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OFFICE OF THE SENATE COUNCIL

Course Information

Date Submitted: 8/19/2015

Current Prefix and Number: MNG - Mining Engineering , MNG 591 MINE DESIGN PROJECT I

Other Course:

Proposed Prefix and Number: MNG 591

What type of change is being proposed?

Major Change

Should this course be a UK Core Course? No

1. General Information

a. Submitted by the College of: ENGINEERING

b. Department/Division: Mining Engineering

c. Is there a change in 'ownership' of the course? No

If YES, what college/department will offer the course instead: Select...

e. Contact Person

Name: Braden Lusk

Email: braden.lusk@uky.edu

Phone: 859-257-1105

Responsible Faculty ID (if different from Contact)

Name: Jhon Silva

Email: jhon.silva@uky.edu

Phone: 859-257-1173

f. Requested Effective Date

Semester Following Approval: Yes OR Effective Semester:

2. Designation and Description of Proposed Course

a. Current Distance Learning (DL) Status: N/A

b. Full Title: MINE DESIGN PROJECT I

Proposed Title: MINE DESIGN PROJECT I

c. Current Transcript Title: MINE DESIGN PROJECT I

Proposed Transcript Title:

d. Current Cross-listing: none

Proposed – ADD Cross-listing :

Proposed – REMOVE Cross-listing:

e. Current Meeting Patterns

LECTURE: 1

LABORATORY: 3

Proposed Meeting Patterns

LECTURE: 0

LABORATORY: 3

f. Current Grading System: ABC Letter Grade Scale

Proposed Grading System: *Letter (A, B, C, etc.)*

g. Current number of credit hours: 2

Proposed number of credit hours: 1

h. Currently, is this course repeatable for additional credit? No

Proposed to be repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester? No

2i. Current Course Description for Bulletin: First course of a two-part capstone design project. Emphasis is on ore reserve evaluation, development of a preliminary mine plan, design of auxiliary processes, teamwork, and oral and written communication. Minable reserves will be quantified and quality distribution assessed. An appropriate mining technique will be identified and implemented into a proposed mine design. Lecture, one hour; laboratory, three hours per week.

Proposed Course Description for Bulletin: First course of a two-part capstone design project. Emphasis is on ore reserve evaluation, development of a preliminary mine plan, design of auxiliary processes, teamwork, and oral and written communication. Minable reserves will be quantified and quality distribution assessed. An appropriate mining technique will be identified and implemented into a proposed mine design. Laboratory, three hours per week.

2j. Current Prerequisites, if any: Prereq: MNG 211, MNG 291, and engineering standing.

Proposed Prerequisites, if any: Prereq: MNG 211, MNG 291, MNG 463, MNG 351, and engineering standing.

2k. Current Supplementary Teaching Component:

Proposed Supplementary Teaching Component:

3. Currently, is this course taught off campus? No

Proposed to be taught off campus? No

If YES, enter the off campus address:

4. Are significant changes in content/student learning outcomes of the course being proposed? No

If YES, explain and offer brief rational:

5a. Are there other depts. and/or pgms that could be affected by the proposed change? No

If YES, identify the depts. and/or pgms:

5b. Will modifying this course result in a new requirement of ANY program? No

If YES, list the program(s) here:

6. Check box if changed to 400G or 500: No

Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|HONAKER|Rick Honaker|MNG 591 CHANGE Dept Review|20140829

SIGNATURE|BJSTOK0|Barbara J Brandenburg|MNG 591 CHANGE College Review|20150828

SIGNATURE|JMETT2|Joanie Ett-Mims|MNG 591 CHANGE Undergrad Council Review|20150925

SIGNATURE|ZNNIKO0|Roshan Nikou|MNG 591 CHANGE Graduate Council Review|20151210

Course Change Form

https://myuk.uky.edu/sap/bc/soap/rfc?services=

Open in full window to print or save

Generate R

Attachments:

Browse... Upload File

	ID	Attachment
Delete	5426	MNG 591 Syllabus Amended per UG Council 09_25_2015

First 1 Last

NOTE: Start form entry by choosing the Current Prefix and Number
(*denotes required fields)

	Current Prefix and Number:	MNG - Mining Engineering MNG 591 MINE DESIGN PROJECT I	*Proposed Prefix & Number:* (example: PHY 401G) ☑ Check if same as current	MNG 591
*	What type of change is being proposed?	☑ Major Change ☐ Major – Add Distance Learning ☐ Minor - change in number within the same hundred series, exce. 799 is the same "hundred series" ☐ Minor - editorial change in course title or description which does change in content or emphasis ☐ Minor - a change in prerequisite(s) which does not imply a chang course content or emphasis, or which is made necessary by the elir or significant alteration of the prerequisite(s) ☐ Minor - a cross listing of a course as described above		

Should this course be a UK Core Course? ○ Yes ◉ No

If YES, check the areas that apply:

☐ 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

1. General Information

a.	Submitted by the College of: ENGINEERING		Submission Date: 8/19/2015	
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? Select...			
e.*	* Contact Person Name:	Braden Lusk	Email: braden.lusk@uky.edu	Phone: 859-257-1105
	* Responsible Faculty ID (if different from Contact)	Jhon Silva	Email: jhon.silva@uky.edu	Phone: 859-257-1173
f.*	Requested Effective Date:	☑ Semester Following Approval	OR	Specific Term: [2]

2. Designation and Description of Proposed Course.

a.	Current Distance Learning(DL) Status:	◉ N/A ○ Already approved for DL* ○ Please Add ○ 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 chang affect DL delivery.	

b.	**Full Title:**	MINE DESIGN PROJECT I	*Proposed Title:* *	MINE DESIGN PROJECT I
c.	**Current Transcript Title** (if full title is more than 40 characters):		MINE DESIGN PROJECT I	
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):	none

	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 patterr**				
Current:	Lecture: 1	Laboratory[5]: 3	Recitation:	Discussion:	Indep. Study:
	Clinical:	Colloquium:	Practicum:	Research:	Residency:
	Seminar:	Studio:	Other:	Please explain:	
Proposed: *	Lecture: 0	Laboratory[5]: 3	Recitation:	Discussion:	Indep. Study:
	Clinical:	Colloquium:	Practicum:	Research:	Residency:
	Seminar:	Studio:	Other:	Please explain:	
f.	**Current Grading System:**	ABC Letter Grade Scale			
	*Proposed Grading System:**	◉ *Letter (A, B, C, etc.)* ○ *Pass/Fail* ○ *Medicine Numeric Grade (Non-medical students will receive a letter grade)* ○ *Graduate School Grade Scale*			
g.	**Current number of credit hours:**	2	*Proposed number of credit hours:**	1	
h.*	**Currently, is this course repeatable for additional credit?**	○ Yes ◉ No			
*	*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:**

First course of a two-part capstone design project. Emphasis is on ore reserve evaluation, development of a preliminary mine plan, design of auxiliary processes, teamwork, and oral and written communication. Minable reserves will be quantified and quality distribution assessed. An appropriate mining technique will be identified and implemented into a proposed mine design. Lecture, one hour; laboratory, three hours per week.

* *Proposed Course Description for Bulletin:*

First course of a two-part capstone design project. Emphasis is on ore reserve evaluation, development of a preliminary mine plan, design of auxiliary processes, teamwork, and oral and written communication. Minable reserves will be quantified and quality distribution assessed. An appropriate mining technique will be identified and implemented into a proposed mine design. Laboratory, three hours per week.

j. **Current Prerequisites, if any:**

Prereq: MNG 211, MNG 291, and engineering standing.

* *Proposed Prerequisites, if any:*

Prereq: MNG 211, MNG 291, MNG 463, MNG 351, and engineering standing.

k.	**Current Supplementary Teaching Component, if any:**	○ Community-Based Experience ○ Service Learning ○ Both

	Proposed Supplementary Teaching Component:	○ Community-Based Experience ○ Service Learning ○ Both ○ No Change
3.	**Currently, is this course taught off campus?**	○ Yes ◉ No
*	*Proposed to be taught off campus?*	○ Yes ◉ No
	If YES, enter the off campus address:	
4.*	**Are significant changes in content/student learning outcomes 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 under and graduate students by: (i) requiring additional assignments by the graduate students; and/or (ii) establishing different gra in the course for graduate students. (See *SR 3.1.4.*)

[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 b 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 gene least two hrs per wk for a semester for 1 credit hour. (See *SR 5.2.1.*)
[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.

Syllabus Mining 591 – Mine Design Project I
Department – Mining Engineering
Fall Semester xxx

1 Credit Hours 3 Hours laboratory
Office Hours: By e-mail appointment
Meeting Time: 12:30-1:45 TR
Meeting Location: MMRB 125

Instructor: Jhon Silva
Office: Room 234H MMRB
Phone: 257-1105
E-mail: jhon.silva@uky.edu

Course Description:
First course of a two-part capstone design project. Emphasis is on ore reserve evaluation, development of a preliminary mine plan, design of auxiliary processes, teamwork, and oral and written communication. Minable reserves will be quantified and quality distribution assessed. An appropriate mining technique will be identified and implemented into a proposed mine design.

Prerequisites:
MNG 211, MNG 291, MNG 463, MNG 351 and engineering standing.

Learning Outcomes: (Undergraduate and Graduate Students Tied to ABET a-k (footnote))

Outcome	Program Outcome	Implementation Strategy
1. Use skills, techniques and modern engineering tools to evaluate mineral reserves	(a)[1], (k)[2]	Component Report
2. Use skills, techniques, and modern engineering tools to select a suitable mining method and a preliminary mine plan with consideration of laws and regulatory constraints	(j)[3], (k)	Final Report
3. Demonstrate ability to work in a team environment	(d)[4]	Teamwork Rubric
4. Demonstrate the ability to communicate effectively by developing a written report and presenting findings orally to a group of peers and industry experts	(g)[5]	Final Report, Project Presentation

Grading Policy:

	Undergraduate Students	Graduate Students
Team Journal Record	5%	5%
Report Components	20%	15%
Final Project Report	50%	45%
Project Presentation	25%	20%
Optimization	NA	15%

Grading Scale

[1] (a) – An ability to apply knowledge of mathematics, science, and engineering
[2] (k) – An ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
[3] (j) – A knowledge of contemporary issues
[4] (d) – An ability to function on multi-disciplinary teams
[5] (g) – An ability to communicate effectively

	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).

Course Topics: Lectures during the laboratory sessions will be provided by the instructor and guest lecturers who are specialists in various areas

1. Project Management Introduction (Teamwork)
2. Mineral Reserve Modeling Software (Guest Lecture)
3. Geologic Modeling (Guest Lecture)
4. Reserve Calculations
    a. Tonnage
    b. Overall Quality and Quality Distribution
    c. Isopach Mapping
5. Preliminary Mine Planning (Guest Lecture)
    a. Mapping
    b. Unit Operations
    c. Production Planning
6. Auxiliary Processes
    a. Ground Control Planning and Permits
    b. Ventilation Planning and Permits
    c. Refuse Disposal Planning and Permits
    d. Surface Facilities (Guest Lecture)

Course Activities and Assignments:
MNG 591 is a lab course that meets weekly for a 3 hour block. The time will be filled with guest lectures and training utilizing the computers and software for mine design. Component reports will be assigned that will be incorporated into a final report for the end of the course. The grade is separated among Report components, the final report and the presentation of the final design prior to continuing on to MNG 592.

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 591 meets 1 time 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.

