APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR and MINOR

1. Submitted by the College of Engineering Date: 2/24/2009

Department/Division offering course: Mining Engineering

2. What type of change is being proposed? ☒ Major ☐ Minor*

*See the description at the end of this form regarding what constitutes a minor change. Minor changes are sent directly from t of the college to the Chair of the Senate Council.

If the Senate Council chair deems the change not to be minor, the form will be sent to the appropriate Council for normal pro and an email notification will be sent to the contact person.

PROPOSED CHANGES

Please complete all "Current" fields.

Fill out the "*Proposed*" field only for items being changed. Enter N/A if not changing.

Circle the number for each item(s) being changed. For example: (6.)

3. Current prefix & number: MNG 431 *Proposed prefix & number:* *N/A*

4. Current Title Mine Systems Engineering and Valuation

Proposed Title† *Mining Engineering Economics*

†*If title is longer than 24 characters, offer a sensible title of 24 characters or less:* Mining Engineering Econ

5. Current number of credit hours: 4 *Proposed number of credit hours:* *2*

6. Currently, is this course repeatable? YES ☐ NO ☒ If YES, current maximum credit hours: _____

Proposed to be repeatable? *YES* ☐ *NO* ☒ *If YES, proposed maximum credit hours:* _____

7. Current grading system: ☒ Letter (A, B, C, etc.) ☐ Pass/Fail

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

8. Courses must be described by at least one of the categories below. Include number of actual contact hours per week for each category.

Current:

(___) CLINICAL (___) COLLOQUIUM (___) DISCUSSION (___) LABORATORY (4) LECTURE

(___) INDEPEND. STUDY (___) PRACTICUM (___) RECITATION (___) RESEARCH (___) RESIDENCY

(___) SEMINAR (___) STUDIO (___) OTHER – Please explain: _____

Proposed:

(___) CLINICAL (___) COLLOQUIUM (___) DISCUSSION (___) LABORATORY (2) LECTURE

(___) INDEPEND. STUDY (___) PRACTICUM (___) RECITATION (___) RESEARCH (___) RESIDENCY

(___) SEMINAR (___) STUDIO (___) OTHER – Please explain: _____

9. Requested effective date (term/year): Fall / 2010

10. Supplementary teaching component: ☒ N/A ☐ Community-Based Experience ☐ Service Learning ☐ Both

Proposed supplementary teaching component: ☐ *Community-Based Experience* ☐ *Service Learning* ☐ *Both*

APPLICATION FOR CHANGE IN EXISTING COURSE: MAJOR and MINOR

11. Cross-listing: ☒ N/A or _____ / _____
Current Prefix & Number — printed name — Current Cross-listing Department Chair — signature

a. Proposed – REMOVE current cross-listing: ☐ _____ / _____
printed name — Current Cross-listing Department Chair — signature

b. Proposed – ADD cross-listing: _____ _____ / _____
Prefix & Number — printed name — Proposed Cross-listing Department Chair — signature

12. Current Distance Learning (DL) status: ☐ Already approved for DL ☐ *Please Add* ☐ *Please Drop*

If PROPOSING, check one of the methods below that reflects how the majority of the course content will be delivered.

Internet/Web-based ☐ *Interactive Video* ☐ *Extended Campus* ☐

13. Current prerequisites:
MNG 332, MNG 335, engineering standing

Proposed prerequisites:
Engineering Standing

14. Current Bulletin description:
Characterization and analysis of mine production systems, including economic considerations. Topics include basic production systems concepts, time study, work sampling, standard time models, scheduling, PERT/CPM, system models, engineering economics, and the mine valuation problem.

Proposed Bulletin description:
Engineering economics including discounted cash flow, opportunity cost of capital, cost (incremental, sunk, etc.), net present value and rate of return, and uncertainty; topics in mineral economics.

15. What has prompted this change?
Recognition that the introductory mine systems analysis material contained in MNG 335 is adequate for mining engineering students.

16. If there are to be significant changes in the content or teaching objectives of this course, indicate changes:
Please see syllabi for the existing and proposed MNG 431 (attached).

