrs	Second Semester	Hrs
Pet Eng 310 - Seminar[3]	1	Pet Eng 347 - Petroleum Engineering Design	3
Pet Eng 341 - Well Testing	3	Ge Eng 315 - Geostatistical Methods in Eng and Geology	3
Pet Eng Elective[5]	3	**Pet Eng Elective[5]**	3
Humanities/Soc Science Elective[2]	3	Humanities/Social Science Elective[2]	3
Pet Eng 366 - Mechanical Earth Modeling	3	English 65 - Technical Writer in Bus & Industry	3
Pet Eng 357 - Petroleum Economics and Asset Valuation	3		
	16		15

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From: 573 341 4362 Page: 4/34 Date: 4/14/2011 8:54:36 AM

1) All freshmen Petroleum Engineering students must enroll for Chem 4.

2) Humanities/Social Science electives are to be selected from a list of approved courses to be taken in accordance with the University policy. Petroleum Engineering students are especially encouraged to study foreign languages.

3) All Petroleum Engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree, however, it is the first step to becoming a registered professional engineer. This requirement is part of the Mo S&T assessment process as described in the Assessment Requirements found elsewhere in this catalogue. Students must sign a release form giving the University access to their Fundamentals of Engineering Examination score.

4) This is a reservoir engineering elective. Students should choose from Pet Engtr 329, 360, 335, 308 or 320.

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

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

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

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From: 573 341 4362 Page: 5/34 Date: 4/14/2011 8:54:36 AM

OLD (2008) CURRICULM WITH 128 HRS

FRESHMAN YEAR	Hrs	SOPHMORE YEAR	Hrs
Fall Semester		Fall Semester	
FE 10 - Study and Careers in Engineering	1	Math 22 - Calc w/Analytic Geom III	4
Chem 1 - General Chemistry	4	Physics 24 - Eng. Physics II	4
Chem 2 - General Chemistry Laboratory1	1	**Geo 340 Petroleum Geology**	3
Math 14 - Calculus for Engineers I	4	**PE 240 - Properties of Petroleum Fluids**	3
History 112, Hist 175, Hist 176 or Poly Sci 90	3	IDE 50 Statics	3
English 20 - Exposition and Argumentation	3		17
	16		
		Spring Semester	
Spring Semester			
		Math 204 - Elem Diff Equations	3
Math 15 - Calculus for Engineers II	4	**PE Eng 241 - Petro Reservoir Engineering**	3
Physics 23 - Engineering Physics	4	**Pe Eng 242 - Petro Reservoir Lab**	1
IDE 20 - Eng Design with Computer Applications	3	IDE 150 Dynamics	2
Ge Eng 50 or Geo 51 - Geology for Engineers/Physical Geolog	3	**Mining 331 - Statics and Mechanics of Rock Materials**	3
Pe Eng 121 Intro Oil Well Drilling	1	**Geo 332 - Depositional Systems**	3
	15		15
JUNIOR YEAR		**SENIOR YEAR**	
Fall Semester		Fall Semester	
Geo 220 - Structural Geology	3	Pe Eng 310 - Ethics and Professionalism[3]	1
GEOP 377 - Seismic Interpretation (3D Seismic)	3	IDE 110 - Mechanics of Materials	3
PE 331 - Drilling and Well Design	3	**PE Elective[4]**	3
Cv Eng 230 - Fluid Mechanics	3	Humanities/Soc Science Elective[2]	3
Econ 121 or 122 - Prin of Economics	3	**PE 366 - Mechanical Earth Modeling**	3
PE 341 - Well Testing	3	**PE 357 - Petroleum Economics and Asset Valuation**	3
	18		16
Spring Semester		Spring Semester	
ME 227 - Thermal Analysis	3	**Pe Eng 347 - Petroleum Engineering Design**	3
PE 316 - Well Performance and Production Systems	3	**GE 315 - Geostatistical Methods in Eng and Geology**	3
PE 232 - Well Logging	3	**PE Elective[4]**	3
Humanities/ Social Sci Elective[2]	3	Humanities/Social Science Elective[2]	3
PE 338 - Finite Element Analysis with Applications in Petroleum Engineering	4	English 65 - Technical Writer in Bus & Industry	3
			15
	16		
		Total Hours	128

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From: 573 341 4362 Page: 6/34 Date: 4/14/2011 8:54:36 AM

OLD (2008) CURRICULM WITH 128 HRS

1) All freshmen petroleum engineering students must enroll for Chem 4.

2) Humanities/Social Science electives are to be selected from a list of approved courses to be taken in accordance with the University policy. Petroleum Engineering students are especially encouraged to study foreign languages.

3) All Petroleum engineering students must take the Fundamentals of Engineering Examination prior to graduation. A passing grade on this examination is not required to earn a B.S. degree, however, it is the first step to becoming a registered professional engineer. This requirement is part of the UMR assessment process as described in the Assessment Requirements found elsewhere in this catalogue. Students must sign a release form giving the University access to their Fundamentals of Engineering Examination score.

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

The total number of credit hours required for a degree in Petroleum engineering is 130.

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

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From: 573 341 4362 Page: 7/34 Date: 4/14/2011 8:54:37 AM

Effective Year: 2011
Effective Term: Summer ☐ **Fall** ☒ **Spring** ☐
(Creating or modifying a degree program must be effective for a Fall term)

DC # 0387-2011-MetEng-000-00

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:
Bachelor of Science in Metallurgical Engineering

Department: Materials Science and Engineering

Briefly describe action requested (Attach documentation as appropriate):
Met 354 - Electrical Systems and Controls for Materials (3 hours) has been removed from the metallurgical engineering curriculum and replaced by a 3 hour out of department technical elective. Met 354 was not taught this academic year and will not be taught in the future. EE 281 was an approved substitute in the current curriculum and is on the list of approved out of department courses. However, EE 281 requires Math 204 as a prerequisite and our curriculum does not require Math 204. Therefore, students without Math 204 need to substitute another course in place of EE 281. The faculty have approved the attached list of out-of-department electives in place of Met 354 (see attached list of approved courses). Also attached is the new proposed curriculum for the Fall 2011 with the change and appropriate footnotes.

Recommended by Department: _____ (Chair signature) Date: 3/16/11

Recommended by: Discipline Specific Curricula Committee _____ (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

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Listing of approved out-of-department technical electives for metallurgical engineering

Cer E 251 - Phase Equilibria
Cer E 364 – Refractories
Cer E 392 – X-Ray Diffraction Analysis
ChE 346 - Introduction to Nanomaterials
Chem 221 - Organic Chemistry I
Chem 237 – Inorganic Chemistry
Chem 241 – Physical Chemistry
EE 151/152 – Circuits I and Lab I
EE 281 – Electrical Circuits
Geology 113 – Mineralogy and Crystallography
Math 204 – Differential Equations (if two statistics course taken in math requirement)
Math 303 – Mathematical Modeling
Math 325 – Partial Differential Equations
ME 312 – Introduction to Finite Element Analysis
ME 320 – Advanced Mechanics of Materials
ME 329 – Smart Materials and Sensors
ME 336 – Fracture Mechanics
ME 338 – Fatigue Analysis
ME 382 – Introduction to Composite Materials & Structures
Min E 241 - Mineral Processing
Phys 107 -Introduction to Modern Physics
Phys 207 - Modern Physics I

3/16/11

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Metallurgical Engineering Curriculum (Effective FS 2011)

Freshman Year – Fall (Semester 1)

FE 10	Study and Careers in Engineering	1
CHEM 1	General Chemistry	4
CHEM 2	General Chemistry Lab	1
MATH 14	Calculus for Engineers I	4
ENGL 20	Exposition and Argumentation	3
H/SS	Hum/Soc Sci Elective[1]	3
	Total	16

Freshman Year – Spring (Semester 2)

Met 125	Chemistry of Materials[2]	3
MATH 15	Calculus for Engineers II	4
PHYS 23	Engineering Physics I	4
H/SS	History (Government)[1]	3
IDE 20	Eng. Design and Computer Appls	3
	Total	17

Sophomore Year – Fall (Semester 3)

MATH 22	Calculus with Analytic Geometry III	4
PHYS 24	Engineering Physics II	4
MET 121	Metallurgy for Engineers	3
IDE 50	Statics	3
H/SS	Principles of Macro or Micro Econ[1]	3
	Total	17

Sophomore Year – Spring (Semester 4)

Cer 259	Thermodynamics of Materials	3
IDE 110	Mechanics of Materials	3
MET 217	Metals Microstructure Development	3
MET 218	Metals Structures and Properties Lab	1
MET 221	Principles of Metals Processing	3
MET 222	Metals Processing Lab	1
H/SS	Hum/Soc Sci Elective[1]	3
	Total	17

Junior Year – Fall (Semester 5)

MET 204	Transport Phenomena	3
MATH 204	Differential Equations or Statistics[3]	3
MET 215	Fundamentals of Materials Behavior	3
MET 216	Metals Characterization Laboratory	1
MET 307	Metal Casting	3
H/SS	Communication Elective[1]	3
	Total	16

Junior Year – Spring (Semester 6)

EMgt 124	Principles of Engineering Mgmt	1
EMgt 137	Economic Analysis of Eng Projects	2
MET 203	Introduction to Extractive Metallurgy	3
MET 202	Extractive Metallurgy Laboratory	1
Cer 291	Characterization of Inorganic Solids	3
ELECTIVE	Out of Department Tech Elective[4]	3
MET	Core Elective I[5]	3
	Total	16

Senior Year – Fall (Semester 7)

Met 261	Materials Senior Design I	1
STAT	Statistics Course[3]	3
MET 355	Process Metallurgy Applications	3
MET	Core Elective II[5]	3
ELECTIVE	Technical Elective[6]	3
ELECTIVE	Free Electives[7]	2
	Total	15

Senior Year – Spring (Semester 8)

Met 262	Materials Senior Design II	2
H/SS	Hum/Soc Sci Elective[2]	3
MET	Core Elective III[5]	3
MET	Technical Elective[6]	3
ELECTIVE	Free Electives[7]	3
	Total	14

TOTAL DEGREE HOURS 128

CURRICULUM NOTES:

[1] Eighteen hours of required H/SS electives of which three hours must be history (Hist 112, 175, 176, or PolSci 90), three hours economics (Econ 121 or Econ 122) and three hours communications (Engl 60, Engl 160, or SpM 85)

[2] Chem 3 can be substituted for Met 125

[3] Either take Math 204 and one statistics course (Stat 213 or Stat 215) or an introductory statistics course (Stat 213 or Stat 215) plus an advanced statistics elective (EMan 385, Stat 320, Stat 346, or Stat 353)

[4] Cer 251 or 364 or 392, ChE 346, Chem 221 or 237 or 241, EE 151&152 or EE 281, Geo 113, Math 204 (if two stat courses taken[3]) or 303 or 325, ME 312 or 320 or 329 or 336 or 338 or 382, Mining 241, Physics 107 or 207

[5] Met Core Electives (9 hours)
Core Elective I - Particulate processing (Met 357) or Corrosion (Met 381)
Core Elective II - Steelmaking (Met 358) or Steels and their treatment (Met 331)
Core Elective III - Materials selection course (Met 329 or MSE 325)

[6] Technical Electives *(Met. Eng. or Approved listing)*

[7] Free Electives (5 hours) - algebra, trigonometry, basic ROTC, and courses considered remedial excluded

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DC # 0388-2011-EE-000-00

Effective Year: FS2011
Effective Term: Summer ☐ **Fall** ☒ **Spring** ☐
(Creating or modifying a degree program must be effective for a Fall term)

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:
Electrical Engineering B.S. Program

Department: Electrical & Computer Engineering

Briefly describe action requested (Attach documentation as appropriate):
A) Revise the Emphasis Area Categories and Names as:
Emphasis areas at all levels in circuits and electronics, power and energy, communications and signal processing, controls and systems, electromagnetics, optics and devices, and computer engineering.

