

ILLINOIS INSTITUTE OF TECHNOLOGY

FALL SEMESTER 2009

ECON 423: ECONOMIC ANALYSIS OF CAPITAL INVESTMENTS
MONDAY/WEDNESDAY 11:25 AM - 12:40 PM, SB 238
JOHN R. TWOMBLY, PhD, CPA

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HOURS: Monday/Wednesday: 1:45 PM - 4:30 PM,
and by appointment.

Required Text: Newnan, Donald G., Lavelle, Jerome P. , and Eschenbach, Ted G., Engineering Economic Analysis, 10th Edition, Oxford University Press, 2009. ISBN #978-0-19-536573-3.

Recommended Text: Newnan and Wheeler. Study Guide for Engineering Economic Analysis.

Recommended Calculator: I use a Hewlett-Packard financial calculator, the HP-10BII. If you were to purchase one, I could help you use it.

COURSE DESCRIPTION

Economics 423 is concerned with the economic evaluation of alternative investments involving technical or engineering considerations. This is an important subject matter for students of science and engineering because (a) knowledge of the way proposals are evaluated will help direct their efforts to projects with a higher probability of being realized, (b) they may be called upon to undertake studies of proposed capital investments in areas of their own technical expertise, (c) many engineers and scientists become managers in positions where they will use these methods in reaching decisions, (d) the engineers' professional examinations include a section on engineering economics, and (e) personal financial decisions involving home mortgages, car loans, real estate investments, etc. can be made using methods presented in this course.

COURSE OBJECTIVES

Upon completion of this course, the successful student should be able to :

1. Calculate the present value, future value and equivalent annual worth for future cash flow streams;
2. Apply five basic methods for making engineering economy studies;
3. Perform engineering economic analyses involving depreciation, taxes, inflation, uncertainty and non monetary attributes; and
4. Pass the engineering economics section of professional engineers' examinations.

METHODOLOGY

The primary instructional technique employed in this course is the lecture format, combined with discussion of the assigned problems and cases. Sometimes students will be required to present their solutions to problems or cases to the rest of the class. To obtain the maximum benefit from each class, the student should complete the relevant reading and homework assignments **prior to class**.

EVALUATION PROCEDURES

Grades will be based upon your performance on two hourly exams, a final exam, homework assignments, and class attendance (+ or -). The weights assigned to these variables will be: (1) 50% for the hourly exams; 40% for the final exam, and 10% for the homework; or (2) 40% for the second hourly, 50% for the final, and 10% for the homework; or (3) 90% for the final exam and 10% for the homework, whichever of the three weighting systems gives the student the highest grade.

Americans with Disabilities Act (ADA) Policy Statement

Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must contact the Center for Disability Resources. The Center for Disability Resources (CDR) is located in Life Sciences Room 218, telephone 312 567.5744 or disabilities@iit.edu.

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COURSE OUTLINE

<u>Meeting #</u>	<u>Date</u>	<u>Topic</u>	<u>Read</u>	<u>Do Problems</u>
1	Aug. 24 (M)	Introduction	Chapter 17	None
2	Aug. 26 (W)	Making Economic Decisions	Chapter 1	1: 2, 3, 15, 28, 51, 57, 59.
3	Aug. 31 (M)	Costs and Cost Estimating	Chapter 2	2: 5, 9, 11, 15, 16, 33, 45.
4	Sep. 2 (W)	Interest and Equivalence	Chapter 3	3: 4, 5, 13, 18, 22, 26.
*	Sep. 7 (M)	LABOR DAY HOLIDAY		
5	Sep. 9 (W)	More Interest(ing) Formulae	Chapter 4	4: 3, 10, 13, 22, 24, 27 32.
6	Sep. 14 (M)	More Interest(ing) Formulae	Chapter 4	4: 41, 46, 68, 75, 77, 98, 112.
7	Sep. 16 (W)	Present Worth Analysis	Chapter 5	5: 2, 8, 11, 15, 27, 43, 59, 63.
8	Sep. 21 (M)	Annual Cash Flow Analysis Turn-In Take Home Problems	Chapter 6	6: 7, 22, 28, 37, 46, 56.
9	Sep. 23 (W)	Catch up/Review	Prior Work	
10	Sep. 28 (M)	First Hourly Examination	Ch: 1, 2, 3, 4, 5, 6.	
11	Sep. 30 (W)	Rate of Return Analysis	Chapter 7, 7A	7: 4, 7, 14, 32, 64; 7A: 6, 7, 13.
12	Oct. 5 (M)	Incremental Analysis	Chapter 8	8: 3, 12, 23, 28, 33.
13	Oct. 7 (W)	Other Analysis Techniques	Chapter 9	9: 15, 21, 33, 43, 49, 61.
*	Oct. 12 (M)	FALL BREAK HOLIDAY		
14	Oct. 14 (W)	Depreciation	Chapter 11	11: 7, 12.
15	Oct. 19 (M)	Depreciation	Chapter 11	11: 22, 30, 36, 42.
16	Oct. 21 (W)	Income Taxes	Chapter 12	12: 8, 9, 11, 17.
17	Oct. 26 (M)	Income Taxes Turn-In Take Home Problems	Chapter 12	12: 23, 25, 37, 50.
18	Oct. 28 (W)	Catch up/Review	Prior Work	
19	Nov. 2 (M)	Second Hourly Examination	Ch: 7, 7A, 8, 9, 11, 12.	
20	Nov. 4 (W)	Replacement Analysis	Chapter 13	13: 1, 2, 3, 4, 5, 7, 9.
21	Nov. 9 (M)	Replacement Analysis	Chapter 13	13: 17, 19, 20, 21, 32, 34.
22	Nov. 11 (W)	Inflation and Price Change	Chapter 14	14: 4, 7, 11, 16.

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COURSE OUTLINE, continued

<u>Meeting #</u>	<u>Date</u>	<u>Topic</u>	<u>Read</u>	<u>Do Problems</u>
23	Nov. 16 (M)	Inflation and Price Change	Chapter 14	14: 28, 30, 42, 43, 49.
24	Nov. 18 (W)	Catch up/Review	Prior Work	
25	Nov. 23 (M)	Uncertainty in Future Events	Chapter 10	10: 8, 17, 21, 43.
*	Nov. 25 (W)	THANKSGIVING HOLIDAY		
26	Nov. 30 (M)	Selection of MARR	Chapter 15	15: 1, 3, 4, 14,, 20.
27	Dec. 2 (W)	Public Sector Analysis	Chapter 16	16: 14, 15, 20, 26, 24, 30.
28	Dec. 7 (M)	Catch up/Review	Prior Work	
29	Dec. 8-14	Final Examination	All Prior Work	On the exam.