



MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Formerly University of Missouri-Rolla

Agenda
Campus Curricula Committee Meeting
May 2, 2012
12 p.m. Room 117 Fulton Hall

Approval of the April 11, 2012 minutes.

Review of submitted DC forms:

DC 0410, Explosives Engineering, Minor, effective Fall 2012. A proposal to modify the current course requirements for the minor in Explosives Engineering.

DC 0411, Explosives Engineering, Emphasis, effective Fall 2012. A proposal to modify the current requirements for the emphasis area in Explosives Engineering.

DC 0416, Computer Science, Bachelor of Science, effective Fall 2012.

DC 0422, Information Science and Technology, Master of Science, effective Fall 2012

Review of submitted CC forms:

CC 8204, Explosives Engineering 407, Mining Engineering 407, Theory of High Explosives, effective Fall 2012.

CC 8205, Explosives Engineering 305, Explosives Handling and Safety, effective Fall 2012.

CC 8206, Mining Engineering 305, Explosives Handling and Safety, effective Fall 2012.

CC 8207, Explosives Engineering 309, Commercial Pyrotechnics Operations, effective Fall 2012.

CC 8208, Mining Engineering 309, Commercial Pyrotechnics Operations, effective Fall 2012.

CC 8209, Explosives Engineering 313, Stage Pyrotechnics and Special Effects, effective Fall 2012.

CC 8210, Mining Engineering 313, Stage Pyrotechnics and Special Effects, effective Fall 2012.



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CC 8211, Explosives Engineering 351, Demolition of Buildings and Structures, effective Fall 2012.

CC 8212, Mining Engineering 351, Explosives Engineering 351, Demolition of Buildings and Structures, effective Fall 2012.

CC 8213, Explosives Engineering 406, Scientific Instrumentation for Explosives Testing & Blasting, effective Fall 2012.

CC 8213, Mining Engineering 406, Scientific Instrumentation for Explosives Testing & Blasting, effective Fall 2012.

CC 8215, Mining Engineering 407, Explosives Engineering 407, Theory of High Explosives, effective Fall 2012.

CC 8216, Explosives Engineering 408, Regulatory Issues in the Explosives Industry, effective Summer 2012.

CC 8240, Mechanical Engineering 363, Principles and Practice of Computer Aided Design, effective Fall 2012.

CC 8241, Psychology 410, Seminar in Industrial/Organizational Psychology, effective Fall 2013.

CC 8242, Civil Engineering 424, Structural dynamics and Earthquake Engineering, effective Spring 2013.

CC 8243, Civil Engineering 384, Architectural Engineering 384, Structural Dynamics, effective Fall 2012.

Review of submitted EC forms:

EC 2394, Explosives Engineering 301, Military Demolition for Combat Engineers, effective Summer 2012.

EC 2408, Physics 401, Special Topics in Atomic, Molecular, and Optical Physics, effective Fall 2012.

EC 2409, Architectural Engineering 401, Sensing and Control in the Built Environment, effective Fall 2012.



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EC 2410, Philosophy 301, Epistemology: Knowledge and Justification, effective Fall 2012.

EC 2412, Biological Sciences 301, Introduction to Astrobiology, effective Spring 2013.

Tabled Items:

CC 8185, Geology 344, Remote Sensing Technology, effective Fall 2012. **Tabled**

CC 8232, Technical Communication 311, International Dimensions of Technical Communication. **Tabled.**



MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Formerly University of Missouri-Rolla

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

(Creating or modifying a degree program must be effective for a Fall term)

DC # 0410-2011-Min Eng-00-00

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 Explosives Engineering

Department: Mining and Nuclear Engineering**Briefly describe action requested (Attach documentation as appropriate):**

Request to change to course requirements in the catalog description of both undergraduate and graduate minors in explosives engineering to:

The following courses are required for the Minor in Explosives Engineering:

Min Eng 307 - Principles of Explosives Engineering

Min Eng 350 - Blasting Design and Technology

Three other explosives related courses as approved by program coordinator

and then remove the following paragraph completely:

Min Eng 390-Research or Min Eng 301-Demolition of Buildings and Structures (permanent number coming after two offerings), may be substituted for Min Eng 309 or Min Eng 383. The list of explosives courses will be expanded in the future in order to give students more flexibility in selecting courses.

Recommended by Department:


(Chair signature)

Date: 12/12/11

Recommended by Discipline Specific Curricula Committee:

(Chair signature)

Date: _____

Approved by Curricula Committee:

(Chair signature)

Date: _____

Approved by Faculty Senate:

(Chair signature)

Date: _____

212 — Mining Engineering

physical sciences may also qualify for the Minor in Mining Engineering or Explosives Engineering with the approval of the Department and based on an individually designed program of study. Students will need to consult with the Chair of the Mining Engineering Program to determine pre-requisite requirements for each course. The program granting the Bachelor of Science degree shall determine whether or not courses taken for the Mining Engineering Minor or Explosives Engineering Minor may also be used to fulfill the requirements of the B.S. degree from that program.

The following courses are required for the Minor in Mining Engineering:

- Mi Eng 221-Mining Exploration
- Mi Eng 324-Underground Mining Methods & Equipment
- Mi Eng 326-Surface Mining Methods & Equipment

Two other Mi Eng 200- or 300- level lecture courses (3 credit hours), or relevant courses from other disciplines, as approved, must be taken to match the student's area of emphasis in Mining Engineering. The following areas of emphasis may be pursued:

Explosives Engineering; Quarrying; Mineral Economics; Mining-Environmental; Mining-Equipment; Mining-Geo-technical; Mining-Health and Safety; Mining Operations Management; Mining-Tunneling; Sustainable Development; Surface Mining; Underground Mining.

The Minor in Mining Engineering is not accredited by the Accreditation Board of Engineering and Technology (ABET).

Minor in Mineral Process Engineering

The Minor in Mineral Process Engineering provides an in-depth study of the fundamental theories and applications of mineral and coal processing and aggregate materials sizing and classification. Any student who receives a Bachelor of Science degree in an accredited engineering program from Missouri S&T may also receive the Minor in Mineral Process Engineering by completing 15 credit hours in this specialty. The B.S. degree granting program shall determine whether or not courses taken for the Minor in Mineral Process Engineering may also be used to fulfill the requirements of the B.S. degree from that program.

The following courses are required for the Minor in Mineral Process Engineering:

- Mi Eng 241-Principles of Mineral Processing
- Mi Eng 344-Coal Preparation
- Mi Eng 303-Aggregate Materials Sizing and Classification
- Mi Eng 352-Mineral Processing I
- Mi Eng 353-Mineral Processing II

Minor in Explosives Engineering

The Department of Mining & Nuclear Engineering, Mining Engineering Program, realizing the attractiveness of explosives engineering to students, the potential for jobs in the area (post 9-11), and the use of over 6 billion pounds of explosives in mining, tunneling, construction, and other areas, is offering a Minor in Explosives Engineering so that students interested in explosives engineering have a chance to attain in-depth knowledge of the sub-discipline.