B) Institute an optional Emphasis Area Designation for EE majors as shown in the attachment:

The three three-credit-hour courses from designated lists at the 2XX level or higher. At least one courses must be at the 3XX level. Multiple emphasis areas are allowed.

The emphasis areas should be tracked on the students' CAPS/Audit report and completed emphasis areas should be noted with a designation on the students' transcript.

The catalog description for emphasis areas will be changed accordingly.

Modification to Undergraduate EE undergraduate program per ECE Faculty 1/20/2011.

Recommended by Department: Kelvin Erickson (Chair signature) Date: 18 Mar 2011

Recommended by Discipline Specific Curricula Committee: Steve Vanhuss (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

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Attachment for DC Form Revising BS EE Program (ECE Department)

A) Revise the Emphasis Area Categories and Names as (changes shown in red)

circuits and electronics
power and energy
communications and signal processing
controls and systems
electromagnetics
optics and devices
computer engineering

B) Institute an Emphasis Area Designation for EE majors as follows:

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 El 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 El 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 El 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 3XX level. This requirement will be satisfied by completing the relevant ABC Elective course, a 3XX course for Elective D, and another 2XX or 3XX for Elective E from the designated listing. The required EE courses El Eng 215, 217, 253, and 271 and the course used to satisfy the power requirement (EE 205 or 207) may not be used to meet the three course requirement. Transfer courses do not apply to emphasis areas. A colisted course may count toward both areas. An experimental course El Eng 301 or Cp Eng 301 require departmental approval to apply toward an emphasis area.

Circuits and Electronics El Eng 254, 35X, and 36X Courses (Excluding El Eng 354)
Communications and Signal Processing El Eng 243, 31X, and 34X Courses
Computer Engineering Any Cp Eng 213, 215, and 3XX Courses (Excluding Cp Eng 312) See the Cp Eng degree program for details on Cp Eng areas.
Controls and Systems El Eng 231, 235, and 33X Courses
Electromagnetics El Eng 37X Courses
Optics and Devices El Eng 225 and 32X Courses
Power and Energy El Eng 205 or 207 and 30X Courses (Excluding El Eng 200, 201, 202, 300, and 301 Courses)

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PROGRAM CHANGE FORM

1. Submitted by: **Missouri University of Science and Technology**
Name of Institution (Campus or off-campus residential center in the case of multi-campus institutions)

2. Type of Program Change (Check those that apply)

__X_ Title change only

_____ Combination program created out of closely allied existing programs

_____ Option(s) added to existing program(s)

_____ Addition of certificate program developed from approved existing parent degree

_____ Addition of free-standing single-semester certificate program

_____ Delete program(s)

_____ Delete option(s)

_____ Program placed on "Inactive Status" list

3. Indicate Program Change or Addition of Options:

Before the Proposed Change

Title of Old Program or Certificate Option	Degree	CIP Code
Power (Emphasis Area for Electrical Engineering, One of Six Areas within E.E.)	**B.S. E.E.**	

After the Proposed Change

Title of New Program or Certificate Option	Degree	CIP Code
Power and Energy (Emphasis Area for Electrical Engineering)	**B.S. E.E.**	

4. Attach a copy of the "before and after" curriculum, as applicable and a rationale for the proposed change.

See Attachment
(One item in proposal to revise Emphasis Areas)

5. Intended date of program change, additional options, or "Inactive Status":

August 2011
Month/Year

AUTHORIZATION

Name/Title of Institutional Officer	Signature	Date
Steve E. Watkins, Prof. of E.E.	**573-341-6321**	
Person to Contact for More Information	Telephone Number	

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PROGRAM CHANGE FORM

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Name of Institution (Campus or off-campus residential center in the case of multi-campus institutions)

2. Type of Program Change (Check those that apply)

___X_ Title change only

_____ Combination program created out of closely allied existing programs

_____ Option(s) added to existing program(s)

_____ Addition of certificate program developed from approved existing parent degree

_____ Addition of free-standing single-semester certificate program

_____ Delete program(s)

_____ Delete option(s)

_____ Program placed on "Inactive Status" list

3. Indicate Program Change or Addition of Options:

Before the Proposed Change

Title of Old Program or Certificate Option	Degree	CIP Code
Communications/Signal Processing (Emphasis Area for Electrical Engineering, One of Six Areas within E.E.)	**B.S. E.E.**	

After the Proposed Change

Title of New Program or Certificate Option	Degree	CIP Code
Communications and Signal Processing (Emphasis Area for Electrical Engineering)	**B.S. E.E.**	

4. Attach a copy of the "before and after" curriculum, as applicable and a rationale for the proposed change.

See Attachment
(One item in proposal to revise Emphasis Areas)

5. Intended date of program change, additional options, or "Inactive Status":

August 2011
Month/Year

AUTHORIZATION

Name/Title of Institutional Officer	Signature	Date
Steve E. Watkins, Prof. of E.E.	**573-341-6321**	
Person to Contact for More Information	Telephone Number	

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PROGRAM CHANGE FORM

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Name of Institution (Campus or off-campus residential center in the case of multi-campus institutions)

2. Type of Program Change (Check those that apply)

__X_ Title change only

_____ Combination program created out of closely allied existing programs

_____ Option(s) added to existing program(s)

_____ Addition of certificate program developed from approved existing parent degree

_____ Addition of free-standing single-semester certificate program

_____ Delete program(s)

_____ Delete option(s)

_____ Program placed on "Inactive Status" list

3. Indicate Program Change or Addition of Options:

Before the Proposed Change

Title of Old Program or Certificate Option	Degree	CIP Code
Controls (Emphasis Area for Electrical Engineering, One of Six Areas within E.E.)	**B.S. E.E.**	

After the Proposed Change

Title of New Program or Certificate Option	Degree	CIP Code
Controls and Systems (Emphasis Area for Electrical Engineering)	**B.S. E.E.**	

4. Attach a copy of the "before and after" curriculum, as applicable and a rationale for the proposed change.

See Attachment
(One item in proposal to revise Emphasis Areas)

5. Intended date of program change, additional options, or "Inactive Status":

August 2011
Month/Year

AUTHORIZATION

Name/Title of Institutional Officer	Signature	Date
Steve E. Watkins, Prof. of E.E.	**573-341-6321**	
Person to Contact for More Information	Telephone Number	

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PROGRAM CHANGE FORM

1. Submitted by: **Missouri University of Science and Technology**
Name of Institution (Campus or off-campus residential center in the case of multi-campus institutions)

2. Type of Program Change (Check those that apply)

_____ Title change only

_____ Combination program created out of closely allied existing programs

__X_ Option(s) added to existing program(s)

_____ Addition of certificate program developed from approved existing parent degree

_____ Addition of free-standing single-semester certificate program

_____ Delete program(s)

_____ Delete option(s)

_____ Program placed on "Inactive Status" list

3. Indicate Program Change or Addition of Options:

Before the Proposed Change

Title of Old Program or Certificate Option	Degree	CIP Code
none	**B.S. E.E.**	

After the Proposed Change

Title of New Program or Certificate Option	Degree	CIP Code
Optics and Devices (Emphasis Area for Electrical Engineering)	**B.S. E.E.**	

4. Attach a copy of the "before and after" curriculum, as applicable and a rationale for the proposed change.

See Attachment
(One item in proposal to revise Emphasis Areas)

5. Intended date of program change, additional options, or "Inactive Status":

August 2011
Month/Year

AUTHORIZATION

Name/Title of Institutional Officer	Signature	Date
Steve E. Watkins, Prof. of E.E.	**573-341-6321**	
Person to Contact for More Information	Telephone Number	

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Attachment for PC Form Creating a New Emphasis Area within BS EE Program
Electrical and Computer Engineering Department

Before: Old Emphasis Area List

circuits and electronics
power
communications/signal processing
controls
electromagnetics
computer engineering

After: New Emphasis Area List*

circuits and electronics
power and energy
communications and signal processing
controls and systems
electromagnetics
optics and devices
computer engineering

*(changes are shown in red; other changes in list are companion PC proposals)

Rationale:

The new emphasis area is needed to up-date the curriculum and to provide an accurate description of the technical breadth of the department. The emphasis areas assist students who opt to develop a specialty within electrical engineering by identifying courses for their in-major electives. (It is not required that students obtain an emphasis specialty within electrical engineering.) Optical engineering, photonic devices, sensor devices, semiconductor devices, etc. are increasingly important within electrical engineering and need to be reflected in the areas of the electrical engineering electives. Relevant sub-groups of the IEEE (Institute of Electrical and Electronics Engineers) include the IEEE Photonics Society, IEEE Electron Devices Society, IEEE Sensors Council, etc.

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Effective Year: 2012 **DC #** 0389-2011-Phil-000-00
Effective Term: Summer ☐ **Fall** ☒ **Spring** ☐
(Creating or modifying a degree program must be effective for a Fall term)

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:
Minor in the Philosophy of Technology

Department: ALP

Briefly describe action requested (Attach documentation as appropriate):
To open a minor in the philosophy of technology. The minor in the history of technology helped the history departmeant in recruiting more students, it is hoped the tech. minor in philosophy will do the same for the philosophy department. Attached is the proposed course of study.

Recommended by Department: _____ Date: 3/15/2011
(Chair signature)

Recommended by Discipline Specific Curricula Committee: _____ Date: 3/15/11
(Chair signature)

Approved by Curricula Committee: _____ Date: _____
(Chair signature)

Approved by Faculty Senate: _____ Date: _____
(Chair signature)

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Minor in the Philosophy of Technology

Requirements: To qualify, all students must take 15 hours of course work in the following areas of philosophy, political science and history. Nine or more these hours will need to be in philosophy.

Mandatory

Phi 015 Logic

At least two of the following, one of which must be a philosophy class.

Phi 345 Philosophy of Science

Phi 320 Minds and Machines

His 375 Architecture, Technology and Society; 1750 to Present

Pol 325 Science, Technology and Politics

Other Course Options given that logic and at least two 300 levels will be completed.

