General Education Course Approval Cover Sheet

Date of Submission 09 / 15 / 10

1. Check which area(s) this course applies to

Inquiry – Arts & Creativity	✓	Composition & Communications - II	
Inquiry – Humanities		Quantitative Foundations	
Inquiry – Nat/Math/Phys Sci		Statistical Inferential Reasoning	
Inquiry – Social Sciences		U.S. Citizenship, Community, Diversity	
Composition & Communications - I		Global Dynamics	

2. Provide Course and Department Information.

Department: Mining Engineering

Course Prefix and Number: MNG 592 Credit hours: 3

Course Title: Mine Design Project II

Expected Number of Students per Section: 25 Course Required for Majors in your Program (check one)? Yes ✓ No

Prerequisite(s) for Course? MNG 341, MNG 551, MNG 591, and Engineering Standing

This request is for (check one) A New Course An Existing Course ✓

Departmental Contact Information

Name: Braden Lusk Email: lusk@engr.uky.edu

Office Address: 234D MMRB Phone: 7-1105

3. In addition to this form, the following must be submitted for consideration:

- A syllabus that conforms to the Senate Syllabi Guidelines, including a mapping of the stated learning outcomes to those presented on the corresponding Course Template.
- A completed Course Review Form. See the Gen Ed website http://www.uky.edu/gened/forms.html for these forms. Proposals prepared prior to September 15th, 2010 are allowed to use a narrative instead of the Course Review Form.
- If applicable, a major course change form for revision of an existing course, or a new course form for a new course.

4. Signatures

Department Chair: Rick Honaker Date: 9/16/2010

Dean: Richard J. Sweigard Date: 1/27/11

All proposals are to be submitted from the College Dean's Office
Submission is by way of the General Education website http://www.uky.edu/gened

Course Review Form
Intellectual Inquiry in Arts & Creativity

Course Name: MNG 592 - Mine Design Project II	**For Review Committee Use Only**
College: Engineering	Accept ☐ Revisions Needed ☐

Using the course syllabus as a reference, identify when and how the following learning outcomes are addressed in the course. Since learning outcomes will likely be addressed multiple ways within the same syllabus, please identify a representative example (or examples) for each outcome.

☑ An artifact (e.g. an object, product, installation, presentation, record of a performance etc.) that demonstrates personal engagement with the creative process either as an individual or as part of a collaborative.

Example(s) from syllabus:

Outcome 1 - Students will be able to design a mining operation according to industry standards. This task will require the students to understand mine design and acquire information about specific components.

Brief Description:

The design process allows for students to participate in a robustly creative process. There are infinite combinations of design choices which must be considered when creating the overall system.

☑ Evidence that students utilize readings, lectures, presentations or other resources to define and distinguish approaches (historical, theoretical, and methodological issues) to "creativity" as appropriate to the disciplinary practices specific to the subject, medium, or approach of this course.

Example(s) from syllabus:

Outcome 1 - Students will be able to design a mining operation according to industry standards.

Brief Description:

When considering the mass of literature available and presented in the course, students must be able to utilize creativity to develop an original mine design for a given property and ore reserve. The industry standards are specific; however, the application of these standards can be wide ranging and thus distinguishing the differences between various approaches or mining methods is necessary.

☑ The processes and assignments where students apply the logic, laws, and/or constraints of the area of study, (e.g, "out of the box" thinking or application of given rules or forms).

Example(s) from syllabus:

Outcome 1 - This task will require the students to understand mine design and acquire information about specific components of the overall system.

Brief Description:

The use of technological and theoretical practices is encouraged to push the envelope of accepted mine design. The application of these advances will require original thought processes and thus "out of the box" thinking in order to achieve an original yet industry standard mine design.

☑ Assignments or exercises that require students to demonstrate the ability to critically analyze work produced by other students in this course and in co-curricular events using appropriate tools.

Example(s) from syllabus:

Outcome 2 - Students will work in a team and address the difficulties of group work by producing a quality design. The group will need to utilize multiple disciplines to complete the overall design.

Brief Description:

The mine designs are created by small teams that must work together to create the overall design. A teamwork rubric will be established that will allow for students to critically analyze the performance of other students in the team.

☑ The process whereby students evaluate the process and results of their own creative endeavors and, using that evaluation, reassess and refine their work.

Example(s) from syllabus:

Report Component - In order to complete the design project, due dates will be assigned for specific components of the mine design.