A student who received a Bachelor of Science degree in an accredited engineering program from Missouri S&T may receive the Minor in Explosives Engineering by completing 15 credit hours from the courses listed below. Non-engineering students who have a strong background in mathematics and the physical sciences may also qualify for the Minor in Explosives Engineering, with the approval of the Department and based on an individually designed program of study. Students need to consult with the Chair of the Mining Engineering Program to determine pre-requisite requirements for each course. The program granting the Bachelor of Science degree shall determine whether or not courses taken for the Explosives Engineering Minor may also be used to fulfill the requirements of the B.S. degree from that program.

The following courses are required for the Minor in Explosives Engineering:

- Mi Eng 307-Principles of Explosives Engineering
- Mi Eng 309-Commercial Pyrotechnics Operations
- Mi Eng 350-Drilling and Blasting
- Mi Eng 383-Tunneling and Underground Construction
- One other related course as approved by program coordinator.

Min Eng 390-Research or Min Eng 301-Demolition of Building and Structures (permanent number coming after two offerings), may be substituted for Min Eng 309 or Min Eng 383. The list of explosives courses will be expanded in the future in order to give students more flexibility in selecting courses.

The Minor in Explosives Engineering is not accredited by the Accreditation Board of Engineering and Technology (ABET).

Mining Health and Safety Emphasis

Junior and Senior Years

- A) Mi Eng 202 (Mine Rescue) or approved substitute course in lieu of Technical Elective.
- B) Eng Mgt 311 (Human Factors) or approved substitute course in lieu of Technical Elective.

Sustainable Development Emphasis

Junior and Senior Years

- A) Pol Sci 315 (Public Policy Analysis) or approved substitute course in lieu of Technical Elective.
- B) Econ 340 (Environmental and Natural Resource Economics) or approved substitute course in lieu of Technical Elective.

Quarrying Engineering Emphasis

Senior year

- A) Cv Eng 216 (Construction Materials) in lieu of Technical Elective.
- B) Mi Eng 304 (Advanced Aggregate and Quarrying) in lieu of Technical Elective.

Explosives Engineering Emphasis

Junior and Senior Years

Effective Year: 2012

Effective Term: Summer ☐ Fall ☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

DC # 0410-2011-ExpEng-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:

Explosives Engineering Emphasis

Department: Mining and Nuclear Engineering

Briefly describe action requested (Attach documentation as appropriate):

Request to change undergraduate catalog description of the explosives engineering emphasis from:

Present:

Junior and Senior Years

A) Choose one of the following courses in lieu of Technical Elective in Junior year: Mi Eng 309 (Commercial Pyrotechnics Operations), 383 (Tunneling/Construction), Ge Eng 371 (Rock Engineering) or Mi Eng 300, 301, or 390 (Special Problems, Special Topics/Experimental Courses and Mining Research all in an explosives area).

B) Mi Eng 350 (Blasting Design & Technology) in lieu of Technical Elective in Senior Year

to Proposed:

Junior and Senior Years

A) Choose one of the following courses in lieu of Technical Elective in Junior year: A 3-hour Explosives Engineering class or Min Eng 383 (Tunneling & Underground Construction Techniques) or Ge Eng 371 (Rock Engineering).

B) Min Eng 350 (Blasting Design & Technology) in lieu of Technical Elective in Senior Year

Recommended by Department:



(Chair signature)

Date: 12/12/11

Recommended by Discipline Specific Curricula Committee:

(Chair signature)

Date: _____

Approved by Curricula Committee:

(Chair signature)

Date: _____

Approved by Faculty Senate:

(Chair signature)

Date: _____

Mining Engineering — 213

- A)** Choose one of the following courses in lieu of Technical Elective in Junior year: ~~Mi Eng 309 (Commercial Pyrotechnics Operations), 383 (Tunneling/Construction), Ge Eng 371 (Rock Engineering), or Mi Eng 306, 301, or 390 (special problems, special topics/experimental courses and mining research all in an explosives area).~~
- B)** Mi Eng 350 (Blasting Design & Technology) in lieu of Technical Elective in Senior Year

Coal Emphasis

Junior and Senior Years

- A)** Mi Eng 343 (Coal Mine Development and Production) in lieu of Technical Elective.
- B)** Mi Eng 311 (Mine Plant Management) or approved substitute course in lieu of Technical Elective.

Mining and the Environment Emphasis

Junior and Senior Years

- A)** Geol Eng 235 (Environmental Geoscience) or an approved substitute course in lieu of Technical Elective.
- B)** Geol Eng 333 (Risk Assessment in Environmental Studies) or an approved substitute course in lieu of Technical Elective.

Undergraduate Certificate in Explosives Engineering

This certificate program is designed to provide formalized education in the area of Explosives Engineering.

Students will be exposed to the theoretical and practical approaches of explosives engineering. Students will be exposed to the analysis and design of explosive-related systems and both natural and built structure effects.

The Explosives Engineering Certificate Program is open to all persons holding a High School Diploma who have a minimum of 12-months of post-H.S. professional employment or college experience.

Once admitted to the program, the student must take four designated courses as given below. In order to receive an undergraduate Certificate, the student must have an average cumulative grade of 2.0 or better in the certificate courses.

Students admitted to the Certificate program will have non-matriculated status; however, if they complete the four course sequence with a grade of B or better in each of the courses taken, they may apply to the B.S. Mining Engineering program if they so choose. The Certificate credits taken by students admitted to the B.S. program may be eligible to count toward their bachelors Degrees depending on the degree requirements. Prerequisite courses outside of those in this certificate program may be waived at the discretion of the administrative co-coordinators for persons that are not regular Missouri S&T students.

Once admitted to the program, a student will be given three years to complete the program so long as he/she maintains a 2.0 GPA in the courses taken. Required courses:

- Mi Eng 307-Principles of Explosives Engineering
- Mi Eng 350-Blasting Design and Technology

Two of the following courses are required:

- Mi Eng 301-Demolition of Buildings & Structures
- Mi Eng 309-Commercial Pyrotechnics Operations
- Mi Eng 383-Tunneling & Underground Construction
- Mi Eng 390-Research (Explosives Engineering related)
- Mi Eng 300-Special Problems (1. Explosives Engineering related. 2. At discretion of coordinators)

Other courses approved by the explosives engineering faculty may be substituted for any of the above listed courses on a case-by-case basis.

Students with a GPA of 3.0 in the certificate program may take postgraduate explosives classes as electives.

Mining Engineering Courses

- 3 Principles Of Mining Engineering (LEC 1.0)** Principles and definitions related to mining engineering including one or more field trips to familiarize the student with current mining practices.
- 50 Computing In Mining Engineering (LAB 1.0)** Basic software needed by mining engineers for computer applications in various phases of mine planning, development, and operations will be covered. The overarching goal is developing early familiarity with relevant software so it can be integrated across mining engineering courses.
- 110 Surveying For Mineral Engineers (LAB 2.0)** Principles of surface and underground survey practice utilizing total station, engineer's level and GPS. Traversing and details, note taking and computations, balancing surveys and error analysis, staking-out new points, and map construction with AutoCAD. Prerequisites: Math 6, accompanied or preceded by Min Eng 3 and Min Eng 50.
- 151 Introduction To Mining Safety (LAB 1.0)** Instruction in the safety aspects of mining accordance with the MSHA Training Program required for all new miners. Subjects include self-rescue and respiratory protection, ground control, hazard recognition, mine gases, and legal aspects associated with mining. Prerequisite: Accompanied or preceded by Mi Eng 3.
- 200 Special Problems (IND 0.0-6.0)** Problems or readings on specific subjects or projects in the department. Consent of instructor required.
- 201 Special Topics (Variable 0.0-6.0)** This course is designed to give the department an opportunity to test a new course. Variable title.
- 202 Mine Rescue (LEC 2.0 and LAB 1.0)** Utilization of the principles of mine safety concerning mine gases, ventilation, explosives, fires, and first aid in the organization of mine rescue personnel and techniques. Training in the use of current mine rescue equipment, recognition and control of common recovery hazards, handling of survivors. Prerequisite: Mi Eng 151.

