

American University of Beirut  
Faculty of Engineering and Architecture  
Department of Industrial Engineering and Management

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## INDE 301 Engineering Economy

Spring 2017, CRN 20417 , MWF 10:00 - 10:50 AM, IOEC 224C

### Instructor

Dr. Bacel Maddah

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Webpage: [www.aub.edu.lb/~bm05/](http://www.aub.edu.lb/~bm05/)

Office hours: MWF 11 AM - 12 PM

### Course Description

This course deals with the economic evaluation of alternatives that arise during the design and operation of engineering and business systems. The objective is to choose a “good” alternative based on sound scientific (economic) criteria. The course will introduce the students to the concepts of **time value of money**, present and annual worth analysis, rate of return, taxes, depreciation, inflation, and decision making under uncertainty, among others. Upon completion of this course, the student will be able to perform basic (but insightful) economic feasibility analysis of engineering and business projects.

### Textbook

Blank, L. and A. Tarquin (2011). *Engineering Economy*, 7<sup>th</sup> Edition, McGraw-Hill, Inc.

### Additional References

1. Clemen, R. T. (2000). *Making Hard Decisions* , Duxbury.
2. Fabrycky, W. J., G. J. Thuesen, and D. Verma (1998). *Economic Decision Analysis*, Prentice-Hall.
3. Luenberger, D. G. (1998). *Investment Science*, Oxford University Press.
4. Sullivan, W. G., E. Wicks and J. Luxhoj (2003). *Engineering Economy*, Prentice-Hall.

### Tentative Schedule

- Foundations of Engineering Economy.
- Factors: How Time and Interest Affect Money.
- Combining Factors and Interest Rates.
- Present and Annual Worth Analysis.
- **Midterm exam** (between Saturday March 19 and Thursday March 24)
- Rate of Return Analysis: Single and Multiple Alternatives.
- Benefit/Cost Analysis and Public Sector Economics.

- Introduction to accounting and setting the MARR.
- Replacement and Retention Decisions.
- Selection from Independent Projects under Budget Limitation.
- Effect of Inflation, Depreciation and Taxes
- Formalized Sensitivity Analysis and Expected Value Decisions.
- **Final exam** (comprehensive)

### Grading

Midterm Exam	40%
Final Exam	45%
Homework	15%

### Homework

Homework problems will be assigned and graded frequently. Students are encouraged to spend plenty of time working on the homework problems and to discuss their solution with each other and the instructor. However, *each student should write and submit the homework individually. Do not type the homework. But do staple it. Doing the homework is the best way to excel in this course.*

### Attendance Policy

Attendance will be noted through random sampling. A sample of 1/4 the class size will be called at random. A student is allowed two unexcused absences at most. Any additional unexcused absence will lead to losing 5% of the final grade.

### Examination Policy

A student is not allowed to miss an exam except for a valid medical excuse. However, no make-up exam will be given for the midterm exam. Instead, for students who miss the midterm exam, with a valid excuse, the weight of the final exam will be changed to 85%. Students who miss the final exam will be given an incomplete grade and will have to take a make-up exam at the beginning of the following semester. **The make-up exam is expected to be more challenging than the regular final exam.**

### Course Website

[www.aub.edu.lb/~bm05/ENMG400](http://www.aub.edu.lb/~bm05/ENMG400)

Look for class notes, assignments and other material there.

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