Phi 005 Introduction to Philosophy

Bio 150 Biotechnology in Film

Phi 223 Bioethics

His 270 History of Technology to 1900

His 271 20th Century Technology and Society

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Effective Year: 2012
Effective Term: Summer ☐ **Fall** ☒ **Spring** ☐
(Creating or modifying a degree program must be effective for a Fall term)

DC # 039D-2011-Phil-000-00

Degree Change Form (DC)

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

Title of degree program, emphasis area, or minor:
Minor in Ethics

Department: ALP

Briefly describe action requested (Attach documentation as appropriate):
To open a minor in ethics. Companies are looknig for individuals with both technical and ethical training, a minor in ethics would open other doors inside of companies and hopefully get our students out of the cubicals and into higher management. Attached is the proposed course of study.

Recommended by Department: _____ Date: 3/15/2011
(Chair signature)

Recommended by Discipline Specific Curricula Committee: _____ Date: 3/15/11
(Chair signature)

Approved by Curricula Committee: _____ Date: _____
(Chair signature)

Approved by Faculty Senate: _____ Date: _____
(Chair signature)

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Ethics Minor in Philosophy

Requirements: To qualify, all students must take 15 hours of course work in the following areas of philosophy, political science and history. Twelve or more these hours will need to be in philosophy.

Course Options given at least two 300 levels will be completed.

Phi 005	Introduction to Philosophy
Phil 015	Introduction to Logic
Phil 075	Contemporary Religious Philosophy
Phil 223	Bioethics
Phil 225	Engineering Ethics
Phil 235	Business Ethics

At least two 300 level classes must be completed.

Phil 335	Philosophy of Religion
Phil 340	Social Ethics
Phil 350	Environmental Ethics
Phil 360	Foundations of Political Conflict
Phil 368.	Law and Ethics in E-Commerce

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Effective Year: 2011
Term: Summer ☐ **Fall** ☐ **Spring** ☒

CC File # 8088-2010-ArchE-371-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: CArE Engng

2. Discipline and Course Number: **Present :** **Proposed:** ArchE 371

3. Course Title: **Present:**
Proposed: Environmental Controls

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

4. Catalog Description *(300 Character Spaces or Less.)*
Present:

Proposed: Theory and applications of principles of heating, ventilating, and air conditioning equipment and systems; design problems. Physiological and psychological factors relating to environmental control.

5. If course requires field trip check box: ☐

6. Credit Hours: **Present:** **Lecture:** **Lab:** **Total:**
Proposed: **Lecture: 3** **Lab: 0** **Total: 3**

7. Prerequisites:
Present:

Proposed: No changes to ME 371 Prerequisites. Prerequisites for ArchE371 are courses Mech Eng 227 and CE 230.

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

9. Justification:

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

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

1) ME 371 **2)** **3)**

4) **5)** **6)**

Recommended by Department _____ (Chair signature) Date: 9/20/10

Recommended by Discipline Specific Curricula Committee _____ (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: 2011
Term: Summer ☐ **Fall** ☐ **Spring** ☒

CC File # 8089-2010-ME-371-33

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: ME ME

2. Discipline and Course Number: **Present :** 371 **Proposed:**

3. Course Title: **Present: Environmental Control**
Proposed: Environmental Controls

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

4. Catalog Description *(300 Character Spaces or Less.)*

Present: Theory and applications of principles of heating, ventilating, and air conditioning euqipment and systems; design problems. Physiological and psychological factors relating to environmental control.

Proposed: Theory and applications of principles of heating, ventilating, and air conditioning euqipment and systems; design problems. Physiological and psychological factors relating to environmental control.

5. If course requires field trip check box: ☐

6. Credit Hours:

Present:	**Lecture:** 3	**Lab:**	**Total:**
Proposed:	**Lecture:**	**Lab:**	**Total:**

7. Prerequisites:

Present: Mech Eng 221 and accompanied or preceded by Mech Eng 225, or Mech 227 and Civ Eng 230.

Proposed: No changes to ME 371 Prerequisites. Prerequisites for ArchE371 are courses Mech Eng 227 and CE 230.

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

9. Justification:

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

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

1) ArchE 371 WKS **2)** [redacted] **3)**

4) **5)** **6)**

Recommended by Department _____ (Chair signature) Date: 9/20/10 / 10/10/10

Recommended by Discipline Specific Curricula Committee _____ (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: 2011
Term: Summer ☐ **Fall** ☒ **Spring** ☐

CC File # 8124-2011-Physic-455-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. **Department:** Physics
2. **Discipline and Course Number:** **Present :** **Proposed:** PHYSICS 455
3. **Course Title:** **Present:**
   Proposed: Advanced Chaos, Fractals, and Nonlinear Dynamics
   Abbreviated Course Title: Advanced Chaos
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. **Catalog Description** *(300 Character Spaces or Less.)*
   Present:

   Proposed: An introduction into nonlinear dynamics, deterministic chaos, and fractals. Topics include phase plane analysis, routes to chaos, and pattern formation with applications in physics, chemistry and biology. Graduate students will be required to do extra work upon consultation with their advisor.
5. **If course requires field trip check box:** ☐
6. **Credit Hours:** **Present:** **Lecture:** **Lab:** **Total:**
   Proposed: **Lecture: 3** **Lab:** **Total: 3**
7. **Prerequisites:**
   Present:

   Proposed: Math 204; Physics 24 or Physics 25; Graduate standing
8. **Required for Majors:** ☐ **Elective for Majors:** ☒
9. **Justification:** To provide graduate students with an introduction to nonlinear dynamics. This course is an advanced version of Physics 355 which will be taught concurrently, differing only in assignments. Consequently, we request that the EC stage be skipped for this course.
10. **Semesters previously offered as an experimental course (101, 201, 301, 401):**
11. **List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.**

1) **2)** **3)**

4) **5)** **6)**

Recommended by Department _____ (Chair signature) Date: 3-4-11

Recommended by Discipline Specific Curricula Committee Daniel Fairhurst (Chair signature) Date: 4/8/2011

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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CC File # 8138-2011-EnvE-365-10

Effective Year: 2012
Term: Summer ☐ Fall ☒ Spring ☐

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. **Department:** Civil, Arch, and Env
2. **Discipline and Course Number:** **Present :** **Proposed:** EnvE 365
3. **Course Title:** **Present:**
   Proposed: Sustainability, Population, Energy, Water, and Materials
   Abbreviated Course Title: Sustainability
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. **Catalog Description** *(300 Character Spaces or Less.)*
   Present:

   Proposed: This course will examine the concepts regarding the continued advancement of humankind while maintaining our ecological niche on earth. Key topics include: population growth, poverty, and impacts of development; energy consumption, sources, storage, conservation and policy; water quality and quanti
5. **If course requires field trip check box:** ☐
6. **Credit Hours:** **Present:** **Lecture:** **Lab:** **Total:**
   Proposed: **Lecture: 3** **Lab:** **Total:**
7. **Prerequisites:**
   Present:

   Proposed: Senior standing
8. **Required for Majors:** ☐ **Elective for Majors:** ☒
9. **Justification:** Sustainability is a current concern and the 301 course had 30-40 students in both offerings. The course will serve as an elective for several degrees. It has a broad focus, including food, population, and resources, unlike the energy-focused EMgt 345, an this does not seem to duplicate that course.
10. **Semesters previously offered as an experimental course (101, 201, 301, 401):** FS 2007, FS 2010
11. **List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.**
    1) CE 365 **2)** ArchE 365 **3)**
    4) **5)** **6)**

Recommended by Department _____ (Chair signature) Date: 2/21/11

Recommended by Discipline Specific Curricula Committee _____ (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: 2012
Term: Summer ☐ Fall ☐ Spring ☒

CC File # 3140-2012-EE-3371-S

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. **Department:** ECE
2. **Discipline and Course Number:** **Present :** EE371 **Proposed:** EE371
3. **Course Title:** **Present:** **Grounding and Shielding**
   Proposed: Interference Control in Electronic Systems
   Abbreviated Course Title:
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. **Catalog Description** *(300 Character Spaces or Less.)*
   Present: EE371 Grounding and Shielding: Grounding And Shielding (LEC 3.0) Fundamental principles involved in typical grounding and shielding problems, objectives and techniques for grounding and shielding to reduce misconceptions and a more systematic approach to replace "trial and error" methods, interfe
   Proposed: EE371 Interference control in electronic systems (LEC 3.0), Principles of high frequency effects in PCBs and components, generation of unwanted radio-frequency (RF) signals by ICs, RF radiation mechanisms, shielding, and immunity against electrostatic discharge and RF signals
5. **If course requires field trip check box:** ☐
6. **Credit Hours:**

Present:	**Lecture:** 3	**Lab:**	**Total:**
Proposed:	**Lecture:** 3	**Lab:**	**Total:**

7. **Prerequisites:**
   Present: El Eng 265 and 271
   Proposed: El Eng 265 and 271
8. **Required for Majors:** ☐ **Elective for Majors:** ☒
9. **Justification:** New name and description reflects content better

10. **Semesters previously offered as an experimental course (101, 201, 301, 401):**
11. **List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.**

1) **2)** **3)**

4) **5)** **6)**

Recommended by Department Kelvin Erickson (Chair signature) Date: 10 Mar 11

Recommended by Discipline Specific Curricula Committee Steve Watkins (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: SP2012
Term: Summer ☐ **Fall** ☐ **Spring** ☒

CC File # 8141-2011-Econ-348-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: Economics

2. Discipline and Course Number: **Present :** **Proposed:** Econ 348

3. Course Title: **Present:**

Proposed: Sustainable Economics

Abbreviated Course Title: Sustainable Economics
(24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. Catalog Description *(300 Character Spaces or Less.)*

Present:

Proposed: This course covers economics of sustainable development practices in the private sector and in government. Topics include the role of business and government in sustainabliity, natural resource scarcity, externalities, and problems of pollution.

5. If course requires field trip check box: ☐

6. Credit Hours: **Present:** **Lecture:** **Lab:** **Total:**
Proposed: **Lecture: 3** **Lab:** **Total: 3**

7. Prerequisites:
Present:

Proposed: Principles of Microeconomics or Macroeconomics

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

9. Justification: This course is an option for the new Graduate Certificate in ~~Sustainable Business.~~ Management for Sustainable Business

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

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

1) **2)** **3)**

4) **5)** **6)**

Recommended by Department _____ (Chair signature) Date: 3/15/11

Recommended by Discipline Specific Curricula Committee _____ (Chair signature) Date: 3/21/2011

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: W12
Term: **Summer** ☐ **Fall** ☐ **Spring** ☒

CC File # 8143-2011-Civil-356-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: Civil, Architectural, & Envirn — Civil

2. Discipline and Course Number: **Present :** ~~301~~ **Proposed:** 356

3. Course Title: **Present:** **Concrete Pavement Design**
Proposed:

Abbreviated Course Title: Concrete Pavement Design
(24 Spaces or Less. Only needed for New Courses or Title Changes.)

4. Catalog Description *(300 Character Spaces or Less.)*

Present: Design of rigid pavements including loading characteristics, properties of pavement components, stress distribution, and the effects of climatic variables on design criteria.

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours: **Present:** **Lecture:** 3 **Lab:** 0 **Total:** 3
Proposed: **Lecture:** **Lab:** **Total:**

7. Prerequisites:
Present: CE 216 with a grade of "C" or better

Proposed:

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

9. Justification: The course has been taught twice before (W2008 enrollment = 27 and W2010 enrollment = 32)

10. Semesters previously offered as an experimental course (101, 201, 301, 401): W08, W10

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

1) **2)** **3)**

4) **5)** **6)**

Recommended by Department _____ (Chair signature) Date: 3/15/11

Recommended by Discipline Specific Curricula Committee Steve Vickers (Chair signature) Date: 4/6/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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CE 301 CONCRETE PAVEMENT DESIGN

PREREQUISITES: Preceded by CE 216 with a grade of "C" or better

SEMESTER: Winter 2010

TEXT: ***Concrete Pavement Design, Construction, and Performance*** (Delatte)
Course Notes= CN

INSTRUCTOR'S NAME: Dr. David N. Richardson
INSTRUCTOR'S OFFICE: 126 Butler-Carlton Hall
INSTRUCTOR'S PHONE: (573)341-4487
INSTRUCTOR'S e-mail: dnr@mst.edu

PERIOD	TOPIC	READING ASSIGNMENT	HOMEWORK
1-9	**I. INTRODUCTION**		
	A. Design Goals	Coursenotes (CN)	
	B. Road Tests/Evolution	Ch.1: 1-11; CN	
	C. Pavement Types	Ch.2: 25-29; 37-45;CN	HO
	D. Performance/Distress	CN; Ch.3: 46-62	HO
	E. Surface Characteristics	CN; Ch.3: 62-68	HO
	F. Design Period/Pavement Selection	CN	HO
	G. Environmental Effects	CN	HO
	II. SUBGRADES, SUBBASES & BASES		
	A. Subgrade Support	Ch.4: 69-73	
	1. Classification	Coursenotes	2 HO's
	2. Preparation	Ch.13: 249-252 Coursenotes	5 HO's
	3. Swelling Soil	Ch.4: 73; Ch.13: 252-253 Coursenotes	HO
	4. Frost Action	Ch.4: 73-74; Ch.13: 253-254; Coursenotes	HO
	5. Soil Stabilization	Ch.4:76-78;Ch.13: 254-255; Coursenotes	HO
11 (2-16)	B. Subbases & Bases	Ch.4: 74-80; Ch.13: 255-261	HO
	EXAM I		

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10, 12-21	**III. DESIGN FUNDAMENTALS** 1. Introduction 2. Concrete Materials 3. Design Methods/Theories 4. Traffic 5. Stresses & Deflections 6. Joints 7. Tie bars 8. Dowels 9. Reinforcement 10. Design Features 11. Typical Sections	Ch. 7: 129-130 Ch. 5: 95-110; Ch.6: 111-128 Ch. 7: 140-141; CN Ch. 7: 130-132 Ch. 7: 132-140 Ch. 2: 30-37;Ch.7: 141-148; 150-151 Ch.7: 151-154 Ch.7: 148-149 Coursenotes Ch.9:194-197;Ch.12:231-233; Coursenotes	HO HO 3 HO's 2 HO's HO HO HO HO
23(4-8)	**EXAM II**		
22, 24-31	12. Drainage 13. Specifications **IV. PCA METHOD** A. Introduction B. Long Method C. Simplified Method D. STREETPAVE **V. AASHTO METHOD** **VI. MEPDG METHOD** **VII. PARKING LOTS** A. Normal Duty B. Industrial **VIII. LIFE-CYCLE COSTS** **IX. CONSTRUCTION** A. Paving B. Temperature Management HIPERPAV C. Acceptance **X. REPAIR/REHABILITATION** **XI. OVERLAYS** **REVIEW**	Ch.4: 80-94; Ch.9: 189-194 Coursenotes Ch.8: 166-169 Coursenotes Ch.9: 172-189 Ch.9: 175-189; Coursenotes Ch.8: 155-166 Ch.8: 169-171 Coursenotes Ch.11: 221-230;Coursenotes Ch. 9: 180-181; Coursenotes Ch.14: 262-278; Ch.15: 279-287 Ch.14: 287-298 Ch.14: 299-305 Ch 16: 306-314 Ch: 17: 315-329 Ch. 18: 330-350	2 HO's HO HO HO HO
FINALS WEEK	**EXAM III** Monday 10:30 am		

CE301SylabusW2010.doc (2-7-07;11-5-07;1-9-08,3-20-08;4-8-08; 12-30-09)

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CE 301 COURSE POLICY

1. Grading: Exams (80%), Homework (20)
   Grades: A = 90 to 100%, B = 80 to 89%, C = 70 to 79%, D = 60 to 69%, F - below 60

2. Homework: Due at the beginning of the class on day due. Anytime past that point will be considered late. ***Late homework will be docked 10%. Homework more than 1 day late will be docked 50% and may not be graded.*** After the set is graded, late homework will not be accepted.

3. There is no "extra work" for anyone to improve a grade.

4. There is no "makeup" test to improve a poor grade, or for unexcused absence from a test. In the latter case the grade is zero on the test. Asking faculty to design a special exam just for one person for the student's convenience is unprofessional, at the very least.

5. If anyone misses an examination, or wants to, they are to turn in a neatly written statement as to why it was missed, with any helpful documentation. For example, if an exam is missed for a medical reason, there is very little hope without a statement from a doctor treating you. ***"Working on other projects", "not quite ready", "on an interview trip", "I forgot", "looking for an apartment", "want to leave town early" are typical excuses worth zero on tests.*** You will be told as soon as possible whether the excuse is acceptable.

6. Partial credit is not open to dispute. However, an error in grade computation should be pointed out. Time limit is one week from return of test.

7. As far as the course grade is concerned, it is of no relevance if a test score is, say, 70% because of all silly errors as opposed to conceptual errors. The only thing that counts is that it is 70%. It will not be re-evaluated later on some vague basis of the errors being somehow less significant, and the 70 should be 73, etc. Tests are simply not open for re-evaluation on any basis other than an error in marking a correct answer wrong. After all, differences in mechanical errors vs.

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conceptual errors were taken into account in arriving at that numerical grade; so there is nothing left to consider.

8. You are being graded strictly on this course and not on the basis that if you get one letter grade higher you will be allowed to remain in college, etc. That is your problem and all faculty resent any student trying to unload his/her accumulated history of scholastic difficulty on them. We do not "negotiate" grades, as most of you know. Scholastic probation, etc., are irrelevant to my grading procedure. All students are graded strictly on performance. Neither my opinion nor your opinion of what you "really" know, nor personality, nor any other factor is a consideration in your grade.

9. ***Do not schedule events to occur during finals week***, such as interview trips, vacations, job start-ups, marriages, elective surgery, etc. **Don't even ask.** As stated before, a missed exam results in a zero grade. Please inform anyone who may invite you to be in a wedding party that you will not be available on the day of the CE 301 exam. Do this early in the semester.

10. **Attendance policy**: Students are expected to attend class regularly. Attendance will be taken at the ***beginning*** of class. If you are tardy, you will be counted as absent; in this case, you should notify the instructor of your attendance at the end of the period. Any time after that, you will be counted as absent. ***You will lose one letter grade for every 6 unexcused absences*** [excused absences are limited to school-sanctioned activities. All others are unexcused]. You may be dropped from the class if absences become excessive.

11. **Student Academic Dishonesty**. Academic honesty is essential for the intellectual life of the University and for your continued academic and professional development and growth. As your instructor, I have a very high standard for academic honesty in all your work for this class. You as a student in this class have an obligation to adhere to that high standard. ***Should a case of academic dishonesty arise during the course of the semester, I will do the following: I will assign a failing grade to the work in question. I may fail you for the course. And I will refer the incident to both the department Chair and to the Vice Provost for Undergraduate and Graduate***

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Studies as required in Section 200.010 of the Collected Rules and Regulations of the University of Missouri.

By enrolling in this course and receiving this syllabus, whether in printed or electronic format, you are certifying knowledge of Sections 200.100 (Standard of Conduct) and 200.020 (Rules of Procedures in Student Conduct Matters) in the Collected Rules and Regulations of the University of Missouri and are pledging to abide by them. If you have not yet read these Sections, please do so. They may be found at the following URL address: http://www.umsystem.edu/ums/departments/gc/rules/programs/200/.

A more recent site:
http://registrar.mst.edu/academicregs/index.html

An example of academic dishonesty is as follows. ***You must not place in any written assignment, lab report or otherwise, material that has been lifted, scanned, or copied, from any other document (eg other student's work, "files", etc) , except for those specifically approved by the instructor.***

12. Please do not email the instructor asking for your grade at the end of the semester.

13. Disability Support Services: http://dss.mst.edu: If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation.

14. I may utilize the Academic Alert System to enhance the communication between students, their advisors, and me in regard to student performance deficiencies.

15. Students should familiarize themselves with emergency exit procedures. Adjacent to each classroom entrance is a floor plan that shows students how to exit the building in the event of an emergency.

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16. All students are required to meet the prerequisite requirement(s) for this course. If you have not met the prerequisite requirement(s) for this course, you must either (1) drop this course immediately (please let me know if you do this), or (2) come see me with an explanation for why you should be allowed to remain in this course. I will be performing my own pre-requisite verification check in the near future. If I find that you have not met the pre-requisite requirement(s) for this course and have not come to see me about it, I will drop you from this course.

Course Policy CE301.doc

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CC File # 8144-2011-Hist-221-16

Effective Year: 2012
Term: Summer ☐ Fall ☐ Spring ☒

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. **Department:** History
2. **Discipline and Course Number:** **Present:** ~~303~~ **Proposed:** 221
3. **Course Title:** **Present:** **Making of Modern Germany**
   Proposed: **Making of Modern Germany**
   Abbreviated Course Title: Modern Germany
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. **Catalog Description** *(300 Character Spaces or Less.)*
   Present: A survey of modern Germany from Reformation and making of the modern state through the present. Major themes include social, intellectual, cultural, political, and economic aspects of modern and contemporary Germany, with emphasis on post WWII era.

   Proposed: A survey of modern Germany from 1815 through the present. Major themes include social, intellectual, cultural, political, and economic aspects of modern and contemporay Germany, with emphasis on developments during the twentieth century.
5. **If course requires field trip check box:** ☐
6. **Credit Hours:** **Present:** **Lecture:** 3 **Lab:** **Total:** 3
   Proposed: **Lecture:** **Lab:** **Total:**
7. **Prerequisites:**
   Present: 112, 175
   Proposed: 112, 176
8. **Required for Majors:** ☐ **Elective for Majors:** ☒
9. **Justification:** Need more diversity in European courses.
10. **Semesters previously offered as an experimental course (101, 201, 301, 401):** 2 (Sp 2010, Sp 2011)
11. **List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.**

1) 2) 3)

4) 5) 6)

Recommended by Department _____ (Chair signature) Date: 3/14/11

Recommended by Discipline Specific Curricula Committee _____ (Chair signature) Date: 3/21/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Proposed class will follow the below approach

Syllabus History 301 (Spring 2010)
The Making of Modern Germany
Section 1A, Tuesday/Thursday 12:30 – 1:45, CSci 205

Instructor: Dr. Petra DeWitt

Office Hours: W, F: 9:30-10:30; M: 2-4 pm; T and Th 2 - 3 pm, and by appointment
Office: H-SS 119 Telephone: 341- 6592 / 4801 **E-mail**: dewittp@mst.edu
Teaching Schedule (not in office!): M, W, F: 11-11:50, 1:00 – 1:50; T, Th: 12:30 – 1:45, M 6:00 – 8:45

Purpose of the Class:

This class will survey the history of modern Germany from 1815 to the present, with special emphasis on the nineteenth and twentieth century. Students will trace and analyze the development of the modern state, the transition from cottage industry to the industrial revolution, the revolutions of the long nineteenth century, the creation of Germany, Bismarckian social reforms, the meaning of nationalism (19th and 20th century), imperialism, World War I, Weimar Republic, the Nazi Regime, the divided nation, reunification, and Germany's place in the European Union. Students will demonstrate critical thinking skills and an understanding of the development of modern Germany through the eyes of ordinary people in the form of a research paper about inventors, artists, writers, workers and reformers.