17. Please list any other department that could be affected by the proposed change:
None

18. Will changing this course change the degree requirements for ANY program on campus? ☐ YES ☒ NC
If YES‡, list below the programs that require this course:

‡ In order for the course change to be considered, program change form(s) for the programs above must also be submitted.

19. Is this course currently included in the University Studies Program? ☐ Yes ☒ No

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20. ☐ Check box if changed to 400G or 500. If changed to 400G- or 500-level, *you must include a syllabus showing differentiation* for undergraduate and graduate students by (i) requiring additional assignments by the graduate students; and/or (ii) the establishment of different grading criteria in the course for graduate students. (See *SR 3.1.4)*

21. Within the department, who should be contacted for further information on the proposed course change?

Dr. Braden Lusk Phone: 257-1105 Email: lusk@engr.uky.edu

22. Signatures to report approvals:

11-11-08 DATE of Approval by Department Faculty	Rick Honaker /  printed name / signature Reported by Department Chair
11-20-09 DATE of Approval by College Faculty	RICHARD J. SWEIGARD /  printed name / signature Reported by College Dean
1/19/2010 *DATE of Approval by Undergraduate Council	Sharon Gill / Digitally signed by Sharon Gill DN: cn=Sharon Gill, o, ou=Undergraduate Education, email=sgill@uky.edu, c=US Date: 2010.02.03 14:24:02 -05'00' printed name / signature Reported by Undergraduate Council Chair
*DATE of Approval by Graduate Council	/ printed name / signature Reported by Graduate Council Chair
*DATE of Approval by Health Care Colleges Council (HCCC)	/ printed name / signature Reported by Health Care Colleges Council Chair
*DATE of Approval by Senate Council	Reported by Office of the Senate Council
*DATE of Approval by the University Senate	Reported by the Office of the Senate Council

*If applicable, as provided by the *University Senate Rules.* (http://www.uky.edu/USC/New/RulesandRegulationsMain.htm)

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Excerpt from *University Senate Rules:*

SR 3.3.0.G.2: **Definition.** A request may be considered a minor change if it meets one of the following criteria:

a. change in number within the same hundred series;
b. editorial change in the course title or description which does not imply change in content or emphasis;
c. a change in prerequisite(s) which does not imply change in content or emphasis, or which is made necessary by the elimination or significant alteration of the prerequisite(s);
d. a cross-listing of a course under conditions set forth in *SR 3.3.0.E*;
e. correction of typographical errors.

Existing Syllabus

Syllabus Mining 431 – Mine Systems Engineering and Valuation - Fall Semester 2008

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

Course Description:
Characterization and analysis of mine production systems, including economic considerations. Topics include basic production systems concepts, time study, work sampling, standard time models, scheduling, PERT/CPM, system models, engineering economics, and the mine valuation problem. Prereq: MNG 332, MNG 335, engineering standing.

Class Objective:
Obtain an understanding of engineering economics associated with the NCEES FE Exam. Through this process, it is expected that other mining valuation tools will be introduced.

Outcomes:

1. Students will be able to perform economic calculations similar to those expected on the NCEES FE Exam?
   (a) An ability to apply knowledge of mathematics, science, and engineering
2. Students will have topical understanding of other mining valuation tools.
   (h) The broad education necessary to understand the impact of engineering solutions in a global and societal context
3. Students will be able to perform mineral economics analysis on mineral properties similar to those presented in Mine Design classes.
   (e) An ability to identify, formulate, and solve engineering problems
4. Students will be able to articulate the meaning and application of mine valuation tools covered in the class by identifying contemporary issues in the news and discussing in class.
   (g) An ability to communicate effectively, (i) A recognition of the need for, and an ability to engage in lifelong learning, (j) A knowledge of contemporary issues,
5. Students will understand the concepts of Statistical Process Control as it pertains to mine valuation.
   (c) An ability to design a system, component, or process to meet desired needs
6. Students will understand the importance of scheduling and valuation tools and their use in mining environments.
   (c) An ability to design a system, component, or process to meet desired needs

Course Content:
The course outline for Mining 431 has been separated into 2 major sections. Supplemental material for various topics will be produced whenever necessary. Approximately half of the class lecture time will be devoted to each major section. These two sections include:

1. Engineering Economics
2. Mine Valuation Tools and Systems

Topics to be covered in each section include:

1. Engineering Economics
   a. Discounted cash flow (e.g., equivalence, PW, equivalent annual FW, rate of return)

b. Opportunity cost of Capital
c. Cost (e.g., incremental, average, sunk, estimating)
d. Analyses (e.g., breakeven, benefit-cost)
e. Net Present Value and Rate of Return Calculations
f. Uncertainty (e.g., expected value and risk)
g. And possibly other topics associated with economic analysis of mines and mining operations

2. Mine Valuation Tools and Systems
   a. Production System Concepts and Fundamentals
   b. Time Study
   c. Work Sampling
   d. Data Usage for Mine System Design
   e. Scheduling, PERT/CPM,
   f. Engineering Project Justification
   g. Engineering Project Tools

Grading/Points:

Weight:	
Homework, project assignments:	40%
Class Participation:	10%
Exams a) Exam 1:	10%
b) Midterm:	20%
c) Final:	20%

It is anticipated that the final grades will be based on a straight scale as follows:

A: 90% - 100%
B: 80% - 89%
C: 70% - 79%
D: 60% - 69%
F: < 60%

Homework:

There will be homework assignments and design problems throughout the semester; some of these will be technical writing oriented assignments. Due dates will be assigned and

Existing Syllabus

Class participation:
Questions are encouraged. Class will consist of many discussions which students are encouraged to participate in.
Class attendance is required. A student must arrive within 5 minutes of the scheduled start of class and must stay for the remainder of the period to be credited for attendance. Your grade will be reduced by 5% for each week-equivalent of class missed beyond one week. For example, since Mining 331 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%

Excused absences, as defined in the University Bulletin, are not counted in this total.
Repeated absences will result in grade deductions.

Exams:
There will be three exams in this course. Exam 1 will cover engineering economics principles. The midterm exam will cover more mining related economics principles and topics. The final will include engineering economics as well as the other management and valuation techniques covered in the remainder of the course.

Textbook:
Stermole and Stermole, Economic Evaluation and Investment Decision Making, 11th ed., 2000, Investment Evaluations Corporation, Golden CO.

Additional Reading may be required upon request.

Proposed Syllabus

Syllabus Mining 431 – Mining Engineering Economics – Proposed for Fall Semester 2009

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

Course Description:
Engineering economics including discounted cash flow, opportunity cost of capital, cost (incremental, sunk, etc.), net present value and rate of return, uncertainty; topics in mineral economics. Prereq: engineering standing.

Class Objective:
Obtain an understanding of engineering economics associated with the NCEES FE Exam. Through this process, it is expected that other mining valuation tools will be introduced.

Outcomes:

1. Students will be able to perform economic calculations similar to those expected on the NCEES FE Exam.
   (a) An ability to apply knowledge of mathematics, science, and engineering
2. Students will be able to perform mineral economics analysis on mineral properties similar to those presented in Mine Design classes.
   (e) An ability to identify, formulate, and solve engineering problems

Course Content:
The course outline for Mining 431 has been separated into major topic sections. Supplemental material for various topics will be produced whenever necessary.

Topics to be covered in each section include:

Engineering Economics

a. Discounted cash flow (e.g., equivalence, PW, equivalent annual FW, rate of return)
b. Opportunity cost of Capital
c. Cost (e.g., incremental, average, sunk, estimating)
d. Analyses (e.g., breakeven, benefit-cost)
e. Net Present Value and Rate of Return Calculations
f. Uncertainty (e.g., expected value and risk)
g. And possibly other topics associated with economic analysis of mines and mining operations

Grading/Points:

	Weight:
Homework, project assignments:	40%
Class Participation:	10%
Exams a) Exam 1:	10%
b) Midterm:	20%
c) Final:	20%

Proposed Syllabus

It is anticipated that the final grades will be based on a straight scale as follows:

A: 90% - 100%
B: 80% - 89%
C: 70% - 79%
D: 60% - 69%
F: < 60%

Homework:
There will be homework assignments and design problems throughout the semester; some of these will be technical writing oriented assignments. Due dates will be assigned and

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3-4	5%
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