

ENME464

Cost Analysis for Engineers **(An Introduction to Engineering Economics and Product Cost Modeling)**

Spring 2013

Instructor: Dr. Peter Sandborn
Office: ENG 2106A
Phone: (301) 405-3167
Email: sandborn@umd.edu
Office Hours: (TBA) or by appointment

Course Description:

The objective of this course is to provide students with an introduction to the financial and cost analysis aspects of product engineering. This course introduces key elements of traditional engineering economics including interest, present worth, depreciation, taxes, inflation, financial statement analysis, and return on investment. This course also provides an introduction to cost modeling as it applies to product manufacturing and support. Cost modeling topics will include: manufacturing cost analysis, life-cycle cost modeling (reliability and warranty), and cost of ownership.

Prerequisites:

ENME 392 or equivalent

Text:

Required – *Engineering Economy*, 7th Edition, L. Blank and A. Tarquin, McGraw Hill, 2012.

Suggested – *Cost Analysis of Electronic Systems*, P. Sandborn, World Scientific, 2012.

Course Outline:

Introduction

- Economic Decisions
- How Costs are Determined

Introduction to Engineering Economics

- Engineering Economics – Introduction, Definitions
- Time Value of Money (Interest)
- Present Value Analysis
- Annual Worth Analysis
- Rate of Return Analysis

- Depreciation, Taxes and Other Things
- Accounting
- Return on Investment Analysis
- Project Management
- Financial Statement Analysis

Cost Modeling

- Manufacturing Cost Modeling (process flow, parametric, ABC)
- Yield, Test and Rework
- Learning Curves
- Life-Cycle Cost Modeling (reliability and warranty)
- Introduction of System Sustainment
- Real Options Analysis
- Cost of Ownership

Grading Policy:

30% Homework
 20% Exam 1
 20% Exam 2
 30% Final Exam

Homework:

The course expects to assign approximately one homework assignment every 1-2 weeks. Homework assignments will be collected in the lecture on the day the assignment is due. Late homework will be marked 10% off if it is handed in before solutions are posted; homework will not be accepted after the solutions are posted.

Homework Format:

- Use one side of the paper only
- Pen or pencil
- Staple pages together
- All pages numbered at the top (e.g., 1/3 means page 1 out of 3)
- Student name must appear at the top of every page
- Box your answers
- Answers must include units (if applicable)
- Neatness counts – if I can't read it, I can't grade it
- Show all your work (no work, no points).

Make-Up Exams:

Make-up exams are only allowed for justifiable reasons if notified in advance (i.e., University approved religious observance) or with a documented reason for an un-notified emergency absence (i.e., family or medical emergency).

Honor Code:

“The University of Maryland, College Park has a nationally recognized Code of Academic Integrity, administered by the Student Honor Council.

This Code sets standards for academic integrity at Maryland for all undergraduate and graduate students. As a student you are responsible for upholding these standards for this course. It is very important for you to be aware of the consequences of cheating, fabrication, facilitation, and plagiarism. For more information on the Code of Academic Integrity or the Student Honor Council, please visit <http://www.studenthonorcouncil.umd.edu/whatis.html>.”