

Engineering Economy
EIN 4354 Section 2613
Academic Term: Fall 2016

Instructor:

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Course Description

3 credits. Basic principles and applications of economic decision-making between alternatives encountered in engineering systems projects. Analysis includes methodologies of economics and finance in addition to engineering fundamentals.

Course Pre-Requisites / Co-Requisites

MAC 2312 with a minimum grade of C

Course Objectives

- Learn basic principles and applications of economic decision-making between alternatives encountered in engineering systems projects.
- Develop necessary skills to evaluate capital investment alternatives using economic concepts and time value of money.
- Acquire analytical and financial techniques for economic justification of decisions.

Materials and Supply Fees

N/A

Professional Component (ABET):

The Engineering Economy course provides the student with the basic mathematical, modeling, and conceptual skills to compare competing design proposals from the point of view of economic efficiency as well as engineering efficiency. Technical proposals must ultimately be expressed and measured in terms of material and manufacturing costs to provide a given product and service and those costs then measured against the likely cash flows to be generated in the market, allowing the overall profitability and financial feasibility of such projects to be assessed. The units on federal tax policy and public sector projects also touch upon social and political considerations. Thus tax policy may implicitly favor and encourage corporations to make greater investments in R & D through an orchestrated series of directed tax credits and deductions.

Relation to Program Outcomes (ABET):

Outcome	Coverage
a. Apply knowledge	Medium
b. Conduct experiments	
c. Design	
d. Function on teams	
e. Solve problems	High
f. Professional and ethical responsibility	Medium
g. Communicate	Low
h. Economic impact	High

i. Lifelong learning	
j. Contemporary issues	
k. Techniques, skills, and tools for degree program	High

Required Textbooks

Course Notes are available for free downloading at this (Canvas) site:

- M. Zabarankin and S. Uryasev, Course Notes: Engineering Economy. 2015

Recommended Materials

Material covered in this course is included in the Course Notes. For a deep understanding of the course topics it is recommended, also, to study the following two books:

- G. Newnan, J.P. Lavelle and T.G. Eschenbach, Engineering Economic Analysis, Oxford University Press, 2013, 12th edition. ISBN 0199339279
- G. Luenberger, Investment Science, Oxford University Press, 2013, 2nd edition. ISBN 0199740089

Course Format

This is an online delivery course. Lecture notes, assignments, practice exercises, and extra information are all going to be available to you on the class website at CANVAS. The assignment submission system can be reached at the tab Assignments.

Course Schedule

The course Schedule is offered as a guide. This means that it is subject to change, depending on the pace of the class. The instructor might choose to cover parts of the curriculum more extensively, or give extensions to deadlines. The dates of the exams might be subject to change depending on the progress of the class.

Week	Lesson	Quiz/Exam
1	0. General introduction	
2	1. Estimating costs and benefits	Q1
3	2. Interest and equivalence	Q2
4	3. Net present value analysis	Q3
5		Midterm1
6	4. Internal rate of return analysis	
7		Q4
8	5. Annual percentage rate	Q5
9	6. Depreciation	Q6
10		Midterm2
11	7. Income taxes	
12		Q7
13	8. Inflation and price change	Q8
14	9. Practical problems	
15	Review	
16		Final

Attendance Policy

Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.

Attendance is **not mandatory**. However, it is your responsibility to keep up with the class updates (material to be taught, quizzes, exams, etc.).

Exam Policy

Under no circumstances students should expect an arrangement that will not require their physical presence to an examination.

Students needing a makeup exam, or special accommodation have to inform the instructor at least one week before the date of the exam. **Please do not ask for a makeup exam to attend a job interview. Exceptions will be made for medical emergencies or other extraordinary occasions.**

Homework Assignments & Quizzes

All homework assignments & quizzes must be submitted via the Course's website in the specified system unless specified otherwise. Submission of links to outside or cloud files does not constitute submission.

Assignment & Quiz deadlines are rigid. If you do not submit before the deadline or submit the wrong file, you may receive a zero. **Only the instructor has the authority to grant late submissions.**

Evaluation of Grades

Assignment	Percentage of Final Grade
In-class midterm exams	50% (25% each)
Eight quizzes (the lowest one will be dropped)	25% (equal weight)
Final exam	25%
Total	100%

Grading Policy

Grade	Percent
A	>=93
A-	[90, 93)
B+	[87, 90)
B	[83, 87)
B-	[80, 83)
C+	[77, 80)
C	[73, 77)
C-	[70, 73)
D+	[67, 70)
D	[63, 67)
D-	[60, 63)
E (F)	<60

A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). This scale is tentative and will be adapted to the class performance. However, grade limits will not increase. For example, a 91% score at the end of the semester may transform either into scale corresponding A- grade, or to a higher (A) grade.

Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<http://www.registrar.ufl.edu/catalog/policies/regulationgrades.html> and

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Re-grading Policy

A request from students to have their exams or assignments, *may* result in loss of points. Any grade issues should be brought to the attention of the instructor within 10 days after the grades are announced.

Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will

receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Course Evaluation

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

University Honesty Policy

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

Campus Resources:

Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact umatter@ufl.edu or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center: <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)

Student Health Care Center, 392-1161.

University Police Department at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

Academic Resources

E-learning technical support, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu.
<https://lss.at.ufl.edu/help.shtml>.

Career Resource Center, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

Library Support, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.
<https://teachingcenter.ufl.edu/>.

Writing Studio, 302 Tigert Hall, 846-1138. Help brainstorming, formatting, and writing papers.
<https://writing.ufl.edu/writing-studio/>.

Student Complaints Campus: https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf.

On-Line Students Complaints: <http://www.distance.ufl.edu/student-complaint-process>.