Effective Year: 2012

Effective Term: Summer ☐ Fall ☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

DC # 0416-2012-CS-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:

BS in Computer Science

Department: Computer Science**Briefly describe action requested (Attach documentation as appropriate):**

- (1) Lower the number of CS elective credit hours that have to be taken at the 300 or higher level from the current 12 to 9,
- (2) limit the total number of non-lecture course credit hours that count towards CS electives to six, and
- (3) disallow CS 317 to count as a CS elective,

by changing footnote 9 in the 2011-2013 Undergraduate Catalog, which currently reads:

Fifteen hours are CS electives. At least twelve hours must be 300 level or higher CS courses (excluding CS 398 and CS 317). CS 202 and CS X7X courses are not accepted as CS electives.

to:

Fifteen hours of elective CS courses excluding CS 202, CS 317, and CS X7X courses. At least nine hours must be 300 level or higher, excluding CS 398. At least nine hours must be lecture courses.

Recommended by Department: _____

(Chair signature)

Date: March 5, 2012

Recommended by: _____

Discipline Specific Curricula Committee

(Chair signature)

Date: 4/12/2012

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

03/05/12

(Revised 9/12/2011)

Effective Year: ²⁰¹²~~2013~~Effective Term: Summer ☐ Fall ☒ Spring ☐

(Creating or modifying a degree program must be effective for a Fall term)

DC # 0422-2012-IST-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:

M.S. in Information Science and Technology

Department: Business & Information Technology**Briefly describe action requested (Attach documentation as appropriate):**

The purpose of this form is to provide updated material for the Graduate Catalog. The changes were previously made via corrections to the catalog, but not via a DC Form.

They reflect changed degree requirements for 15 hours of 400-level courses (12 for thesis).

Degree Requirements

M.S. with Thesis: The M.S. degree with thesis requires the completion of 24 hours of graduate course work (a minimum of 12 at the 400 level), 6 hours of research (IST 490), and the successful completion and defense of a research thesis.

M.S. without Thesis: The M.S. degree without thesis requires the completion of 30 hours of graduate course work (a minimum of 15 at the 400 level).

The following core courses are required of all M.S. students in Information Science and Technology. These courses are designated to ensure that all IST masters students study the four information systems perspectives of networks and web design, human perception, application implementation, and organizational systems.

- IST 351 Leadership in Technology-Based Organizations
- IST 385 Human-Computer Interaction
- IST 436 Foundations of Internet Computing
- IST 461 Information Systems Project Management

Recommended by Department: _____

(Chair signature)

Date: _____

Recommended by: _____

Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8204-2011-ExpEng-407-32

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Exp Eng 407 Proposed:

3. Course Title: Present: Theory of High Explosives
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: Study of the application of chemical thermodynamics and the hydrodynamic theory to determine the properties of high explosives; application of detonation theory to steady-state detonations in real explosives; application of the above to the blasting action of explosives.
(Co-listed with Min Eng 407)

Proposed:

5. If course requires field trip check box: ☐6. Credit Hours: Present: Lecture: 3 Lab: Total: 3
Proposed: Lecture: Lab: Total:

7. Prerequisites:

Present: Min Eng 307, Successful background check.

Proposed: Successful background check.

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

9. Justification: Min Eng 307 has been removed as a prerequisite as it is not needed to be able to successfully pass 407.

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) MinEng 407 2)

3)

4) 5)

Recommended by Department



Date: 12/14/11

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

(Revised 1/29/09)

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8205-2011-ExpEng-305-32

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Exp Eng 305 Proposed:

3. Course Title: Present: Explosives Handling and Safety
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: Basic handling & safety for explosives, explosive devices and ordnance related to laboratory handling, testing, manufacturing & storage, for both civil and defense applications. For "credit offering" of the S&T Explosives Handling & Safety Industrial Short Course. (Co-listed with Min Eng 305)

Proposed: Basic handling & safety for explosives, explosive devices and ordnance related to laboratory handling, testing, manufacturing & storage, for both civil and defense applications.
Prerequisites: Min Eng 151, Exp Eng 307, successful background check.5. If course requires field trip check box: ☐

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

7. Prerequisites:

Present: Min Eng 151, Min Eng 307, Successful background check

Proposed: Min Eng 151, Exp Eng 307, successful background check.

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 305 is not pertinent to mining so will continue as Exp Eng only. The prereqs and catalog description have also been updated.

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) NONE 2) 3)

4) 5)

Recommended by Department 

Date: 4/12/11

Recommended by Discipline Specific Curricula Committee

Date: _____

Approved by Curricula Committee:

Date: _____

Approved by Faculty Senate:

Date: _____

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8206-2011-MinEng-305-20

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Min Eng 305

Proposed:

3. Course Title: Present: Explosives Handling and Safety

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: Basic handling & safety for explosives, explosive devices and ordnance related to laboratory handling, testing, manufacturing & storage, for both civil and defense applications. For "credit offering" of the S&T Explosives Handling & Safety Industrial Short Course. (Co-listed with Exp Eng 305)

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours:

Present:

Lecture: 3

Lab:

Total: 3

Proposed:

Lecture:

Lab:

Total:

7. Prerequisites:

Present: Min Eng 151, Min Eng 307, Successful background check

Proposed:

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 305 is not pertinent to mining.

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) ~~Exp Eng 305~~

2)

3)

4)

5)

6)

Recommended by Department

(Chair signature)

Date:

12/12/11

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date:

Approved by Curricula Committee:

(Chair signature)

Date:

Approved by Faculty Senate:

(Chair signature)

Date:

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8207-2011-ExpEng-309-32

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Exp Eng 309 Proposed:

3. Course Title: Present: Commercial Pyrotechnics Operations

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: Provide participants with basic pyrotechnic operator certification (with passing of PGI test) and advanced lead pyrotechnic operator training. Class work will be complemented by practical training in laboratory sessions, culminating in a full pyrotechnic show, from start to finish.

Proposed: Provide participants with training preparing for Missouri Licensed Display Operator (Outdoor) License and advanced lead pyrotechnic operator training. Class work will be complemented by practical training in laboratory sessions, culminating in a full pyrotechnic show, from start to finish.