Brief Description:

With each submission or a report component, an iterative process will be utilized where students are evaluated by the instructor and must continually improve the design as design components are completed. The overall design is then presented to a group of peers and industry experts. The final design components will be refined throughout the semester towards an end goal of an overall acceptable design.

☑ Describe how students demonstrate the use of information literacy resources.

Students will be required to understand regulatory and industry standard constraints and their affect on the design process. Literacy in these regulations and standards will require the use of information literacy resources such as the regulations, state of the art published literature, and information presented in the course. The demonstration of this will be proven by the results of the design. Students will use the internet, library and other sources to determine the regulatory requirements and standards. Proper identification of these standards will be imperative to a proper design which will be evaluated.

Reviewer's Comments:

COURSE CHANGE FORM

Complete 1a – 1f & 2a – 2c. Fill out the remainder of the form as applicable for items being changed.

1. General Information.

a. Submitted by the College of: Engineering — Today's Date: 9/15/2010

b. Department/Division: Mining Engineering

c. Is there a change in "ownership" of the course? YES ☐ NO ☒

If YES, what college/department will offer the course instead? _____

d. What type of change is being proposed? ☒ Major ☐ Minor[1] (place cursor here for minor change definition)

e. Contact Person Name: Braden Lusk — Email: lusk@engr.uky.edu — Phone: 7-1105

f. Requested Effective Date: ☐ Semester Following Approval OR ☒ Specific Term[2]: Spring 2012

2. Designation and Description of Proposed Course.

a. **Current Prefix and Number:** MNG 592 — *Proposed Prefix & Number:* *MNG 592*

b. **Full Title:** Mine Design Project II — *Proposed Title:* *Mine Design Project II*

c. **Current Transcript Title** (if full title is more than 40 characters): _____

c. *Proposed Transcript Title (if full title is more than 40 characters):* _____

d. **Current Cross-listing:** ☒ N/A OR Currently[3] Cross-listed with (Prefix & Number): _____

Proposed – ☐ *ADD[3] Cross-listing (Prefix & Number):* _____

Proposed – ☐ *REMOVE[3, 4] Cross-listing (Prefix & Number):* _____

e. **Courses must be described by at least one of the meeting patterns below. Include number of actual contact hours[5] for each meeting pattern type.**

Current:	1 Lecture	3 Laboratory[5]	_____ Recitation	_____ Discussion	_____ Indep. Study
	_____ Clinical	_____ Colloquium	_____ Practicum	_____ Research	_____ Residency
	_____ Seminar	_____ Studio	_____ Other – Please explain:	_____	
Proposed:	*2 Lecture*	*3 Laboratory*	*_____ Recitation*	*_____ Discussion*	*_____ Indep. Study*
	_____ Clinical	*_____ Colloquium*	*_____ Practicum*	*_____ Research*	*_____ Residency*
	_____ Seminar	*_____ Studio*	*_____ Other – Please explain:*	*_____*	

f. **Current Grading System:** ☒ Letter (A, B, C, etc.) ☐ Pass/Fail

Proposed Grading System: ☒ *Letter (A, B, C, etc.)* ☐ *Pass/Fail*

g. **Current number of credit hours:** 2 — *Proposed number of credit hours:* 3

h. **Currently, is this course repeatable for additional credit?** YES ☐ NO ☒

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[1] See comment description regarding minor course change. *Minor changes are sent directly from dean's office to Senate Council Chair.* If Chair deems the change as "not minor," the form will be sent to appropriate academic Council for normal processing and contact person is informed.

[2] Courses are typically made effective for the semester following approval. No course will be made effective until all approvals are received.

[3] Signature of the chair of the cross-listing department is required on the Signature Routing Log.

[4] Removing a cross-listing does not drop the other course – it merely unlinks the two courses.