Required Readings: (see weekly schedule below for due dates)

Books:

- Martin Kitchen, *A History of Modern Germany 1800-2000* (Blackwell, 2006)
- Erich Maria Remarque, *All Quiet on the Western Front*
- Jana Hensel, *After the Wall: Confessions from an East German Childhood and the Life that Came Next*

Requirements:

Students must attend class every Tuesday and Thursday and complete assignments on time (see below schedule for dates). The grade for this course will be based on two book assignments (Remarque and Hensel), one midterm exam, one final exam, a research paper, two movie activities, and participation/attendance in class. It is **your responsibility** to read the assignments for the assigned day, turn in the assigned work on time, actively participate in class, take notes, and ask questions. Familiarize yourself with ***blackboard*** because you will find detailed instructions for book assignments and research paper on blackboard, as well as grades in the "grade center."

Grade Distribution:		
	Mid-Term Exam	250 points
	Final Exam	250 points
	2 Book Assignments	150 points
	Research Paper	200 points
	Movie Activities	50 points
	Participation, Attendance, Professionalism	100 points
	Total	1,000 points (20 extra possible)

Book Assignments:

The student will fill out one book assignment each for Remarque's *All Quiet on the Western Front* and Hensel's *After the Wall* in the form of chronological questions that the student can answer as he/she reads the book. These assignments are on blackboard under "Assignments." The Remarque assignment is available right now and is due on March 1. The Hensel assignment will be available after spring break (April 4) and is due on April 26.

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These assignments are worth 100 and 50 points, respectively. **No email submission. Late submissions lose a letter grade per class** unless documented legitimate excuse.

Research Paper:

Takes place of a third exam. Each student must write a 9 - 10 page research paper (2500-2700 words). The purpose of this paper is to demonstrate that ordinary people have an influence in history. By Thursday of second week of classes (January 20), every student must have chosen a person from the list as his/her research subject. The paper must introduce this person, evaluate how this person contributed to or reflected the development of modern Germany, and demonstrate the importance of that person in history. Each student must turn in three abstract paragraphs with a working bibliography on Thursday of fifth week (February 10), a rough draft Tuesday prior to Spring Break (March 22), and a completed paper on Thursday April 28 (attach graded abstract and rough draft). This paper is worth 200 points (abstract/bibliography 30 points, rough draft 70 points, completed paper 100 points). Each submission must be double spaced, in Times New Roman Font 12, have 1 inch margins all around, use footnotes according to Chicago Manual of Style (see instructions on blackboard, course documents), and must be typed and printed. **No email submission. Late submissions lose a letter grade per class** unless documented legitimate excuse.

Mid-Term and Final Exam:

Each student must take a mid-term and final exam on the scheduled date as noted in the below schedule. Only a documented legitimate excuse will allow a student to make up these exams. Each exam will contain several fill-in-the-blank association questions, 6 short identification terms, and one longer essay question from a choice of two questions. I will provide a blue book for each exam. Since the final exam is not comprehensive both exam carry equal weight, 250 points each. You will receive a study guide one week prior to each exam through blackboard. You can earn up to 20 extra points by defining terms on blackboard discussion board prior to each exam (up to 10 per exam). See instructions on discussion board.

Attendance, Participation, Professionalism Points:

Each student must attend class regularly and has the opportunity to earn up to 26 attendance points by signing the daily attendance sheet (1 point each for 26 out of 26 classes). The instructor will assign participation points at the end of the semester based on participation in the class. The student can also earn 20 professionalism points by turning in assignments on time in proper format, proofread, and using proper font and proper margins. However, the student can also lose any and all of these professionalism points if he/she constantly arrives late in class, the student's phone rings in class (phone call or message), text-messages in class, uses listening devices in class, sleeps in class, does not address the instructor with proper title in an email and does not sign an email.

Academic Honesty:

Academic honesty is fundamental to the activities and principles of this university and this class. Each student has to acquire, develop and present his/her own work responsibly and honorably. Any effort to gain an advantage not given to all students is dishonest. Plagiarism is the taking, including clipping, pasting and copying from the internet, of someone else's work and trying to pass it as one's own work without giving proper credit to the original author. The academic community, Missouri S&T and the instructor for this course regard academic dishonesty as an extremely serious matter, with serious consequences that range from failing grades to probation and expulsion. When in doubt about cheating, plagiarism, paraphrasing, quoting, or collaboration, consult the instructor or page 30 of the student handbook.

Academic Accommodation:

If you need accommodations because of a disability, if you have emergency medical information, or if you need special arrangements for exams, please inform me immediately. To request academic accommodations, students must register with Disability Support Services, 106 Norwood Hall, 341-4222, or at dss@mst.edu. Reasonable efforts will be made to accommodate your special needs but I need to know about them **as soon as they occur**.

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Discussion Topics and Weekly Assignment Schedule
(assignments must be completed for that day; changes in this outline will be announced):

Week 1: Jan 11: Introduction

Jan 13: The End of the Holy Roman Empire: German States in the Age of Napoleon
Required reading: Kitchen, Introduction and chapter 1

Week 2: Jan 18: Restoration Germany: Congress of Vienna and Reform
Required reading: Kitchen, chapter 3, p. 50-62

Jan 20: The Social and Economic Development of early Nineteenth Century Germany
Required reading: Kitchen, chapter 2 Choice for Research Paper **DUE**

Week 3: Jan 25: 1830s Liberal Movement
Required reading: Kitchen, chapter 3, p.63-70

Jan 29: The 1848 Revolutions: Reflections of a Changing Society
Required reading: Kitchen, chapter 4

Week 4: Feb 1: 1850s: The Second Industrial Revolution
Required reading: Kitchen, chapter 5

Feb 3: Germany: Unification from Above through War and Diplomacy
Required Reading: Kitchen, chapter 6

Week 5: Feb 8: Bismarck's *Real Politik*
Required reading: Kitchen, chapter 8

Feb 10: Bismarck's Reform Policies and *Kulturkampf*
Required reading: Kitchen, chapter 7 **Abstracts DUE**

Week 6: Feb 15: Evaluating Culture and Life in Nineteenth Century Germany
Required reading: Kitchen, chapter 9

Feb 17: Imperialism and the Wilhelmine Age
Required reading: Kitchen, chapter 9

Week 7: Feb 22: Midterm Exam

Feb 24: World War I
Required reading: Kitchen, chapter 10

Week 8: March 1: World War I
Required reading: Remarque, *All Quiet on the Western Front*, Book assignment **DUE**

March 3: The Revolution of 1918: The Weimar Republic
Required reading: Kitchen, chapter 11

Week 9: March 8: Weimar Republic: Domestic Problems
Required reading: Kitchen, chapter 11

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March 10: **NO CLASS, Recess,** Happy St. Pat's (well, a bit early ☺)

Week 10: March 15: Fall of the Republic and the Rise of Hitler
Required reading: Kitchen, chapter 12

March 17: Life and Culture in the Third Reich
Required reading: Kitchen, chapter 13

Week 11: March 22: World War II (movie clips and activity)
Required reading: Kitchen, chapter 13 Rough Draft **DUE**

March 24: World War II (movie clips and activity)
Required reading: Kitchen, chapter 13

Week 12: March 27- April 3: **Spring Break**

Week 13: April 5: Immediate Post-WWII Years: DRs, Expellees, and De-Nazification Program

April 7: Creating a Divided Germany: The GDR and FRG
Required reading: Kitchen, chapter 14

Week 14: April 12: Miracle Years in West Germany (1950-1973)
Required reading: Kitchen, chapter 14 and 15

April 14: **NO CLASS** (I am at a conference; work on your last book)

Week 15: April 19: East Germany: 1950 – 1973 (possible movie clips with activity)
Required reading: Kitchen, chapter 14 and 15

April 21: Easing Relations between East and West: 1973-1988
Required reading: Kitchen chapter 15

Week 16: April 26: Tearing Down the Wall and Uniting a Divided Nation
Required readings: Kitchen, chapter 16; **Hensel,** *After the Wall*, book assignment DUE

April 28: Germany's Relationship to the EU at the Turn of the Century
Required reading: Kitchen, chapter 16 **FINAL PAPER DUE**

Week 17: Final Exam: Since we meet on Tuesday at 12:30 pm as the "First Weekly Class Meeting," the "Final Exam Time" is Thursday, May 5, 10:30 am – 12:30 pm. According to the final exam schedule posted on the Registrar website, there is no conflict with any other common final or otherwise scheduled day-time final. If for some reason you nevertheless have a conflict with another final exam, you must let me know no later than Tuesday, April 26, so that we may reschedule.

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Effective Year: 2011
Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8145-2011-Geol-481-36

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. **Department:** Geol Sci & Engineering — Geology
2. **Discipline and Course Number:** **Present** ~~Geo 481~~ **Proposed:** Geo 481
3. **Course Title:** **Present:** **Geodynamics**
   Proposed: ~~**Geodynamics**~~
   Abbreviated Course Title: Geodynamics
   (24 Spaces or Less. Only needed for New Courses or Title Changes.)
4. **Catalog Description** *(300 Character Spaces or Less.)*
   Present: The applications of continuum physics to geological problems. Topics include plate tectonics, stress and strain in solids, elasticity and flexure, heat transfer, gravity, fluid mechanics, rock rheology, faulting, and flow in porous media.
   Proposed: The applications of continuum physics to geological problems. Topics include plate tectonics, stress and strain in solids, elasticity and flexure, heat transfer, gravity, fluid mechanics, rock rheology, faulting, and flow in porous media.
5. **If course requires field trip check box:** ☐
6. **Credit Hours:** **Present:** **Lecture:** 3.0 **Lab:** **Total:**
   Proposed: **Lecture:** **Lab:** **Total:**
7. **Prerequisites:**
   Present: Math 22 and Geo 220
   Proposed: ~~**Math 22 and Geo 220**~~
8. **Required for Majors:** ☐ **Elective for Majors:** ☒
9. **Justification:**

10. **Semesters previously offered as an experimental course (101, 201, 301, 401):**
11. **List all co-listed courses, initialed by Dept. Chair, if signature does not appear below.**
    1) PetEng 481 2) 3)
    4) 5) 6)

Recommended by Department _____ (Chair signature) Date: 3-9-11

Recommended by Discipline Specific Curricula Committee _____ (Chair signature) Date: 4/8/2011

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: 2011
Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8146-2011-PetEng-481-10

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: Geol Sci & Engineering

2. Discipline and Course Number: **Present :** **Proposed:** Pet Eng 481

3. Course Title: **Present:**

Proposed: Geodynamics

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

4. Catalog Description *(300 Character Spaces or Less.)*

Present:

Proposed: The applications of continuum physics to geological and petroleum engineering problems. Topics include plate tectonics, stress and strain in solids, elasticity and flexure, heat transfer, gravity, fluid mechanics, rock rheology, faulting, and flow in porous media.