5. If course requires field trip check box: ☐

6. Credit Hours:	Present:	Lecture: 2	Lab: 1	Total: 3
	Proposed:	Lecture:	Lab:	Total:

7. Prerequisites:

Present: Chem 1, US Citizen or permanent resident (to fulfill the requirements of the SAFE EXPLOSIVES ACT 2003). Resident enrollment at MS&T (e.g. not distance or intern

Proposed: Chem 1, US Citizen or permanent resident, Successful background check, resident enrollment at Missouri S&T. *Chem 1 and Chem 2 or equivalent.*

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 309 is not pertinent to mining so will continue as Exp Eng only. The prerequisites have also been updated.

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) *NONE* 2)

3)

4) 5)

6)

Recommended by Department

(Chair signature)

Date: *12/12/11*

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8208-2011-MinEng-309-32

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Min Eng 309 Proposed:

3. Course Title: Present: Commercial Pyrotechnics Operations

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: Provide participants with basic pyrotechnic operator certification (with passing of PGI test) and advanced lead pyrotechnic operator training. Class work will be complemented by practical training in laboratory sessions, culminating in a full pyrotechnic show, from start to finish.

Proposed:5. If course requires field trip check box: ☐

6. Credit Hours: Present: Lecture: 2 Lab: 1 Total: 3
 Proposed: Lecture: Lab: Total:

7. Prerequisites:

Present: Chem 1. US Citizen or permanent resident (to fulfill the requirements of the SAFE EXPLOSIVES ACT 2003). Resident enrollment at MS&T (e.g. not distance or intern

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 309 is not pertinent to mining.

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) ~~Exp Eng 309~~ 2) 3)

4) 5) 6)

Recommended by Department 

(Chair signature)

Date: 2/2/11

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

(Revised 1/29/09)

Effective Year: 2012

CC File # 8209-2011-ExpEng-313-32

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: Mining and Nuclear Engineering

2. Discipline and Course Number: Present : Exp Eng 313 Proposed:

3. Course Title: Present: Stage Pyrotechnics and Special Effects

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: Use of energetic materials in close proximity to audiences. Provide participants with training preparing for Missouri Pyrotechnics Display Operators License. Covers: close proximity indoor and outdoor pyrotechnics and special effects. Working with stage crews and talent, safety and permitting.

Proposed:5. If course requires field trip check box: ☐

6. Credit Hours:	Present:	Lecture: 1	Lab: 2	Total: 3
	Proposed:	Lecture:	Lab:	Total:

7. Prerequisites:

Present: Chem 1. US Citizen or permanent resident (to fulfill the requirements of the SAFE EXPLOSIVES ACT 2003). Successful background check. Resident enrollment at MS&T

Proposed: Chem 1, US Citizen or permanent resident, Successful background check, resident enrollment at Missouri S&T. *Chem 1 and Chem 2 or equivalent.*

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 313 is not pertinent to mining so will continue as Exp Eng only. The prerequisites have also been updated.

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) *NONE* 2) 3)

4) 5)

Recommended by Department Date: *12/12/11*

Recommended by Discipline Specific Curricula Committee

Date: _____

Approved by Curricula Committee: _____

Date: _____

Approved by Faculty Senate: _____

Date: _____

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8210-2011-MinEng-313-20

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 and Nuclear Engineering2. **Discipline and Course Number:** Present : Min Eng 313 Proposed:3. **Course Title:** Present: Stage Pyrotechnics and Special Effects
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:** Use of energetic materials in close proximity to audiences. Provide participants with training preparing for Missouri Pyrotechnics Display Operators License. Covers: close proximity indoor and outdoor pyrotechnics and special effects. Working with stage crews and talent, safety and permitting.**Proposed:**5. If course requires field trip check box: ☐6. **Credit Hours:** Present: Lecture: 1 Lab: 2 Total: 3
Proposed: Lecture: Lab: Total:7. **Prerequisites:****Present:** Chem 1. US Citizen or permanent resident (to fulfill the requirements of the SAFE EXPLOSIVES ACT 2003). Successful background check. Resident enrollment at MS&T**Proposed:**8. **Required for Majors:** ☐ **Elective for Majors:** ☒9. **Justification:** Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 313 is not pertinent to mining.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) ~~Exp Eng 313~~ 2) 3)

4) 5) 6)

Recommended by Department  _____
(Chair signature)

Date: 12/12/11

Recommended by Discipline Specific Curricula Committee _____
(Chair signature)

Date: _____

Approved by Curricula Committee: _____
(Chair signature)

Date: _____

Approved by Faculty Senate: _____
(Chair signature)

Date: _____

CC File # 8211-2011-Explog-351-32

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: Mining and Nuclear Engineering

2. Discipline and Course Number: Present : Exp Eng 351 Proposed:

3. Course Title: Present: Demolition of Buildings and Structures
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: Provide participants with basics and solid grounding in the equipment, techniques and processes required for the demolition and remediation of mine plant and processing equipment sites and non-mining structures such as buildings, factories, bridges, etc. Field trip required.

Proposed:

5. If course requires field trip check box: ☒

6. Credit Hours: Present: Lecture: 2 Lab: 1 Total: 3
 Proposed: Lecture: Lab: Total:

7. Prerequisites:

Present: Preceded or accompanied by IDE 50 or 140; US citizen or permanent resident;
 *Requirement due to Safe Explosives Act - January 2003; Successful background

Proposed: check, Preceded or accompanied by IDE 50 or 140; US citizen or permanent resident;
 Successful background check.

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 351 is not pertinent to mining so will continue as Exp Eng only. The prerequisites have also been updated.

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) NONE 2) 3)

4) 5) 6)

Recommended by Department 

(Chair signature)

Date: 4/12/11

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

(Revised 1/29/09)

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8212-2011-Min Eng-351-20

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Min Eng 351 Proposed:

3. Course Title: Present: Demolition of Buildings and Structures
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: Provide participants with basics and solid grounding in the equipment, techniques and processes required for the demolition and remediation of mine plant and processing equipment sites and non-mining structures such as buildings, factories, bridges, etc. Field trip required.

Proposed:

5. If course requires field trip check box: ☒6. Credit Hours: Present: Lecture: 2 Lab: 1 Total: 3
Proposed: Lecture: Lab: Total:

7. Prerequisites:

Present: Preceded or accompanied by IDE 50 or 140; US citizen or permanent resident;
*Requirement due to Safe Explosives Act - January 2003; Successful background check.

Proposed:

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

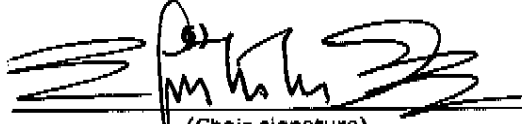
9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 351 is not pertinent to mining.

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) ExpEng 351 2) 3)

4) 5)

Recommended by Department 
(Chair signature)

Date: 4/12/11

Recommended by Discipline Specific Curricula Committee
(Chair signature)

Date: _____

Approved by Curricula Committee: _____
(Chair signature)

Date: _____

Approved by Faculty Senate: _____
(Chair signature)

Date: _____

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8213-2011-Exp Eng-406-31

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Exp Eng 406 Proposed:

3. Course Title: Present: Scientific Instrumentation For Explosives Testing & Blasting
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: Application of scientific principles, equipment description & operation for instrumentation of explosive events including blasting. Topics: Blast chamber design, set up, high-speed photography, motion detection & measurement, explosives sensitivity testing, explosives properties testing, vibration me

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours:	Present:	Lecture: 2	Lab: 1	Total: 3
	Proposed:	Lecture: 1	Lab: 2	Total: 3

7. Prerequisites:

Present: Successful background check.

Proposed: Exp Eng 307, Successful background check.

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 406 is not pertinent to mining so will continue as Exp Eng only. The credit hours and prereqs have also been updated.

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) NONE 2)

3)

4) 5)

6)

Recommended by Department



(Chair signature)

Date: 4/12/12

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee:

(Chair signature)

Date: _____

Approved by Faculty Senate:

(Chair signature)

Date: _____

(Revised 1/29/09)

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8214-2011-MinEng-406-20

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Min Eng 406 Proposed:

3. Course Title: Present: Scientific Instrumentation For Explosives Testing & Blasting
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: Application of scientific principles, equipment description & operation for instrumentation of explosive events including blasting. Topics: Blast chamber design, set up, high-speed photography, motion detection & measurement, explosives sensitivity testing, explosives properties testing, vibration me

Proposed:

5. If course requires field trip check box: ☐6. Credit Hours: Present: Lecture: 2 Lab: 1 Total: 3
Proposed: Lecture: Lab: Total:

7. Prerequisites:

Present: Successful background check.

Proposed:

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

9. Justification: Having Min Eng and Exp Eng designations for the same course is creating a lot of confusion and 406 is not pertinent to mining.

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) ~~Exp Eng 406~~ 2) 3)

4) 5) 6)

Recommended by Department



(Chair signature)

Date: 12/12/11

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

(Revised 1/29/09)

Effective Year: 2012

Term: Summer ☐Fall ☒Spring ☐

CC File # 8215-2011-MinEng-407-32

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 and Nuclear Engineering

2. Discipline and Course Number: Present : Min Eng 407

Proposed:

3. Course Title: Present: Theory of High Explosives

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: Study of the application of chemical thermodynamics and the hydrodynamic theory to determine the properties of high explosives; application of detonation theory to steady-state detonations in real explosives; application of the above to the blasting action of explosives. (Co-listed with Exp Eng 407)

Proposed:

5. If course requires field trip check box: ☐

6. Credit Hours:

Present:

Lecture: 3

Lab:

Total: 3

Proposed:

Lecture:

Lab:

Total:

7. Prerequisites:

Present: Min Eng 307, Successful background check.

Proposed: Successful background check. Graduate Standing or consent of instructor.

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

9. Justification: Min Eng 307 has been removed as a prerequisite as it is not needed to be able to successfully pass 407.

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) ExpEng 407

2)

3)

4)

5)

6)

Recommended by Department



(Chair signature)

Date:

12/12/11

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date:

Approved by Curricula Committee:

(Chair signature)

Date:

Approved by Faculty Senate:

(Chair signature)

Date:

Effective Year: 2012

Term: Summer ☒ Fall ☐ Spring ☐

CC File # 8216-2011-ExpEng-408-10

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: Mining and Nuclear Engineering

2. Discipline and Course Number: Present : ExpEng 401 Proposed: ExpEng 408

3. Course Title: Present: Regulatory Issues in the Explosives Industry

Proposed:

Abbreviated Course Title: Explosives Regulations

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

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

Present: Comprehensive coverage of the regulations governing the explosives industry, including those of the Office of Surface Mining, the Bureau of Alcohol, Tobacco, Firearms and Explosives, the Department of Transportation (DOT), the Environmental Protection Agency (EPA) and state regulations.

Proposed: Comprehensive coverage of the federal regulations governing the explosives industry, including those governing storage of explosives (ATF), transportation of explosives (DOT and TSA), the environment (EPA) and use of explosives (OSM, MSHA & OSHA).

5. If course requires field trip check box: ☐

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

Proposed: Lecture: Lab: Total:

7. Prerequisites:

Present:

Proposed: Graduate Standing or consent of instructor.

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

9. Justification: The MS in Explosives Engineering is designed to ensure that graduates will have the competencies employers are looking for, especially the advanced skills needed to move quickly into managerial positions. One of the skills required by graduates entering the industry is knowledge of the various regulations governing the explosives industry. Currently there is no course covering these regulations.

10. Semesters

previously offered as an experimental course (101, 201, 301, 401): 401 in SS11 and FS11

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: 12/12/11

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee:

(Chair signature)

Date: _____

Approved by Faculty Senate:

(Chair signature)

Date: _____

(Revised 1/29/09)

Effective Year: 2012

Term: Summer ☐ Fall ☒ Spring ☐

CC File # 8240-2012-ME-363-32

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: Mechanical Engineering

2. Discipline and Course Number: Present : Mc Eng 363

Proposed:

3. Course Title: Present: Principles and Practice of Computer Aided 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: Fundamentals of computer-aided design including geometric modeling, CAD data exchange, graphics concepts, and finite element analysis. Projects include basic graphics, matrix algebra, automated drafting, freeform curve and surface modeling, solid modeling, assembly modeling, and finite element model

Proposed: This course introduces the fundamentals of computer-aided design with emphasis on mathematical representations of curves and surfaces, modeling of solids, and graphic displays. Students will also practice with commercial CAD/CAM packages to gain experiences and to help grasp fundamentals.

5. If course requires field trip check box: ☐

6. Credit Hours:

Present:

Lecture: 2

Lab: 1

Total: 3

Proposed:

Lecture:

Lab:

Total:

7. Prerequisites:

Present: Cmp Sc 73, 77, Mc Eng 211, 208

Proposed: Cmp Sc 53 or 73 or 74, Mc Eng 161, at least junior standing

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

9. Justification: The proposed changes of prerequisites and catalog description more accurately reflect the prerequisites needed for this course and what has been covered in this course in the past few years.

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: 2/16/2012

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee:

(Chair signature)

Date: _____

Approved by Faculty Senate:

(Chair signature)

Date: _____

(Revised 1/29/09)

CC File # *8241-2012-Psych-410-10*

Effective Year: 2013

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: Psychological Science

2. Discipline and Course Number: Present: 401

Proposed: 410

3. Course Title: Present: Seminar in Industrial/Organizational Psychology

Proposed: Seminar in Industrial/Organizational Psychology

Abbreviated Course Title: I/O Psychology

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

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

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

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

5. If course requires field trip check box: ☐

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

Proposed: Lecture: 3 Lab: Total: 3

7. Prerequisites:

Present: None

Proposed: 9 hours of psychology and/or instructor consent

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

9. Justification: This course has been taught for two semesters; Fall 2009 and Fall 2011.
This course is part of our proposed master's program

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

Nancy Stone

(Chair signature)

Recommended by Discipline Specific Curricula Committee

Ray Hildebert

(Chair signature)

Approved by Curricula Committee:

(Chair signature)

Approved by Faculty Senate:

(Chair signature)

Date:

2/20/12

Date:

3/13/2012

Date:

Date:

*delivered
marked
1
2/20/12*

CC File # 8242-2012-CE-424-32

CC File # *8243-2012-CE-384-10*

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: CAE

2. Discipline and Course Number: Present: ~~301~~

Proposed: 384

3. Course Title: Present:

Proposed: Structural Dynamics

Abbreviated Course Title: Structural Dynamics

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

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

Present:

Proposed: This course deals with fundamental concepts and structural responses under dynamic loads. Both hand calculations and computer methods are developed. Specific topics include resonance, beating phenomenon, equation of motion, dynamic properties, frequencies and mode shapes, modal and Ritz analyses

5. If course requires field trip check box: ☐

6. Credit Hours:	Present:	Lecture:	Lab:	Total:
	Proposed:	Lecture: 3.0	Lab: 0.0	Total: 3.0

7. Prerequisites:

Present:

Proposed: IDE150, CE/Arch217, or equivalent

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

9. Justification: This course has been taught twice with significant enrollments (more than 10 students) each offer. It is an elective course listed for structures program, architectural engineering program, and structures contemporary certificate program.