[5] Generally, undergrad courses are developed such that one semester hr of credit represents 1 hr of classroom meeting per wk for a semester, exclusive of any lab meeting. Lab meeting generally represents at least two hrs per wk for a semester for 1 credit hour. (See *SR 5.2.1.*)

COURSE CHANGE FORM

	Proposed to be repeatable for additional credit?	*YES* ☐	*NO* ☒
	If YES: *Maximum number of credit hours:* _____		
	If YES: *Will this course allow multiple registrations during the same semester?*	*YES* ☐	*NO* ☒
i.	**Current Course Description for Bulletin:**	Students will undertake a major design project such as the overall design of a mining system, including design of major components of the system and economic evaluation. Students will write reports documenting this design, which will also be presented orally before a group of peers and invited experts.	
	Proposed Course Description for Bulletin:	*Students will undertake a major design project such as the overall design of a mining system, including design of major components of the system and economic evaluation. Students will write reports documenting this design, which will also be presented orally before a group of peers and invited experts.*	
j.	**Current Prerequisites, if any:**	MNG 341, MNG 551, MNG 591, and Engineering Standing.	
	Proposed Prerequisites, if any:	*MNG 341, MNG 551, MNG 591, and Engineering Standing.*	
k.	Current Distance Learning(DL) Status: ☒ N/A	☐ Already approved for DL*	☐ *Please Add*[6] ☐ *Please Drop*
	*If already approved for DL, the Distance Learning Form must also be submitted unless the department affirms (by checking this box ☐) that the proposed changes do not affect DL delivery.		
l.	**Current Supplementary Teaching Component, if any:**	☐ Community-Based Experience	☐ Service Learning ☐ Both
	Proposed Supplementary Teaching Component:	☐ *Community-Based Experience*	☐ *Service Learning* ☐ *Both*
3.	**Currently, is this course taught off campus?**	YES ☐	NO ☒
	Proposed to be taught off campus?	YES ☐	NO ☒
4.	**Are significant changes in content/teaching objectives of the course being proposed?**	YES ☐	NO ☒
	If YES, explain and offer brief rationale:		
	_____		
5.	**Course Relationship to Program(s).**		
a.	**Are there other depts and/or pgms that could be affected by the proposed change?**	YES ☐	NO ☒
	If YES, identify the depts. and/or pgms: _____		
b.	**Will modifying this course result in a new requirement[7] for ANY program?**	YES ☐	NO ☒
	If YES[7], list the program(s) here: _____		
6.	**Information to be Placed on Syllabus.**		
a.	☐ Check box if changed to 400G or 500.	If changed to 400G- or 500-level course you must send in a syllabus and *you must include the differentiation* between undergraduate and graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different grading criteria in the course for graduate students. (See *SR 3.1.4.*)	

[6] You must *also* submit the Distance Learning Form in order for the course to be considered for DL delivery.
[7] In order to change a program, a program change form must also be submitted.

COURSE CHANGE FORM

Signature Routing Log

General Information:

Course Prefix and Number: MNG 592

Proposal Contact Person Name: Braden Lusk Phone: 7-1105 Email: lusk@engr.uky.edu

INSTRUCTIONS:

Identify the groups or individuals reviewing the proposal; note the date of approval; offer a contact person for each entry; and obtain signature of person authorized to report approval.

Internal College Approvals and Course Cross-listing Approvals:

Reviewing Group	Date Approved	Contact Person (name/phone/email)	Signature
Mining Engineering Faculty	9/16/2010	R. Honaker / 257-1108 / rhonaker@engr.uky.edu	
Engineering faculty	1/27/11	R. Sweigard / / RSweigar@engr.uky.edu	
		/ /	
		/ /	
		/ /	

External-to-College Approvals:

Council	Date Approved	Signature	Approval of Revision[8]
Undergraduate Council	9/20/2011	Sharon Gill	
Graduate Council		Dr. Brian A. Jackson Digitally signed by Dr. Brian A. Jackson DN: cn=Dr. Brian A. Jackson, o=University of Kentucky, ou=Graduate School, email, c=US Date: 2011.12.15 16:40:14 -05'00'	
Health Care Colleges Council			
Senate Council Approval		University Senate Approval	

Comments:

[8] Councils use this space to indicate approval of revisions made subsequent to that council's approval, if deemed necessary by the revising council.

Syllabus Mining 592 – Mine Design Project II
Department – Mining Engineering
Spring Semester 2012

3 Credit Hours
2 hours lecture 3 hours laboratory

Instructor: Dr. Braden Lusk
Office: Room 234D MMRB
Phone: 257-1105
E-mail: lusk@engr.uky.edu

Course Description:
Students will undertake a major design project such as the overall design of a mining system, including design of major components of the system and economic evaluation. Students will write reports documenting this design, which will also be presented orally before a group of peers and invited experts. Prereq: MNG 341, MNG 551, MNG 591, and Engineering Standing.

Class Goal:
Complete the mine design project started in MNG 591.

Outcomes tied to ABET a-k:

Outcome	Program Outcome	Implementation Strategy
1. Students will be able to design a mining operation according to industry standards. This task will require the students to understand mine design and acquire information about specific components of the overall system. MNG 592 is the capstone course for mining engineering and thus encompasses many of the Learning outcomes of the program.	(h), (c), (j), (k)	Finalized Report
2. Students will work in a team and address the difficulties of group work by producing a quality design. The group will need to utilize multiple disciplines to complete the overall design.	(d)	Deadline Tracking and Teamwork Documentation
3. Students will present the product of their mine design in front of the program faculty and industry experts	(g)	Presentation

Grading Policy:

	Undergraduate Students	Graduate Students
Report Components/Homework	25%	20%
Final Project Report	50%	45%
Project Presentation	25%	20%
Optimization	NA	15%

Grading Scale

	Undergraduate Students	Graduate Students
90% - 100%	A	A
80% - 89.9%	B	B
70% - 79.9%	C	C
60% - 69.9%	D	E
< 60%	E	E

Additional Requirement for Graduate Students:
Graduate students will be required to meet additional requirements for successful completion of the course. Graduate students will be required to demonstrate an optimization process for a significant portion of the design. The requirement will be met by selecting at least one major component of the

design and performing an iterative optimization process. The process will be documented in the report and presentation.

Mid-Term Grades:

Mid-term grades will be posted on myUK by the deadline established in the Academic Calendar (http://www.uky.edu/Registrar/AcademicCalendar.htm).

Design Process Material:

The mine design process is creative in nature. Students are given a property with an unknown mineral reserve. The property is accompanied by exploration drilling information. From this limited information an infinite number of design solutions can be developed. Students are guided through the creative process of designing a mine through several processes. Guest lectures will be common from mining industry experts, general business experts, and/or machinery manufacturers. These experts will convey the iterative nature of the design process, and how creative decisions affect the overall design. In addition to the implicit creative process of designing the mine, explicit instruction on creative design paradigms will be covered through additional required readings, homework assignments and class discussions and lectures. The homework assignments will require students to explain the connection of the creative process with mine design.

Design Project Report:

Students will be required to complete a comprehensive mine design project that was initiated in MNG 591. The report will cover nearly all aspects of mine design including:

1. Rock Mechanics
2. Mine Ventilation
3. Mine Plant Machinery
4. Corresponding Mine Regulations
5. Mineral Deposits
6. Exploration, sampling and deposit evaluation
7. Design Principles, methodology and stages of mine design
8. Capital development (shafts, slopes)
9. Mine Layout
10. Economic Analysis

Report Components:

In order to complete the design project, due dates will be assigned for specific components of the mine design. These deadlines must be met in order to successfully complete the project on time.

Presentation of Design:

Each group will be required to present their mine design to the department faculty and invited industry experts.

Textbook:

Course Notes (provided)

Additional Reading:

Petroski, Henry: *Success through Failure: The Paradox of Design*. [Princeton University Press, 2006]
Fritz, Robert: *A Practical Guide to the Creative Process and How to use it to Create Anything.* [Ballantine, 1993]

COURSE POLICIES:

Course Assignments: No late assignments will be accepted with the exception of the occasions when submission is delayed due to an excused absence as defined by S.R. 5.2.4.2.

Attendance Policy: As per departmental policy, class attendance is required. A student must arrive within 5 minutes of the scheduled start of the class period and must stay for the remainder of the period to be credited for attendance. Your grade will be reduced by 5 percentage points for each week-equivalent of class that is missed because of unexcused absences. For example, since MNG 291 meets 2 times per week, the following grade reductions would be incurred:

Number of unexcused absences	Grade Reduction
1-2	0%
3-4	5%
5-6	10% Etc.

Excused absences, as defined in SR 5.2.4.2, are not counted in this total. Excused absences include a) serious illness, b) illness or death of a family member, c) University-related trips, d) major religious holidays and e) other circumstances found to fit "reasonable cause for non-attendance" by the professor.

Tests can only be made up for excused absences or by pre-arrangement with the course instructor.

Verification of Absences: Official documentation is required to be presented for excused absences. In the case of a University-related trip, a letter from an appropriate official shall be presented no later than one week from the date of the absence.

Academic Integrity: Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following web site: http:/www.uky.edu/ombud. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Accommodations due to disability:
If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754, email address: jkarnes@email.uky.edu) for coordination of campus disability services available to students with disabilities.