SCHEDULE AND TOPICS

Week	Topics	Assignments
1	Review Syllabus. Definitions and terms. Objective of the project. Teamwork	
2	Feasibility studies, International standards. Reserves-Resources. Teamwork	Q1 HW1
3	Software tools for mine design. Assignation of files for mine desing project	Q2 HW2
4	Carlson software overview. Block models, complex geology situations.	Q3 HW3
5	Carlson software overview. Surface and underground mine design. Geological model submission	Q4 Submission 01
6	Vulcan software: modeling tabular deposits	Q5 HW4
7	Vulcan software Underground and surface mine design. Market considerations submission	Q4 Submission 02
8	Market considerations. Surface and underground facilities.Guest lecture	Q6 HW5
9	Permiting and environmental issues. Guest lecture	Q7 HW6
10	Overview for Selection of mining method	Q8 HW7
11	Production planing. Long-term, short term	Q9 HW8
12	Surface and Underground mine plan. Submission of Surface and underground facilites Map.	Q10 Submission 03
13	Auxiliar processes: Ventilation, ground control, water pumping.	Q11 HW9
14	Cost analysis considerations. Mineral economics overview. Preliminar mine plan and draft report submission.	Q12 Submission 04
15	Final project review. (Feedback)	
16	Final presentation.	

Session #	Description	Date
1	Syllabus/Feasibility Studies Introduction (Reading **Assignment 1**), Objectives of the class. Teamwork.	27-Aug-15
2	Feasibility studies. Why?. Qualified Person (QP). JORC reports (Australia). National Instrument 43-101 (Canada). Securities and Exchange Commission's (SEC) Industry Guide 7 (Guide 7) (USA). South African Code for the Reporting of Minerals Resources and Mineral Reserves (SAMREC). (South Africa) **Assigment 2: Reserves-Resources.**	1-Sep-15
3	Teamwork, assign teams, selecting project, introduction to report template. (Team roles & Responsabilities)	3-Sep-15
4	Discussion of tools for design (Carlson, Vulcan, FPC, Excel, ARMPS, Vnet, Slide, Flac, etc.). Assign of the Files for the project. Assign Industry mentor	8-Sep-15
*	**Submission: Team Roles & Responsabilities (Plan)**	8-Sep-15
5	Carlson Software: Geology - Block Model	10-Sep-15
6	Carlson Software: Surface Mine Design	15-Sep-15
7	Carlson Software: Underground Mine Design	17-Sep-15
8	Follow up on Geological model	22-Sep-15
8	Vulcan Software: Tabular deposits	24-Sep-15
9	Vulcan software: Surface Mine Design.	29-Sep-15
11	Market considerations - Guest lecture	1-Oct-15
12	Permitting and Environmental Impounds + waste . Guest Lecture	6-Oct-15
13	Required surface facilities- Underground mining, -Surface mining	8-Oct-15
14	Vulcan software: Underground Mine design.	13-Oct-15
*	**Submission: Mineral reserve, Quantities, Quality & Classification**	13-Oct-15
15	Selection of mining method	15-Oct-15
*	**Submission: Report template w/ Reserves & market considerations**	15-Oct-15
16	Production planning- Long term and Short term - tons of production and scheduling	20-Oct-15
17	Underground-Surface mining planning	22-Oct-15
18	Aux. Processes (Ground control, pumping, Vent, material handling, power, etc)	3-Nov-15
19	Follow up on report/report template	5-Nov-15
20	Cost considerations intro to economics	10-Nov-15
*	**Submission: Surface facilities Map description**	10-Nov-15
21	Guest lecture Ventilation: Chadd Weeding	12-Nov-15
*	**Submission: Preliminary Mine Plan w/ Project**	17-Nov-15
22	Preliminary report Feedback	24-Nov-15
23	**Presentation of 591 projects PART I**	8-Dec-15
24	**Presentation of 591 projects PART II**	10-Dec-15