10. Semesters previously offered as an experimental course (101, 201, 301, 401): WS08 and WS10

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

1) Arch384 2) 3)

4) 5)

Recommended by Department *M. Shively*

(Chair signature)

Date: 2/29/12

Recommended by Discipline Specific Curricula Committee

(Chair signature)

Date: _____

Approved by Curricula Committee: _____

(Chair signature)

Date: _____

Approved by Faculty Senate: _____

(Chair signature)

Date: _____

(Revised 1/29/09)

Effective Year: 2012

Effective Term: Summer ☒ Fall ☐ Spring ☐

EC File # 2394-SS2012-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 & Nuclear Engineering

Discipline and Course Number: ExpEng 301

Course Title: Military Demolition for Combat Engineers

Abbreviated Title (24 spaces or less): Military Demolition

Instructor(s): Dr. Paul Worsey & US Army Engineers School cadre

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

Prerequisites: Active US military, graduate standing. Consent of instructor required.
"Successful completion of the USAES Officers Demolition Training"

Semester(s) previously taught: N/A

Brief Course Description: (40 words or less)

Into to demolition, safety and firing circuits. Charge calculations for timber, steel, breaching, cratering and urban breaching, Explosives properties and the field expedient use of civilian explosives and initiation systems. Taught in conjunction with USAES. Only offered at Ft. Wood for Ft. Wood students.

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: 12/21/11

Discipline Specific Curricula Committee: _____

(Chair signature)

Date: _____

Curricula Committee: _____

(Chair Signature)

Date: _____

Background, Description and Justification for Exp Eng 301 – Military Demolition.

The Masters in Explosives Engineering is growing at healthy rate and we are trying to tap into the considerable market for engineering graduate students at Fort Leonard Wood, especially with respect to the US Army Engineers. We already have 3 US Army engineers actively enrolled in the graduate explosives engineering program and have another two accepted and due to start Spring semester 2012. We have considerable interest from the higher officers at the fort including outgoing General Watson.

S&T currently has a MOU with the Engineers School for Officers returning for the Captains Career Course. Suitably qualified officers may currently take graduate classes and obtain graduate qualifications from S&T in Civil and Geological Engineering, and Engineering Management. We would like to extend this to Explosives Engineering which is an obvious match. A number of currently offered classes involve giving credit for coursework taken at the Engineering School in conjunction with added instruction from S&T faculty. Typically in this scenario, 2 hrs. are given for USAEC instruction with 1 hr. of S&T instruction added for a 3 credit hour class. In addition special classes have been tailored for the engineering officers including Geological Engineering 342 – Military Geology.

Extensive discussions have occurred with Colonel Huszar, Director of Instruction (Directorate of Training and Leader Development, U.S. Army Engineer School), who is in charge of both the LT and CPT Engineer training courses, regarding the offering of explosives classes in a similar manner to those offered by Civil, GE and EMan. These discussions have been specifically related to explosives. I have been given access to their Demolitions training materials for the purpose of review and have spent a week attending their demolitions class first hand (between Saturday 10th Friday 16th of December). From careful examination of their demolitions class, syllabus and materials, I have concluded that it encompasses 2.2 credit hours of material suitable for graduate level and that approximately 1 credit hour of material needs to be added to make a full 3 credit hour class. I intend to bring to the table material which will provide extra depth and abilities for the engineering officers specifically the field expedient use of civilian explosives in military demolition, (which is considerably more in-depth than might be first considered by someone not well conversed in explosives).

In addition I have conversed with GE personnel, the chair of Civil (those already instructing at the fort) and had several discussions with Henry Wiebe involving taking the correct path of action. Henry is going to take a final look at the MOU with the fort to see if any modifications need to be made and also another look at the separate agreement with the department of defense. I believe at this point I pretty much have all of my ducks in a row and that we are ready to proceed.

The class will be limited initially to USAE and will require the successful completion of the USAES officer demolitions training as a pre-requisite for the hour of training offered by S&T through DCE.



Paul Worsey

Director of Explosives Education

Department of Mining & Nuclear Engineering.

Effective Year: 2012

Effective Term: Summer ☐ Fall ☒ Spring ☐

EC File # 2408-F52012-Physica-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: Physics

Discipline and Course Number: 401

Course Title: Special Topics in Atomic, Molecular, and Optical Physics

Abbreviated Title (24 spaces or less): Topics in AMO Physics STORY

Instructor(s): Madison, Dubois, Jentschura, Peacher, and Schulz

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

Prerequisites: Graduate standing

Semester(s) previously taught: Never

Brief Course Description: (40 words or less)

A selection of advanced topics in atomic, molecular and optical (AMO) physics will be given. Potential topics include: the few body problem, atomic and molecular collisions, experimental and theoretical methods, current topics in quantum electrodynamics (QED), Rydberg states, and wavepackets.

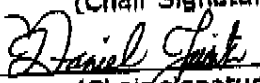
List all co-listed courses: Include initials of Dept. Chair, if signature is not already included below.

1) 2) 3)

4) 5) 6)

Department Chair:  (Chair Signature)

Date: 2-23-12

Discipline Specific Curricula Committee:  (Chair Signature)

Date: 4/12/2012

Curricula Committee: _____ (Chair Signature)

Date: _____

(Revised 10/12/2010)

02/23/12

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Effective Year: 2012

Effective Term: Summer ☐ Fall ☒ Spring ☐

EC File # 2409-AS2012-ArchE-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: Civil, Arch., and Envir. Engr.

Discipline and Course Number: ArchE 401

Course Title: Sensing and Control in the Built Environment

Abbreviated Title (24 spaces or less): Sensing and Control

Instructor(s): Joon-Ho Chol

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

Prerequisites: ArchE 371 or consent of Instructor

Semester(s) previously taught: First Offering

Brief Course Description: (40 words or less)

This course will provide an overview of the construction and implementation of data acquisition, data mining, quantitative analyses and system controls, including data collection interface design, signal filtering methods, in-depth analysis using data mining and statistical tools, and environmental system control with advanced control logics.


