

EDMM 3200 ENGINEERING COST ANALYSIS

Catalog Description: A course in engineering economics and the economic comparison of alternative technical systems. Includes interest, equivalence, depreciation, taxes, and risk. NOT FOR ENGINEERING CREDIT. Prerequisite: Recommended, MATH 1220 or MATH 2000 or MATH 1700.

Textbook: Your text for this semester is a custom *ebook*, featuring **only the end-of-chapter problem sets** from the eleventh edition of Newnan, Lavelle, and Eschenbach's *Engineering Economic Analysis*. You have the choice of either buying the *ebook* or a soft bound paper copy. Further details for purchasing this *ebook* is given at the end of this syllabus.

Long Term Behaviors:

In the future, students completing this course can:

1. Use spreadsheet analysis for solving financial problems of all types.
2. Be used as financial evaluators to judge the soundness in the selection of projects (from a large list) when working with constrained resources.
3. Be asked to advise on suitability of a specific depreciation method best suited for a given situation in order to minimize taxes.
4. Regularly make financial investment decisions consistently resulting in above average returns on their personal portfolio with reduced tax liabilities.

Prerequisites by Topics:

1. A good knowledge of formulating and solving algebraic equations.
2. Differential and integral calculus. (MATH 1220).

Course Objectives:

<u>Course Objectives</u>	<u>Performance Criteria</u> ¹
1. Determine depreciation of a tangible asset using a variety of methods	B3 Uses appropriate engineering, science, and mathematical tools for decision making (OR, statics, materials, etc.)
2. Calculate income taxes for a corporation or an individual	I4 Demonstrates a knowledge of professional codes
3. Evaluate multiple alternatives using time value of money techniques	F3 Applies tools and modeling techniques suited to the problem
4. Use spreadsheets for financial analysis	A2 Demonstrates the use of one or more tools (CAD, Word, Excel, PowerPoint, CAE) in presentation, analysis, research of a design

Course Schedule:

WEEK OF:	MODULE (CHAPTERS)	SHORT QUIZZES¹ (LAST DATE)	QUIZZES² (DATE)	EXAMS³ (DATE)	ASSIGNMENTS⁴ DATES	UNITS TO BE COMPLETED
1	0, 1, 2,3					0, 1, 2, 3.1
2	3	SEQ1				3.2 TO 3.4
3	4	SEQ2	TQ			4.1, 4.2
4	4	SEQ3	Q1			4.3, 4.6, 4.7
5	5,6		Q2			5, 6.1, 6.2
6	7	SEQ4		E1		7.1
7	7,8	SEQ5			A1 A1	7.2, 8
8	9,10					9, 10
9	11	SEQ6 SEQ7				11
10	13		Q3		A2 A2	13.1
11	13	SEQ8		E2		13.2, 13.3
12	14	SEQ9				14.1
13	14	SEQ10				14.2
14	REVIEW					
15	FINALS	E3				

Self-Evaluation Quizzes:

The course provides a tool for self-evaluation upon the completion of a group of learning units. These are given in the form of “Self-Evaluation Quizzes” (SEQ). Each SEQ has 5 multiple choice questions with one point assigned for each correct answer. Once started, you have a total of 5 minutes to complete the SEQ and submit it. One question at a time will be displayed and you can always revisit a question before submitting the quiz. The SEQ will be computer graded immediately upon submission and you will receive your grade. If you are not satisfied with the grade in the first attempt, you should *watch the video lectures again in its entirety* and then retake that SEQ. The **higher of the two grades** will be recorded for that SEQ. If the quiz is not taken by the last date specified in the “Course Schedule” given above, you will automatically receive a zero for that quiz. It cannot be taken after the last date. All the SEQ’s are computer graded and account for a total of 50 points which is 10% of the course grade.

The multiple choice questions in each quiz can only be answered if you have viewed and understood the videos for the appropriate units. Therefore, it is imperative that you view and understand the posted videos on a regular basis. [Note: Last Dates are Sundays]. Each SEQ can be taken at any time during the week but must be completed just before midnight (11:59 pm) of the last date specified against the quiz.

Quizzes:

A total of three quizzes will be given in class on the dates specified in the course syllabi. Each one of these will be administered for 15 minutes on the day of the quiz as shown in the course schedule. The quizzes will be made available through the *elearning* Dropbox and, upon completion, must be submitted back to the *elearning* Dropbox. If you are absent, you will receive a zero for that quiz.

