

ISEN 302
Economic Analysis of Engineering Projects
(2-0) Credit 2
Fall 2004

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.

Course Prerequisite: Math 152.

Textbook: Engineering Economy, L. T. Blank and A. J. Tarquin, 5th edition, McGraw-Hill, 2002; ISBN 0 - 07- 243234-9.

References: Handouts to be provided as required

Course Coordinator: Dr. Don R. Smith, P. E.

Goals:

A first course in basic engineering economic analysis that introduces the fundamental notions of the economic analysis of industrial projects. Emphasis is placed upon the time value of money, formulation and analysis of the present worth family of analysis techniques both before and after-tax. The intent is to expose undergraduate engineering students to the methodologies associated with economic analysis, proper formulations, and requisite data requirements need to support the analysis approaches.

Assumed Skills

In addition to basic calculus, students are expected to possess reasonable computational skills with spreadsheet modeling in Excel. Specifically, Excel skills are assumed in building cell equations, importing data, goal seek analysis, formatting, plotting of output data, and designing and implementing input formats and the application of a variety of built-in Excel financial functions. Students who have a minimal grasp of Excel will be expected to upgrade their respective skill by a rigorous self-study program outside of the course.

Required Topics and Chapters that Apply

The following table illustrates the chapter coverage for the course. This course is primarily a problems solving course and requires the ability to formulate and solve a variety of computational problems. Success in this course is directly related to the working out of assigned problems and the careful study of the numerous example problems provided in the text.

The table shown below provides the topical coverage week by week along with the scheduled hourly exams for a 14-week semester format.

ISEN 302		Typical 14 week Semester Format			
Session No.	Week No.	Topic	Chapter	Time Hrs	Topic Hrs
1	1	Class Organization Foundations of Engr Econ	1	1	2
2	1	Foundations, continued	1	1	
3	2	Time value of Money Factors	2	1	3
4	2	Time value of Money Factors	2	1	
5	3	Time value of Money Factors	2	1	
6	3	Combined Interest Factors	3	1	2
7	4	Combined Interest Factors	3	1	
8	4	Nominal and Effective Interest	4	1	2
9	5	Nominal and Effective Interest	4	1	
10	5	Exam Number 1: Chapters 1-4		1	2
11	6	Critique Exam 1		1	
12	6	Present Worth Analysis	5	1	3
13	7	Present Worth Analysis	5	1	
14	7	Present Worth Analysis	5	1	
15	8	Annual Worth Analysis	6	1	2
16	8	Annual Worth Analysis	6	1	
17	9	Rate of Return Analysis	7	1	2
18	9	Rate of Return Analysis	7	1	
19	10	Exam 2: Chapters 5,6,7		1	2
20	10	Critique Exam 2		1	
21	11	Depreciation Methods	16	1	3
22	11	Depreciation Methods	16	1	
23	12	Depreciation Methods	16	1	
24	12	Thanksgiving Break			
25	13	After-Tax Analysis	17	1	3
26	13	After-Tax Analysis	17	1	
27	14	After-Tax Analysis	17	1	
28	14	Wed & Thurs: No Classes - Reading Days			
		2-Hr. Time blocks for final Exam as defined by the Academic Schedule	Coverage 16, 17 + prior topics as communicated		2

Course Components:

1. Topical Coverage: 22 Hours
2. Exams: 4 Hours (Two 50-minute in class exams & One 2-Hour final)
3. Exam Critique: 2 Hours

Grade Determination:

1. Hour Exams – In class 50%
2. Final Exam – Comprehensive 30%
3. Assigned Homework 15%
4. Attitude/Attendance 5%

Attendance Policy

Class attendance is a critical factor to the success in this course. All students are expected to come to class on time and prepared. Individual instructors reserve the right to monitor attendance. Coming late to class is disruptive and unless a valid reason is presented will be handled on a case by case basis and if chronically violated will result in the appropriate modification of the final grade.

If a student misses a scheduled examination, every effort should be made in a timely manner to contact the instructor in advance. In order to take a make up exam the student must present in writing reasons for missing the exam. Failure to provide adequate documentation will result in a "0" grade for that exam.

Homework Assignments

Individual instructors will provide in advance, a list of assigned homework problems for each chapter in the course outline. Problems are to be worked on engineering grid paper in a neat and orderly fashion. No more than two problems per page will be permitted. Where appropriate, cash flow diagrams will be neatly drawn using the standard engineering economy notation as defined in the text. Final results are to be double underlined and all work will be logically presented. Failure to exercise neatness and completeness will result in the appropriate deduction. Due dates for handing in homework will be strictly followed and late homework will not be accepted.

Handouts and Copyrights:

The handouts used in this course are copyrighted. By "handouts," is meant all materials generated for this class, which include but are not limited to syllabi, quizzes, exams, lab problems, in-class materials, review sheets, and additional problem sets. Because these materials are copyrighted, you do not have the right to copy the handouts, unless permission is expressly granted.

As commonly defined, plagiarism consists of passing off as one's own the ideas, words, writings, etc., which belong to another. In accordance with this definition, you are committing plagiarism if you copy the work of another person and turn it in as your own, even if you should have permission of that person. Plagiarism is one of the worst academic sins, for the plagiarist destroys the trust among colleagues without which research cannot be safely communicated. If you have any questions regarding plagiarism, please consult the latest issue of the Texas A&M University Student Rules, under the section "Scholastic Dishonesty."

Academic Integrity

"Aggies do not lie, cheat, or steal, nor do they 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. If you personally observe any act of academic dishonesty you are required by the code to report such activity in a timely manner to your instructor or any authorized representative of the academic department so affected. Failing to report a know incident or incidents of academic dishonesty can assume that you are in violation of the Code.

The American with Disabilities Act

American with Disabilities Act (ADA) is a federal antidiscrimination 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 the Department of Student Life, Services for Students with Disabilities in Room 126 Koldus Building, or call 845-1637.

If you require special testing accommodation you must report to your instructor the first week of the semester for any special testing needs you may require. You will be asked to report to the Department of