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: 2/29/12

Discipline Specific Curricula Committee:  (Chair signature)

Date: _____

Curricula Committee: _____ (Chair Signature)

Date: _____

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

ArchE 401: Special Topics – Sensing and Control in the Built Environment

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 : TBD
Additional Meeting Time : As required
Office hours : TBD

Course description:

Engineers should have an analytical skill for quantitative investigation and decision process. This course is aimed at giving engineering graduate students an exposure to data acquisition tools, data analysis and control, which would be applicable to supporting engineering research problems and solution findings. This course will provide an overview of the construction and implementation of data acquisition, data mining, quantitative analyses and system controls, including data collection interface design, signal filtering methods, in-depth analysis using data mining and statistical tools, and environmental system control with advanced control logics. It will help students to develop framework for addressing a research problem and solution based on data measurement and analysis technique for control applications, especially in a built environment.

Objectives:

After taking this course, a student should specifically understand the following concepts and skills:

- Data acquisition methods
 - o Constructing data acquisition systems
 - o Defining sensing interval and filtration methods
 - o Correct location / position of sensory device installation in a built environment
 - o Data cleaning and process
- Data analysis methods
 - o Understanding how to major data mining tools
 - o Finding a proper algorithm to fit your own data
 - o Understanding how to investigate and analyze the collected data
- System controls
 - o Understanding how to generate a system outcome as a function to control
 - o Constructing a control logic to fit for your own control system
 - o Employing advanced algorithms / computational logics to control your own system.

Teaching methods

This class will be conducted as a seminar and will mix lecture presentations by the instructor with student presentations, class demonstrations, slide presentation, project review and guest speaker, as well as system construction with applying acquired knowledge to a real built environment. A solar house of Missouri S&T will be used as a testbed and students will be required to do their course projects and assignments using the facility to concurrently learn and put the acquired skills and knowledge into practice. There is no required text, but several reference books will be recommended for course work.

Since the course is for a graduate level, students can choose any data type or source based on their research interests or their conducting projects.

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 data acquisition construction skills for a building environmental condition measurements, enhance students' skills for computational / statistical data analysis, and develop a control algorithm to be applicable to a real building environment.

Students will have 5-8 assignments and 1-2 course projects in the course that help you gain a deeper understanding on the computational approaches being taught. In addition, students will have reading assignments from articles handed out in class or available on the web.

The assignments will include:

- 1) Constructing a data acquisition system interface.
- 2) Investigating optimized sensing optimal and filtration methods depending on students' selections of the data and measurement environments.
- 3) Investigating significant features of collected data.
- 4) Developing control logic with employing existing (advanced) algorithms.

Software to be used

The course will use several different software packages, predominantly LabView, Minitab and Weka. If a student has any special statistical package program to be selected for an on-going research, he or she may use the software instead of Minitab.

References:

DataMining: Practical Machine Learning Tools and Techniques (3rd Edition) - 2011
 Introduction to Business Statistics [Student Edition]
 Computational Intelligence: An Introduction (2nd Edition) - 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
 Illuminating Engineering Society (IES) Handbook

Grading:	Final project : 30%	Assignments/ Exam / Quiz/ Other projects : 50%
	Mid-term project: 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.

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.

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.

Tentative Class Schedule

Week	Tuesday	Thursday	Assignments / Quiz / Course projects
1 (Aug. 21&23)	Introduction	Signals / Data types and individual features	
2 (Aug. 28&30)	Principle of Sensory Devices (1)	Principles of Sensory Devices (2)	Assignment 1
3 (Sept. 4&6)	Data Cleaning	Data Filtration	
4 (Sept. 11&13)	Data acquisition board	Data acquisition interface design (1)	Assignment 2
5 (Sept. 18&20)	Data acquisition interface design (2)	Statistical analysis (1)	
6 (Sept. 25&27)	Statistical analysis (2)	Statistical analysis (3)	Assignment 3
7 (Oct. 2&4)	Statistical analysis (4)	Data mining tool (1) – Decision tree	
8 (Oct. 9&11)	Data mining tool (2) - Clustering	Exam (1)	
9 (Oct. 16&18)	Data mining tool (3) – Neural network	Data mining tool (4) – Neural network	
10 (Oct. 23&25)	Control diagram / interface (1)	Control diagram / interface (2)	Mid-term-project
11 (Oct. 30&Nov. 1)	Conventional control (1) – feedback control	Conventional control (2) - PID	
12 (Nov. 6&8)	Conventional control logic (3) – feed forward control	Machine Learning (1)	Assignment 4
13 (Nov. 13&15)	Machine Learning (2)	Reinforcement Learning	
14 (Nov. 20&22)	Thanksgiving break		Assignment 5
15 (Nov. 27&29)	Validation test (1)	Validation test (2)	
16 (Dec. 4&6)	Student Presentation	Student Presentation, Wrap-up	Final Project

Effective Year: 2012

EC File # 2410-FS2012-Phil-301

Effective Term: Summer Fall ☒ Spring ☒

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: Arts, Languages, and Philosophy

Discipline and Course Number: Philosophy 301

Course Title: Epistemology: Knowledge and Justification

Abbreviated Title (24 spaces or less):

Instructor(s): Dr. Darin Finke

Credit Hours: Lecture: 3 Lab: Total: 3

Prerequisites: None (Recommended: Philosophy 5 or Philosophy 15)

Semester(s) previously taught: 0

Brief Course Description: (40 words or less)

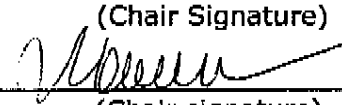
An introduction to the field of epistemology, the study of the scope, the limits, the sources, and the nature of knowledge and justified belief. Includes analyses of knowledge and justification, skepticism, scientific knowledge, and naturalism, among other topics.

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: 3/12/2012

Discipline Specific Curricula Committee:  (Chair signature)

Date: 3/12/2012

Curricula Committee: _____ (Chair Signature)

Date: _____

Philosophy 301 – Epistemology: Knowledge and Justification Fall 2012

Instructor: Dr. Darin Finke

Office: 233 H-SS

Email: finkeda@mst.edu

Office phone: 341-6938

Office hours: Tuesdays and Thursdays from 3:15-5:00 pm, and also by appointment.

Texts:

Required: Steup, Matthias. *An Introduction to Contemporary Epistemology*, 1996.
Huemer, Michael, ed. *Epistemology: Contemporary Readings*, 2002.

Recommended resources:

Stanford Encyclopedia of Philosophy, <http://plato.stanford.edu>.

This is the best internet encyclopedia of philosophy currently available, and it is free! It also has great bibliographies for further reading.

Internet Encyclopedia of Philosophy, <http://www.iep.utm.edu>. This is probably the second best internet encyclopedia of philosophy available. It is also free.

Course description and Course goals: Epistemology is one of the core areas of philosophical reflection. This course is an introduction to the field of epistemology, the study of the scope, the limits, the sources, and the nature of knowledge and justified belief.

For the most part we will be taking up recent and contemporary approaches to the theory of knowledge, but in order to do this adequately, we will also be examining the relevant philosophical history upon which such approaches are founded. The major debates in epistemology which we will be examining in this course include (1) skepticism, (2) the analysis of knowledge, (3) the analysis of justification, (4) the structure of knowledge and justification, (5) scientific knowledge, and (6) naturalism.