Examinations:

Exam #1 (duration of 50 minutes) will cover modules 3 and 4. Four questions will be given to be solved using formulas and factors (NOT Excel).

Exam #2 (duration 50 minutes) will cover all of modules 5, 6, 7, 8, 9, and 10. In this exam, four questions will be given and they must all be solved using Excel only.

Exam #3 (comprehensive final exam) will have five questions and will be of duration 1 hour-40 minutes. This exam must be solved using Excel only.

All three examinations will be given through the *elearning* Dropbox on the dates specified in the course schedule and must be taken in class.

Excel Assignments:

Two assignments (A1 and A2 in the course schedule) will be given during the semester. These will be available through the *elearning* Dropbox at 9:00 am on a Tuesday (the dates are specified in the course schedule) and you must use Microsoft Excel to solve each assignment. These assignments must be completed and submitted by 9:00 am on Saturday of the same week. Any assignment submitted from 9:01 am. onwards of the due date WILL RECEIVE A ‘ZERO’. You must submit the completed assignment through the *elearning* Dropbox. Submission of all assignments is mandatory to pass the class. In doing the assignments, you may seek assistance from another student/instructor. However, you should not complete the assignment with another student.

Assigned Problems:

The only way you can understand the subject material and do well in this course is by actually solving problems. For each learning unit, several problems have been assigned (and answers given). It is strongly recommended that you solve **all** the problems assigned. Not only will this help you to understand the basic concepts but also

considerably reduce the amount of time you will need to solve a problem. This will benefit you when taking the quizzes and examinations. If you have difficulty in solving any problem, you can see the instructor in his office during office hours (preferred) or inform the instructor at the beginning of the lecture. Solve all the questions in Chapters 3 and 4 using formulas and factors. Also solve as many of these questions as possible in Excel so that you become familiar in using Excel. Solve all the questions from module 5 on word using Microsoft Excel only. Quiz #3, Examinations #2, and Examination (#3) will be in Excel only.

Library Usage:

There are several books on the subject of Engineering Economy housed in Waldo Library containing numerous solved problems. It is strongly recommended that the student use some of these books to study the solved examples and also solve them using Excel. This will greatly enhance his/her ability to analyze problems and determine the approach to be taken for solving any given problem.

Evaluation Distribution:

1.	10 Short Quizzes	10%
2.	2 Excel Assignments	10%
3.	3 Quizzes	10%
4.	Examination # 1	20%
5.	Examination # 2	20%
6.	Examination # 3	25%
7.	<u>Attendance</u>	<u>5%</u>
	Total	100%

Grading Scale:

The following grading scale will be used in my class:

A (91–100), **BA** (86–91), **B** (81–86), **CB** (76–81), **C** (71–76), **DC** (66–71), **D** (60–66), **E** (below 60).

Attendance at all three examinations is mandatory and no make-up exam will be given. All examinations, quizzes, short quizzes, and spreadsheet assignments will be graded on a numerical scale. At the end of the semester, the grades will be added up for all the items (with the appropriate weights) and then converted to a letter scale to determine the final course grade. In order to pass the course, **one's overall score must be in the passing range and also he/she must obtain (i) a passing grade (D or higher) in any two exams (to receive a grade of C or higher in the course), or (ii) a passing grade (D or higher) in at least one exam (to receive a grade of D or DC).** If you fail in all three exams, you will fail the course.

Academic Honesty:

Students are responsible for making themselves aware of and understanding the University policies and procedures that pertain to Academic Honesty. These policies include cheating, fabrication, falsification and forgery, multiple submission, plagiarism, complicity and computer misuse. The academic policies addressing Student Rights and Responsibilities can be found in the Undergraduate Catalog at

<http://catalog.wmich.edu/content.php?catoid=24&navoid=974>.

If there is reason to believe you have been involved in academic dishonesty, you will be referred to the Office of Student Conduct. You will be given the opportunity to review the charge(s) and if you believe you are not responsible, you will have the opportunity for a hearing. You should consult with your instructor if you are uncertain about an issue of academic honesty prior to the submission of an assignment or test. In addition, students are encouraged to access the Code of Honor, as well as resources and general academic policies on such issues as diversity, religious observance, and student disabilities: