Course Change Request

Date Submitted: 03/06/18 10:04 am

Viewing: ISEN 302 : Economic Analysis of Engineering Projects

Last edit: 03/06/18 11:34 am
Changes proposed by: savannah.darbonne

Catalog Pages referencing this course
- Department of Engineering Technology and Industrial Distribution
- Department of Industrial and Systems Engineering
- ISEN - Induct & Systems Eng (ISEN)
- MMET - Mfe & Mech Eng Tech (MMET)

Programs referencing this course
- MINOR-ENPM: Engineering Project Management - Minor
- BS-MEEN: Mechanical Engineering - BS
- BS-NUEN: Nuclear Engineering - BS

Contact(s)

<table>
<thead>
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Rationale for Course

Edit

The proposed changes are part of a routine curriculum review.

Course prefix ISEN  Course number 302
Department Industrial & Systems Eng
College/School College of Engineering
Academic Level Undergraduate
Undergraduate course level justification (Select One)

Academic Level Graduate
(alternate)
Effective term 2018-2019

Complete Course Title Economic Analysis of Engineering Projects
Abbreviated Course Title ECON ANLY ENGR PROJECT

Catalog course description

Principles of economic equivalence; time value of money; analysis of single and multiple investments; comparison of alternatives; capital recovery and after-tax analysis of economic projects.

Prerequisites and Restrictions

MATH 152.

Concurrent Enrollment No

Should catalog prerequisites / concurrent enrollment be enforced? Yes

Enforced Prerequisites / Concurrent Enrollment

In Workflow
1. ISEN Department Head
2. Curricular Services Review
3. EN Committee Preparer UG
4. EN Committee Chair UG
5. EN College Dean UG
6. UCC Preparer
7. UCC Chair
8. Faculty Senate Preparer
9. Faculty Senate
10. Provost II
11. President
12. Curricular Services
13. Banner

Approval Path
1. 03/06/18 11:25 am
   Mark Lawley
   (malawley): Approved for ISEN Department Head
2. 03/06/18 11:35 am
   Sandra Williams
   (sandra-williams): Approved for Curricular Services Review
3. 03/06/18 4:16 pm
   Eileen Hoy [ehoy]: Approved for EN Committee Preparer UG
4. 03/08/18 1:55 pm
   Prasad Enjeti [enjeti]: Approved for EN Committee Chair UG
5. 03/08/18 1:57 pm
   Sandra Williams
   (sandra-williams): Approved for UCC Preparer
6. 03/08/18 3:17 pm
   Sandra Williams
   (sandra-williams): Approved for UCC Chair

https://nextcatalog.tamu.edu/courseleaf/approve/


And/Or | ( | Course Prefix/Number | Min Grade/Score | Academic Level | ) | Concurrency?
---|---|---|---|---|---|---
| | MATH 152 | D | UG | | |

Crosslistings
No
Crosslisted With

Stacked
No
Stacked with

Semester: 2
Credit Hour(s): 2
Lecture: 2
Lab: 0
Other: 0
Total: 2

Repeatable for credit?
No
Three-peat?
No

CIP/Fund Code: 1435010006

Default Grade Mode: Letter Grade (G)
Alternate Grade Modes: Satisfactory/Unsatisfactory

Method of instruction: Lecture

Will sections of this course be taught as non-traditional? (i.e., parts of term, distance education)
Yes

Learning Outcomes

Meets traditional face-to-face learning outcomes.

Describe how learning outcomes are met or provide justification why they are not met.
The learning outcomes for the traditional & non-traditional sections are identical. Learning outcomes in the non-traditional section are met through a combination of pre-recorded video lecture content which is delivered together with lecture slide, together with short, abbreviated synopsis videos and readings from a textbook. Learning outcomes are reinforced and assessed through a combination of quizzes, homework problem sets and exams.

Hours

Meets traditional face-to-face hours.

Describe how hours are met or provide justification why they are not met.
The total sum of non-traditional video lecture content is equivalent to the sum of face-to-face lecture delivery in an in-class period. Textbook reading assignments and homework assignments are also equivalent between the two.

Will this course be taught as a distance education course?
Yes No

I verify that I have reviewed the FAQ for Export Control Basics for Distance Education.
Yes No

Is 100% of this course going to be taught in Texas?
Yes

Will classroom space be needed for this course?
Yes

This will be a required course or an elective course for the following programs:

Required (select program)
Elective (select program)

Has/will this course be(en) submitted for core curriculum consideration? No

Has/will this course be(en) submitted for Writing or Communication consideration? No

Has/will this course be(en) submitted for ICD consideration? No

Course Syllabus

Syllabus: Upload syllabus

Upload syllabus
2018Summer ISEN 302 Syllabus.pdf
ISEN 302 traditional syllabus-fall09.pdf

Letters of support or other documentation No

Additional information

Reviewer Comments Sandra Williams (sandra-williams) [03/09/18 3:33 pm]: UCC approved March 9 via e-vote.

Reported to state? No
**Course Description**

Economic Analysis of Engineering Projects. (2-0). Credit 2. Principles of economic equivalence; time value of money; analysis of single and multiple investments; comparison of alternatives; capital recovery and after-tax analysis of economic projects.

**Prerequisite**

MATH 152 and ability to use Microsoft Excel.

**Textbook**


**Supplemental Material**


**Evaluation Procedure**

Homework assignments are due before the class on the due date. Late submission will not be accepted. In addition, there will be in-class quizzes, two midterms and one final examination during the semester. No make-up examinations will be given unless prior arrangements have been made with the instructor.

The components of the course grade and their weights are: Quizzes, 10%; Homework, 10%; Midterm Examination I, 25%; Midterm Examination II, 25%; Final Examination, 30%.

The university letter grade policy is followed (90% or greater: A; 80-89%: B; 70 – 79%: C; 60 – 69% D; below 60% F).

**Course Learning Outcomes:** At the end of the course, students should be able to

- Make engineering decisions based on an economic analysis of alternatives
- Explain and demonstrate the principles of economic equivalence and time value of money
- Formulate and solve equations using interest factors and formulas
- Distinguish between nominal and effective interest rates and convert between them
- Identify and determine constituent cash flows of single and/or multiple investments
- Examine, diagram, and compare investment alternatives on an economic basis using appropriate terminology
- Conclude and justify the best investment alternative(s) based on appropriate analysis
- Develop and construct spreadsheet models to investigate alternatives
- Determine and utilize appropriate capital recovery methods for alternatives
- Compute and summarize after-tax analysis of projects
Relationship of Course to ABET Outcomes

A. Ability to apply knowledge of mathematics, science, and engineering
E. Ability to identify, formulate, and solve engineering problems
K. Ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Attendance

Class participation is highly encouraged. While attendance will not be formally taken, each student will be held responsible for any material covered and announcements made in the class. There will be no make-up exams, or quizzes except in cases of University-approved absences. Please see student-rules.tamu.edu/rule07 for guidelines on excused absences. Any work submitted after a University-approved absence must be accompanied by the appropriate written documentation when applicable. Excused absences are well defined by the university rules (illness that is documented, family emergencies, and university sponsored events (with documentation)).

Job interviews are NOT excused events.

Course Policies

A major reason for taking this class is to prepare you for the Fundamentals of Engineering (FE) exam. To this end, students are strongly encouraged to use calculators that are approved by NCEES for use on the FE. The NCEES website (http://ncees.org/exams/calculator-policy/) provides a list of the current approved calculator brands and models.

Please silence cellphones during class; either texting or browsing is not allowed. You will be asked to leave the classroom if you use your cell phone during lectures. Cellphone use during an exam will result in the exam being forfeited immediately.

All exams and quizzes are closed-book/notes/computer/smartphone. Calculator is allowed.

Academic Integrity. “An Aggie does not lie, cheat, or steal, or tolerate those who do.”

Copying work done by others, either in-class or out-of-class, is an act of scholastic dishonesty and will be prosecuted to the full extent allowed by University policy. Collaboration on assignments, either in-class or out-of-class, is forbidden unless permission to do so is granted by your instructor. For more information on university policies regarding scholastic dishonesty, see University Student Rules. “An Aggie does not lie, cheat, or steal or tolerate those who do.” It is the responsibility of students and instructors to help maintain scholastic integrity at the university by refusing to participate in or tolerate scholastic dishonesty. (See the web site http://aggiehonor.tamu.edu for the Honor Council Rules and Procedures.)

The Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 979-845-1637. For additional information, visit http://disability.tamu.edu/
Tentative Course Outline

Week 1 (01/15)  Ch. 1 Making Economic Decisions;
Week 2 (01/22)  Ch. 2 Engineering Costs and Estimating
Week 3 (01/29)  Ch. 3 Interest and Equivalence
Week 4 (02/05)  Ch. 4 Equivalence for Repeated Cash Flows
Week 5 (02/12)  Ch. 5 Present Worth Analysis
                Exam. 1: test Chapters 1 - 4 (02/14/2018)
Week 6 (02/19)  Ch. 6 Annual Cash Flow Analysis
Week 7 (02/26)  Ch. 7 Rate of Return Analysis
Week 8 (03/05)  Ch. 8 Choosing the Best Alternative
Week 9 (03/12)  Spring Break
Week 10 (03/19) Ch. 9 Other Analysis Techniques
Week 11 (03/26) Ch. 11 Depreciation
                Exam. 2: test Chapters 5 - 9 (03/28/2018)
Week 12 (04/02) Ch. 11 Depreciation
Week 13 (04/09) Ch. 12 Income Taxes for Corporations
Week 14 (04/16) Ch. 12 Income Taxes for Corporations
Week 15 (04/23) Ch. 14 Inflation and Price Change
Week 16 (04/30) Ch. 14 Inflation and Price Change.

Final Exam. (05/07/2018)  10:30 a.m. – 12:30 p.m.