This course will not presuppose any exposure to the relevant literatures, and, for the most part, it will be an overview of some of the going accounts and controversies.

Assignments: There will be a midterm and a final exam. The dates of each exam are listed in the course outline of the syllabus. The final exam will be administered during finals week. This exam will cover only the material covered since the midterm. A study guide, including a pool of exam questions, will be distributed in advance of the dates of each exam, respectively.

You will be asked to write a term paper, a one (1) 6-8 page paper during the semester over a topic related to the course material. The paper topic will be approved by me, and its due date, as well as the due date of the initial draft, is listed in the course outline below.

You will also be asked to write ten (10) 1-2 page thought papers specifically addressing the reading material—from one of the texts or from a reading posted online (or otherwise provided by me during the semester). These thought papers are designed to help you sufficiently grasp the important points made in a particular reading assignment. Thus, the goal of each paper will be to

capture and explain the most important points of the reading, as it relates to the course narrative. These assignments and their due dates will be provided by me during class as the semester progresses.

Finally, attendance and class participation will be very important for your success in this course. Discussion is essential to the vitality of a course such as this. Your first priority is reading the assignments carefully and working diligently on the writing for the course. Thoughtful, honest, and respectful participation derives from these. Every effort will be made to ensure that the class is a welcoming forum for sharing serious ideas. In addition, participation is more inclusive than many students realize. Being attentive and engaged in class, asking clarificatory questions, and discussing aspects of the course with me during office hours all fall under this heading.

Grades:	Midterm	25%	Final exam:	25%
	Term Paper	20%	Attendance/participation	10%
	Thought papers	20%		

Notices: This university takes plagiarism and cheating very seriously. Every faculty member, including myself, is obligated to report any case of plagiarism or cheating, no matter how minor you think it might be. A single act of plagiarism or cheating could result in your expulsion from the university. Information regarding this can be found at:

<http://registrar.mst.edu/academicregs/index.html>.

Information regarding your academic success and this course can be found here:

<http://academicalert.mst.edu>.

If you experience a problem with this course or with me, please come talk to me about it. If, for whatever reason, you are uncomfortable talking with me, please see the Chair of the Arts, Languages, and Philosophy Department, Professor Lance Haynes, G-4 H-SS.

If you have a documented disability and anticipate needing accommodations, see me as soon as possible. You will need to request that the Disability Services staff (Norwood Hall) send a letter to me verifying your disability and specifying the accommodation you are requesting before anything may be done. Information on this can be found at: <http://dss.mst.edu>.

Information regarding Classroom and Building Escape Plans can be found in each classroom and on the university website.

Finally, information about options for learning assistance can be found at:

<http://lead.mst.edu/assist>.

Topics and Course Readings:

Each reading will be a chapter from the Steup textbook, a reading from the Huemer anthology, or a reading that will be given out as a separate handout (or linked to online).

I. Analysis of Knowledge

Steup, chapter 1, 2, and 3

Huemer, "The Analysis of 'Knowledge'," pp. 435-39. (Huemer)

Ayer, "Knowing as Having the Right to be Sure," pp. 440-43. (Huemer)

Gettier, "Is Justified True Belief Knowledge?," pp. 444-46. (Huemer)

Clark, "Knowledge and Grounds," pp. 447-49. (Huemer)
Lehrer & Paxson, "Knowledge: Undefeated Justified True Belief" (Course handout)

II. Analysis of Justification

Steup, chapter 4
Alston, "Concepts of Epistemic Justification" (Course handout)
Clifford, "The Ethics of Belief" (Course handout)
BonJour, "Internalism and Externalism" (Course handout)

III. Structure of Knowledge and Justification

Steup, chapters 5, 6, 7, and 8
Chisholm, "The Myth of the Given" (Course handout)
Sosa, "The Raft and the Pyramid" (Course handout)
Feldman & Conee, "Evidentialism" (Course handout)
Alston, "How to Think about Reliability" (Course handout)

IV. Scientific Knowledge

Kitcher, "Scientific Knowledge" (Course handout)
Hume, "An Enquiry Concerning Human Understanding," pp. 298-310. (Huemer)
Edwards, "Russell's Doubts about Induction," pp. 311-319. (Huemer)
Goodman, "The New Riddle of Induction," pp. 320-332. (Huemer)
Salmon, *The Foundations of Scientific Inference* (Course handout)

V. Naturalism

Steup, chapter 9
Quine, "Epistemology Naturalized" (Course handout)
Kim, "What is 'Naturalized Epistemology'?" (Course handout)

VI. Skepticism

Steup, chapter 10
Descartes, "Meditations on First Philosophy," pp. 513-523 (Huemer)
Moore (a), "Proof of an External World," pp. 602-605 (Huemer)
Moore (b), "Hume's Theory Examined," pp. 606-610 (Huemer)

Course outline (subject to change):

This outline corresponds to the above six categories. The first three topics will be covered prior to the midterm; the latter three after the midterm.

August 21: Introduction to the course

 23: Steup, chapter 1 (*Analysis of Knowledge*)

 28: Gettier, Huemer

 30: Ayer, Clark, and Lehrer/Paxson

- September 4: Steup, chapter 2 and 3
- 6: Steup, chapter 4 (*Analysis of Justification*)
- 11: Alston
- 13: Clifford
- 18: Bonjour
- 20: Steup, chapters 5 and 6 (*Structure of Knowledge and Justification*)
- 25: Chisholm
- 27: Feldman/Conee
- October 2: Steup, chapter 7, and Sosa
- 4: Steup, chapter 8
- 9: Alston
- 11: Midterm review
- 16: **MIDTERM**
- 18: Kitcher (*Scientific Knowledge*)
- 23: Hume
- 25: Edwards
- 30: Salmon
- November 1: Goodman; **Initial draft of the term paper due**
- 6: Steup, chapter 9 (*Naturalism*)
- 8: Quine
- 13: Kim
- 15: Steup, chapter 10 (*Skepticism*)
- 20: **NO CLASS**—Thanksgiving Break

22: **NO CLASS**—Thanksgiving Break

27: Descartes

29: Moore (a); **Term paper due**

December 4: Moore (b)

6: Final exam review

FINAL EXAM—TBD

Effective Year: 2013

Effective Term: Summer ☐ Fall ☐ Spring ☒EC File # *2412-Sp2013-BioSci-301*

Experimental Course Form (EC)

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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 301

Course Title: Introduction to Astrobiology

Abbreviated Title (24 spaces or less): Intro Astrobiology

Instructor(s): Melanie R. Mormile

Credit Hours: Lecture: 3.0 Lab: 0.0 Total: 3.0

Prerequisites: Bio Sci 211 or 221

Semester(s) previously taught:

Brief Course Description: (40 words or less)

↑
An overview of the origins of life on early earth and the possibility of life on extraterrestrial bodies will be examined in this course through lectures and journal articles. The techniques that astrobiologists use to investigate the possibility of life beyond earth will be explored. Assessment will be based on exam performance and participation in class.

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: 3/21/12

Discipline Specific Curricula Committee:



(Chair signature)

Date: 4/11/2012

Curricula Committee:

(Chair Signature)

Date: _____