5. If course requires field trip check box: ☐

6. Credit Hours:

Present:	**Lecture:** 3.0	**Lab:**	**Total:**
Proposed:	**Lecture:**	**Lab:**	**Total:**

7. Prerequisites:

Present:

Proposed: Math 22 and Geo 220

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

9. Justification:

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

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

1) Geo 481 **2)** **3)**

4) **5)** **6)**

Recommended by Department Ralph Flow (Chair signature) Date: 3-9-11

Recommended by Discipline Specific Curricula Committee Steve Hubbard (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: 2012
Term: Summer ☐ **Fall** ☐ **Spring** ☒

CC File # 8147-2011-MinEng-235-32

Course Change Form (CC)

This form is for creating or modifying permanent courses.

Course Changes (Check all changes.)

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

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

1. Department: Mining & Nuclear Engineering

2. Discipline and Course Number: **Present :** Min 235 **Proposed:**

3. Course Title: **Present:** **Underground Mine Design**
Proposed:

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

4. Catalog Description *(300 Character Spaces or Less.)*
Present:

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours: **Present:** **Lecture:** **Lab:** **Total:**
Proposed: **Lecture:** **Lab:** **Total:**

7. Prerequisites:
Present: None

Proposed: Min 225

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

9. Justification: The content of Min 225 is essential for Min 235

10. Semesters previously offered as an experimental course (101, 201, 301, 401):

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

1) **2)** **3)**

4) **5)** **6)**

Recommended by Department _____ (Chair signature) Date: 03/23/11

Recommended by Discipline Specific Curricula Committee _____ (Chair signature) Date: 4/8/11

Approved by Curricula Committee: _____ (Chair signature) Date: _____

Approved by Faculty Senate: _____ (Chair signature) Date: _____

(Revised 1/29/09)

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Effective Year: 2011
Effective Term: Summer ☐ **Fall** ☒ **Spring** ☐

EC File # 2331-FS2011-NE-301

Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: MNE - Mining x Nuclear Engineering

Discipline and Course Number: NE 301

Course Title: Monte Carlo Approach to Reactor Analysis

Abbreviated Title *(24 spaces or less)*: Applications of MCNP

Instructor(s): Ayodeji Alajo

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

Prerequisites: ~~NEW~~ Math 22 and CS 73 and 74 or 77 and 78; Accompanied or preceded by NE 205.

Semester(s) previously taught: N/A

Brief Course Description: (40 words or less)
An introduction to stochastic methods in solving particle transport problems with a view to utilizing the methods in reactor design and analysis, sheilding problems, flux calculations, reaction rate determinations and general steady-state reactor physics analyses.

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

1) **2)** **3)**

4) **5)** **6)**

Department Chair: Arvind J Kumar (Chair Signature) Date: 2-7-2011

Nuclear Engineering

Discipline Specific Curricula Committee: Steve Wallace (Chair signature) Date: 4/8/11

Curricula Committee: _____ (Chair Signature) Date: _____

02/07/11

(Revised 10/12/2010)

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Effective Year: 2011
Effective Term: Summer ☐ Fall ☒ Spring ☐

EC File # 2337-FS2011-ArchE-301

Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Civil, Arch., and Envir. Engr.

Discipline and Course Number: ArchE 301

Course Title: Building Performance and System Optimization

Abbreviated Title *(24 spaces or less)*: Analy of Bldg Systems

Instructor(s): Joon-Ho Choi

Credit Hours: **Lecture:** 2 **Lab:** 1 **Total:** 3

Prerequisites: ME 371, CE 242, or instructor approval.

Semester(s) previously taught: First Offering

Brief Course Description: (40 words or less)
This course introduces the concept of total building performance, delineating the full range of performance mandates required for today's architecture, including building integrity.The course will explore the relationships, opportunities, and conflicts of the performance mandates, and the integration of building systems necessary to achieve total building performance.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.
1) **2)** **3)**

4) **5)** **6)**

Department Chair: _____ (Chair Signature) Date: 2/21/11

Discipline Specific Curricula Committee: _____ (Chair signature) Date: 4/8/11

Curricula Committee: _____ (Chair Signature) Date: _____

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Missouri University of Science & Technology
Department of Civil, Architectural, and Environmental Engineering

ArchE 301: Building Performance and System Optimization

Instructor:

Joon-Ho Choi, PhD, LEED AP
Assistant Professor
324 Butler-Carlton Hall
1401 N. Pine Street, Rolla, MO
Office Phone: 573-341-6947
Office Fax: 573-341-4729
Email: choij@mst.edu

Class Meeting Time	: T ( ) R ( )
Additional Meeting Time	: As required
Office hours	: M ( ) W ( ), or By Appointment

Course description:
This course introduces the concept of total building performance, delineating the full range of performance mandates required for today's architecture, including building integrity. The course will explore the relationships, opportunities, and conflicts of the performance mandates, and the integration of building systems necessary to achieve total building performance. Through lectures and lab-instructions, students should be able to develop a basis for environmental design performance, system design skills for total building performance, towards creating high-performance buildings. Prerequisites: ME 371 with a grade "C" or better.

Objectives:
The course objective is to develop a deeper understanding of the relationship between architectural design and the environmental climate, and between building systems (i.e., thermal, lighting, air ventilating systems). The course is intended to help students test building systems through the use of available modeling tools. Some of tools that will be reviewed during the class are: Climate Consultant, Weather Maker, Weather Tool, ECOTECT, eQuest, Energy -10, Radiance.

Teaching methods
The class will be conducted as a seminar and will mix lecture presentations by the instructor with student presentations, class demonstrations, slide presentations, project reviews and guest speakers. The class presentations will cover the basic skills required to complete student modeling assignments. Reading assignments will be issued from the course bibliography. There is no required text. Campus buildings will be used as teaching and project resources. Each student will select a campus building of Missouri S&T, and will develop a building energy simulation model using a selected tool. Students will learn how to develop a building model, how to calibrate the model based on actual energy records provided by Physical Facilities. All the teaching contents will be based on actual energy usage records and utility data of campus buildings.

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Student Assignments

This is a project-oriented class. Therefore, students are required to finish each assignment on time for the class. Students will have an individual assignment, a group project, or both. The assignments will develop system design skills for total building performance from interaction with climate conditions to integrative strategies between system components. The class assignments (projects) are as follows:

1) Weather analysis: Students can know what natural environmental variables can affect a building performance, which natural resources can be utilized for passive design strategies, how much energy can be saved by using the strategies.
2) Design recommendations: Students will be asked to analyze what building technologies would be most or more beneficial considering the climate data of a certain city or State.
3) Modeling building simulation: Based on the knowledge from assignment 1 & 2, students will be asked to develop their own models of the selected campus building.
4) Calibrating models: The energy records and utility data will be given to students to compare the data with their energy consumption estimated by the simulation model, and be asked to calibrate to increase the accuracy between the two data.
5) Design proposal for energy savings and environmental benefits: Students can explore their own models to analyze the selected building and to find problems on the system or design, or operation strategies. Based on the explorations, they will be asked to provide optimized system or design solutions or comination to improve building performance.

References:

ASHRAE 90.1 Standards: Energy Standard for Buildings except Low-Rise Residential Buildings - 2007
ASHRAE 55 Standards: Thermal Comfort - 2010
ASHRAE 62.1 Standards: Ventilation for Acceptable Indoor Air Quality - 2007
ASHRAE Handbook
ASHRAE High Performance Building Handbook

Grading: Final report	: 20%	Assignment	: 60%
Quiz	: 10%	Attendance	: 10%

Deliverables: Deliverables are defined as any work required from the student that was assigned for acquisition or preparation outside of the regular classroom, e.g. web-based reference documents, homework, take-home quizzes, and projects. All deliverables are mandatory and due at the beginning of class on the required due date. Failure to submit a deliverable on-time and reasonably well attempted shall result in a deduction of 50% of the assigned point value, with an additional 10% deducted for each full-day late until such work is delivered into the instructor's possession, properly completed. Any deliverable not properly submitted within one calendar week of a required due date may result in a failing grade for the student for this course. Any student who may be absent from class on the due date may submit their work beforehand directly to the instructor, or, on the due date via another student. Exceptions to this policy shall be considered with adequate justification.

Quality: All deliverables shall be graded for quality and content, 60% and 40% respectively. See the instructor's memorandum: Quality Standards for Deliverables. Sloppy, illegible, disorganized deliverables are not acceptable for engineer work and shall negatively impact your course grade.

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Attendance: On-time attendance is expected in this course as is required in professional practice. Late arrival and repeated absences are simply not acceptable and may result in an instructor drop from the class rolls.

Blackboard: The instructor will make use of Blackboard (Bb) to communicate with enrolled students. Announcements, Course Information, and Assignments will be posted for your attention and necessary action. You will be held accountable for information transmitted via Bb. Each student is responsible for checking their email account daily for messages sent via Bb and for ensuring that their mail box account is not full, unable to receive messages.

Class preparation:
Every student is expected to be prepared for classes. Particular attention should be given to the following:

- All readings identified on the Course Schedule of Classes are to be accomplished before class. A quiz may be given over any course material in the Readings for the day's lesson or any previous lesson.

Academic honesty: You are expected to do your own work on assignments. Students caught cheating during an exam will receive a failing grade in the course and can be dismissed from The University. For a full description of what constitutes academic dishonesty, please see the University Judicial Affairs:Community Standards of Student Conduct at http://communitystandards.mst.edu/ .

Academic alert system: The MST Academic Alert System (http://academicalert.mst.edu) shall be utilized to communicate with individual students who fail to meet the academic requirements of this course. Notifications will provide both the student and their advisor with information regarding an academic deficiency and the necessary steps to correct it.

Classroom egress map:

Disability support services: If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with me early in the semester. You will need to request that the Disability Services staff send a letter to me verifying your disability and specifying the accommodation you will need before I can arrange your accommodation. Disability Support Services (http:// dss.mst.edu) is located in 204 Norwood Hall. Their phone number is 341-4211 and their email is dss@mst.edu.

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Tentative Class Schedule

Week	Tuesday	Thursday	Assignments / Course projects
1	Introduction	Site and Climate	
2	Climate analysis	Site analysis	Weather analysis
3	Passive heating 1	Passive cooling 2	
4	Other passive strategies	Building envelope system	
5	Building diagnostics	System integration / controls	Design recommendations
6	Building performance 1	Building performance 2	
7	Energy modeling 1	Energy modeling 2	
8	Energy modeling 3	Energy modeling 4	Energy modeling
9	Energy modeling 5	Energy modeling 6	
10	Calibration 1	Calibration 2	
11	Energy modeling 8	Energy modeling 9	Calibration
12	Energy modeling 10	Energy modeling 11	
13	Data analysis 1	Data analysis 2	Design proposal
14	Class review	Final presentation	
15	Final presentation		Final report

** Energy modeling will cover: location, schedule, walls, roofs, windows, space conditions, exterior walls, interior walls, shading, total reports, hourly reports, parameters, zoning, system types, equipments, geothermal model, etc.*

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Effective Year: 2011
Effective Term: Summer ☐ Fall ☒ Spring ☐

EC File # 2338-FS2011-ArchE-301

Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Civil, Arch., and Envir. Engr.

Discipline and Course Number: ArchE 301

Course Title: Structural Masonry Design

Abbreviated Title *(24 spaces or less)*: Struct Masonry Des

Instructor(s): John Myers and Darrell McMillian

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

Prerequisites: ArchE 217 or CivE 217

Semester(s) previously taught: First Offering

Brief Course Description: (40 words or less)
Theory and practice of analyzing and designing low-rise masonry structures. Materials and assembly types, constructability considerations, structural masonry components, repair and strengthening, and model code requirements to ensure adequate load resisting buildings.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.
1) CivE 301 **2)** **3)**

4) **5)** **6)**

Department Chair: _____ (Chair Signature) Date: 2/25/11

Discipline Specific Curricula Committee: _____ (Chair signature) Date: 4/8/11

Curricula Committee: _____ (Chair Signature) Date: _____

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MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Department of Civil, Architectural, and Environmental Engineering

ArchE / CE 301 – Structural Masonry Design – Fall 2011

LEAD INSTRUCTOR
Darrell W. McMillian, P.E.
Technical Director
Masonry Institute of St. Louis
1429 South Big Bend Blvd.
St. Louis, MO 63117
Office Phone: 314-645-5888
Office Fax: 314-645-5898
Email: misldarrell@masonrystl.org

CO-INSTRUCTOR & COORDINATOR
Dr. John J. Myers, P.E.
Associate Professor
325 Butler-Carlton CE Hall
1401 North Pine Street
Rolla, MO 65409
Office Phone: 573-341-6618
Office Fax: 573-341-4729
Email: jmyers@mst.edu

CLASS MEETING: T R _____ pm - _____ pm **ROOM:** CE _____
ADDITIONAL MEETING TIME: As Required – Arranged by Instructors
OFFICE HOURS: **McMillian-** By Appointment
Myers- MW 8:00 am to 9:30 am, or By Appointment, 325 Butler Carlton Hall

COURSE DESCRIPTION

Review of the theory and practice of analyzing low-rise masonry structures. Materials and assembly types, constructability considerations, structural masonry components, repair and strengthening, and model code requirements to ensure adequate load resisting buildings. Prerequisites: ArchE 217 or Cv Eng 217 with a grade "C" or better.

OBJECTIVES

1. Describe the relationship between the model building code and the masonry material code.
2. Identify current masonry materials and assemblies used in building construction.
3. Discuss the importance of movement joints, hot and cold weather procedures, quality assurance procedures in masonry construction.
4. Design structural masonry wall components and connections using Allowable Stress Design (ASD) and Strength Design (SD) methods.
5. Apply seismic and wind base shears to low-rise buildings and distribute their effects to masonry wall components and connections.
6. List currently available structural masonry design software and simplified masonry building design procedures.
7. Discuss using composite materials for repairing and strengthening existing masonry buildings using the ACI 440 approach.

TEXTBOOKS AND REFERENCE MATERIALS

Textbooks:

1. TMS 402 / 602 – 08, Building Code Requirements and Specification for Masonry Structures, The Masonry Society, ISBN: 1-929081-29-4. (Will be available for purchase at the first class session.) (Required)
2. Various National Concrete Masonry Association e-Technical Notes. Free download available at *www.ncma.org*. (Further directions to be given during class time.) (Required)
3. Masonry Designers' Guide, Sixth Edition, The Masonry Society. ISBN: 1-929081-35-9 (Recommended)

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References:

1. ASTM Masonry Standards for the Building Industry, Sixth Edition, ASTM International. ISBN13: 978-0-8031-8004-8
2. 2009 International Building Code, International Code Council. ISBN13: 978-1-58001-725-1.
3. ASCE 7-05, Minimum Design Loads for Buildings and Other Structures, American Society of Civil Engineers. ISBN: 0-7844-0809-2.

COURSE OUTLINE

Lectures:

The lectures will introduce masonry materials and assemblies, structural masonry wall component design, and low-rise masonry building analysis per the 2009 International Building Code and the 2008 TMS 402/602 masonry code/specification. The emphasis of this course is placed on covering topics contained in the attached course outline. Lectures will be achieved by Distance & Continuing Education (http://dce.mst.edu/). Handouts will be posted on Blackboard weekly.

Additional Class Meeting:

Additional meeting time will be assigned as designated by the instructors for the midterm exam and for term project discussions/presentations, as required.

Class Attendance:

Class attendance is required and will be monitored by the instructors. If an emergency arises in which you cannot attend class, please notify the instructors ahead of time, by email or phone, such that arrangements can be made for any missed handouts or homework assignments.

Homework:

Homework will be assigned throughout the semester and collected as designated by the instructors. Homework must be neat and organized. Use of a straight edge in preparation of homework assignments is required for any plots or graphs required in the assignments. Use of engineering paper is also highly recommended. (The grader will deduct points from homework assignments that are not neat and organized.) Homework assignments will be due as announced by the assigning instructor. Late homework will be accepted with a 20% penalty for each class meeting past due unless a late submission is approved by the assigning instructor in advance. HW's will be collected in class from the on campus students. Distant education students may (1) email electronic PDF's or similar of their HW's, or (2) fax HW's to the attention of the assigning instructor using the fax numbers listed on Page 1, or (3) upload an electronic version of their HW's to blackboard. In the case of uploading assignments to Blackboard, please notify the assigning instructor by email that you have uploaded the assignment immediately after doing so.

Design Project:

A design project and presentation will be assigned during the semester to teams of two or three students. Individual team meetings with the instructor may be scheduled to evaluate your on-going design and provide assistance. Different portions or tasks of the project will be due and collected throughout the second half of the semester. Final submission of the term project will be due the final week of class on a date specified by the instructor when the project description is distributed in class. A final PowerPoint presentation of each team will be scheduled during the final week of class.

Examinations:

Two quizzes and one mid-term exam will be given during regularly scheduled class periods. A comprehensive final exam will be given during the scheduled final exam period for this course. Missed exams will count as zero. Exams cannot be made up except under very unusual circumstances must be approved prior to the scheduled exam date by the instructors.

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Grading System:

Grades will be based on the performance of exams, assigned homework, and term project, as follows:

Homework Assignments*	20%
Design Project	15%
Quizzes and Mid-term Exam	40%
Final Exam	25%

* Includes in-class exercises that are collected.

Grading Scale:		
	A:	≥ 90%
	B:	80 to 89%
	C:	70 to 79%
	D:	60 to 69%
	F	< 60

Note: Cutoffs may be slightly lower, but will not be higher.

Disabillty Support Services:

If you have a documented disability and anticipate needing accommodations in this course, you are strongly encouraged to meet with the instructors early in the semester. You will need to request that the Disability Services staff send a letter to the instructors verifying your disability and specifying the accommodation you will need so arrangements can be made. Students may be referred to Disability Support Services (http://dss.mst.edu/), so that appropriate and reasonable accommodative services can be determined and recommended. Disability Support Services is located in 204 Norwood Hall. Their phone number is 573-341-4211 and their email is dss@mst.edu. Counseling services may be found at http://counsel.mst.edu/.

Academic Dishonesty:

You are expected to do your own work on exams. Giving aid to a student during an exam or taking information from another student's exam constitutes academic dishonesty. Students caught cheating during an exam will receive a failing grade in the course and can be dismissed from The University. For a full description of what constitutes academic dishonesty, please see the University *Judicial Affairs: Community Standards of Student Conduct* at http://communitystandards.mst.edu/ .

Classroom Egress Maps:

Students must familiarize themselves with the classroom egress maps to be used in the event of an emergency. The maps are posted on-line at: http://registrar.mst.edu/links/egress.html.

Other Campus Services:

The Learning Enhancement Across Disciplines Program (LEAD) sponsors free learning assistance in a wide range of courses for students who wish to increase their understanding, improve their skills, and validate their mastery of concepts and content in order to achieve their full potential. LEAD assistance starts no later than the third week of classes. Check out the online schedule at http://lead.mst.edu/assist, using zoom buttons to enlarge the view. Look to see what courses you are taking have collaborative LEAD learning centers (bottom half of schedule) and/or Individualized LEAD tutoring (top half of the schedule). For more information, contact the LEAD office at 573-341-4608 or email lead@mst.edu.

Educational Environment:

It is very important to the Instructors that each student has a healthy productive learning environment. If any student feels their learning environment is being restricted by another individual, please feel free to discuss this with the Instructors.

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Important Dates:

Labor Day Holiday: Monday, September _____th
Last day to change HEARER status: Monday, October _____th
Last day to drop without a 'WD' showing on transcript: Monday, October _____th
Last day to add course: Monday, October _____th
Thanksgiving Break Nov. 21st-Nov. 28th
Mid-semester: Saturday, October _____th
Last day for dropping a course: Friday, November _____th
Last class day: Friday, December _____th
Final Exam: _____ x:xx pm - x:xx pm, Dec. _____th Room: CE_____

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Part	Topic	References *
I	**Introduction** ▪ Masonry Industry Overview ▪ Masonry Codes and Standards	e-TEK 1-02C, 03C, 04
II	**Masonry Materials and Assemblies** ▪ Masonry Units, Mortars, Grouts ▪ Reinforcement, Connectors, Accessories ▪ Clay and Concrete Masonry Assemblies ▪ Prestressed Masonry ▪ Autoclaved Aerated Concrete ▪ Empirical and Veneer Masonry	602 Part II 402 Ch. 4 - 6, App A. e-TEK 2-01A, 06 e-TEK 3-06B, 13 e-TEK 9-01A, 04A e-TEK 12-02B, 04D, 06 e-TEK 14-08B, 20A
III	**Masonry Construction** ▪ Placement and Tolerances ▪ Hot and Cold Weather Masonry ▪ Movement Joints ▪ Quality Assurance	602 Parts I & II e-TEK 3-01C, 02A e-TEK 10-01A e-TEK 18-03B
IV	**Masonry Component Design** ▪ Allowable Stress Design (ASD) ◆ Unreinforced Wall Components ◆ Reinforced Wall Components ◆ Bearing Stress and Connections ▪ Strength Design (SD) ◆ Unreinforced Wall Components ◆ Reinforced Wall Components ◆ Bearing Stress and Connections Structural Masonry Design Software	402 Ch. 1, 2, 3 e-TEK 14-01B, 04B, 07A e-TEK 14-13B, 17A
V	**Masonry Building Design** ▪ Masonry Building Loads ▪ Load Distribution ▪ Out-of-Plane Load Design ▪ In-Plane (Shear) Load Design ▪ Building Connections and Bearing Stresses ▪ Simplified Masonry Building Design	402 / 602 All e-TEK 14-03B, 12B, 18B
VI	**Repair and Strengthening of Existing Masonry** ▪ Topic ▪ Topic ▪ Topic ▪ Topic	Reference

* ***402 = TMS 402-08, 602 = TMS 602-08, e-TEK = NCMA On-line Technical Note. Reference material will be supplemented by additional handouts from the instructors as needed.***

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CE / ArchE 301 – Structural Masonry Design Lecture Sequence

DATE		DAY	LECTURE TOPIC	ASSIGNMENT *
Aug.	23	T	Course Intro / Masonry Overview	
	25	R	Masonry Codes and Standards	
	30	T	Masonry Materials & Assemblies	HW1
Sep.	01	R	Masonry Construction	
	06	T	Masonry Construction	HW2
	08	R	ASD Component Design – Unreinforced	
	13	T	ASD Component Design – Unreinforced	HW3
	15	R	**QUIZ #1**	
	20	T	ASD Component Design – Reinforced	
	22	R	ASD Component Design – Reinforced	HW4
	27	T	ASD Component Design – Bearing & Connections	HW5
	29	R	Masonry Building Design Introduction	
Oct.	04	T	Building Design: Loads and Distribution	HW6
	06	R	Building Design: Out-of-Plane Loads	
	11	T	Building Design: In-Plane Loads	
	13	R	Building Design: Bearing and Connections	HW7
	18	T	**Mid-Term Exam** / Design Project Assigned	
	20	R	Repair & Strengthening Existing Masonry	
	25	T	Repair & Strengthening Existing Masonry	
	27	R	Repair & Strengthening Existing Masonry	HW8
Nov.	01	T	SD Component Design – Unreinforced	
	03	R	SD Component Design – Unreinforced	HW9
	08	T	SD Component Design – Reinforced	
	10	R	SD Component Design – Reinforced	HW10
	15	T	SD Component Design – Bearing & Connections	HW11
	17	R	**QUIZ #2**	
	22	T	**Thanksgiving Holiday**	
	24	R	**Thanksgiving Holiday**	
	29	T	Structural Masonry Software	
Dec.	01	R	Simplified Masonry Building Design	HW12
	08	T	Design Project Presentations	
	10	R	Design Project Presentations / Final Exam Review	
	15	R	**Final Exam**	

**** Due dates to be announced. Assignments may also include in-class activities as needed.***

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Effective Year: 2012
Effective Term: Summer ☐ Fall ☐ Spring ☒

EC File # 2339-Sp2011-NE-301

Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Mining and Nuclear Engineering

Discipline and Course Number: NE-301

Course Title: Radiochemistry and Nuclear Forensics

Abbreviated Title *(24 spaces or less)*: Radiochemistry

Instructor(s): Carlos H. Castano, Muthanna Al-Dahhan, Shoaib Usman, Hyoung Lee

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

Prerequisites: Chem 1, Chem 2

Semester(s) previously taught: None

Brief Course Description: (40 words or less)
This course provides an overview of radiochemistry and nuclear forensics including properties of radiations, the effect of radiation interaction with matter and biological systems, the use of radioactive tracers, the chemistry and separation of radioactive species, and a survey of environmental radioactivity, and the spread of radioisotopes in the environment. Attribution and traficking.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.
1) [redacted] **2)** [redacted] **3)** [redacted]

4) **5)** **6)**

Department Chair: Arvind Kumar (Chair Signature) Date: 3/8/11

Discipline Specific Curricula Committee: Steve Wakhisi (Chair signature) Date: 4/8/11

Curricula Committee: _____ (Chair Signature) Date: _____

03/08/11

(Revised 10/12/2010)

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Effective Year: 2011
Effective Term: Summer ☒ Fall ☐ Spring ☐

EC File # 2340-SS2011-BioSci-301

Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Biological Sciences

Discipline and Course Number: Bio Sci 201

Course Title: Vegetation of the Ozarks

Abbreviated Title *(24 spaces or less)*: Vegetation of the Ozarks

Instructor(s): Justin Thomas

Credit Hours: **Lecture:** 1 **Lab:** 1 **Total:** 2

Prerequisites: ~~General Biology (Biol 110) or Principles of Biology (Biol 111)~~
Bio Sci 110 OR Bio Sci 111

Semester(s) previously taught: new

Brief Course Description: (40 words or less)
Field-based class introducing the common and characteristic plants that define the different natural communities in the Ozarks. Class runs from 8:00 until 5:00 pm for one week. Mornings: lecture; Afternoon: field work in the Rolla area.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.
1) **2)** **3)**
4) **5)** **6)**

Department Chair: Robert S Arnstein (Chair Signature) Date: 3/16/11

Discipline Specific Curricula Committee: Daniel Potts (Chair signature) Date: 4/8/2011

Curricula Committee: _____ (Chair Signature) Date: _____

(Revised 10/12/2010)

03/16/11

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Effective Year: 2011
Effective Term: Summer ☐ Fall ☒ Spring ☐

EC File # 2341-FS2011-Chem-401

Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: Chemistry

Discipline and Course Number: Chem 401

Course Title: Nuclear Magnetic Resonance Spectroscopy and Imaging

Abbreviated Title *(24 spaces or less)*: NMR Spectroscopy/Imaging

Instructor(s): Rex E. Gerald II

Credit Hours: **Lecture:** 2 **Lab:** 1 **Total:** 3

Prerequisites: CHEM 251

Semester(s) previously taught: N/A

Brief Course Description: (40 words or less)

~~Basic~~ FUNDAMENTAL 1D & 2D NMR spectroscopy AND imaging ~~theory and application.~~ INCLUDING: CHEMICAL SHIELDING, NUCLEAR QUADRUPOLE INTERACTION, DIPOLAR COUPLING, J-COUPLING, SPIN RELAXATION, SPIN DECOUPLING, POLARIZATION TRANSFER, HOMO- AND HETERONUCLEAR SPIN CORRELATIONS, SPIN EXCHANGE, SPIN ECHOES, PROJECTION-RECONSTRUCTION IMAGING, ROTATING-FRAME IMAGING, AND DIFFUSION MEASUREMENTS.

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

1) **2)** **3)**

4) **5)** **6)**

Department Chair: _____ (Chair Signature) Date: 3-22-2011

Discipline Specific Curricula Committee: Daniel Foutz (Chair signature) Date: 4/8/2011

Curricula Committee: _____ (Chair Signature) Date: _____

03/21/11

(Revised 10/12/2010)

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Effective Year: 2011
Effective Term: Summer ☐ Fall ☒ Spring ☐

EC File # 2342-F3 2011-Speech-201

Experimental Course Form (EC)

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

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

An EC form must be submitted each semester it is to be offered, not to exceed two offerings. An experimental course that is required should be submitted on a CC form. *Co-listed offerings should be submitted on one form, originating from the primary discipline.*

Department: ALP

Discipline and Course Number: SPM 201

Course Title: Environmental Communication & the Public Sphere

Abbreviated Title *(24 spaces or less)*: Environ Comm Publ Sphere

Instructor(s): Plazza, Joy

Credit Hours: **Lecture:** 3 **Lab:** **Total:** 3

Prerequisites: SPM 085 or SPM 181 or Permission of Instructor

Semester(s) previously taught:

Brief Course Description: (40 words or less)
Explores communication messages, methods, processes, particpants, and stakeholders in addressing environmental controversies aimed to protect wilderness, natural resources, health, consumers, citizens, producers, retailers, and global climate in struggles to achieve a more just and sustainable world.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.
1) **2)** **3)**

4) **5)** **6)**

Department Chair: _____ (Chair Signature) Date: 3/24/2011

Discipline Specific Curricula Committee: _____ (Chair signature) Date: 4/5/2011

Curricula Committee: _____ (Chair Signature) Date: _____

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Effective Year: 2011
Effective Term: Summer ☐ Fall ☒ Spring ☐

EC File # 2343-FS2011-ExpEng-301

Experimental Course Form (EC)

An EC form must be submitted before an experimental course is to be offered. EC forms approved SP2009 or later allow the course to be offered twice at any time during the following three year period. After an experimental course has been offered twice, a CC form may be submitted to request a permanent course number.

A new course that is required as part of a degree program, minor, or graduate certificate may be submitted on a CC form to receive a permanent course number

Co-listed offerings should be submitted on one form, originating from the primary discipline.

Department: ~~Mining~~ Mining & Nuclear Engineering

Discipline and Course Number: ExpEng 301

Course Title: Commercial display fireworks manufacturing

Abbreviated Title *(24 spaces or less)*: Fireworks Manufacturing

Instructor(s): Dwayne Lloyd

Credit Hours: **Lecture:** 1 **Lab:** 2 **Total:** 3

Prerequisites: Chem 4 and junior standing

Semester(s) previously taught:

Brief Course Description: (40 words or less)
The theory and practice of manufacturing commerical display fireworks. Focus on safety, chemical interaction, Color development, and basic theory. Hands on building of canister and ball shells. Production of Mines, comets, and other pyrotechnic effects. Instruction on BATFE and state law.

List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.
1) **2)** **3)**
4) **5)** **6)**

Department Chair: _____ Date: 04/07/11
(Chair Signature)

Discipline Specific Curricula Committee: _____ Date: 4/8/11
(Chair signature)

Curricula Committee: _____ Date: _____
(Chair Signature)

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MISSOURI S&T

MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Formerly University of Missouri-Rolla

To : Campus Curriculum Committee

Dewayne Lloyd of Lloyd Pyrotechnics (a venture funded by Premier Pyrotechnics of Richland MO.) is giving a course on the manufacturing of display fireworks in the September – August Time frame. I have been talking to Dewayne for two years now about offering a course and he hosts both our commercial pyrotechnics class for a couple of hours and our explosives summer camps. (He has held off until he finished remodeling his house for his wife, which now is apparently near completion). We are hoping to grow this class to the premier class on display fireworks manufacturing in the US and revive the "art".

Lloyd Pyrotechnics is a small company one of only two display fireworks manufacturing companies in Missouri, with less than a dozen display fireworks manufacturing companies in the United States. The industry in the past has been pushed out by cheap Chinese competition and the survivors focus on high end shells of substantial quality. Lloyd Pyrotechnics is a relatively new company and has had some success with its innovative approaches to new technology, and with shipping restrictions on large display fireworks we are starting to see a revival of the American fireworks manufacturing industry.

We have keen interest from our pyrotechnics students, who have repeatedly requested the class for some time now, and it complements our current very successful commercial pyrotechnics class lead by Matt Sutcliffe, President of Premier Pyrotechnics. The class will be the college credit offering of the course and it is anticipated that it will be 5 to 6 days long and run over a weekend. The course will be offered through Distance and Continuing Education as an offsite course. I will be working with Mr. Lloyd and one of our master's students on the framework of the course to make sure it meets S&T standards. Mr. Lloyd is very knowledgeable in the subject area and has turned his life's passion into a growing business. He is a natural instructor and has demonstrated the ability to captivate our students.

Respectfully

Professor Paul Worsey
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