

1. Course Number and Name:

ENGT 3600 Engineering Economics (previously known as: CET 2980)

2. Credits and Contact hours:

Credits: 3 hours, Contact: 3 lecture hours

3. Instructor's or course coordinator's name:

Kissoff, Daugherty

4. Text book, title, author, and year:

Fundamentals of Economics for Engineering Technologists and Engineers, Vajpayee,

a. Other supplemental materials:

None

5. Specific Course Information:

a. Brief description of the content of the course (catalog description):

Fundamentals of economic analysis of engineering projects and capital investment decisions. Review of break-even analyses, rate of return, cost-benefit ratios and tax and inflation implications will be performed.

b. Pre-requisites, or co-requisites:

Junior Standing

6. Specific goals for the course:

a. Specific outcomes of instruction:

1. An understanding of the meaning and basic concepts of Engineering Economy.
2. An understanding of the time value of money and the factors that allow the conversion of money through time.
3. An understanding of the processes of compounding interest.
4. An understanding of the role of inflation in Engineering Economy analysis.
5. The ability to convert given cash based problems into a cash flow using a cash flow diagram.
6. The ability to make analysis decisions based upon the Present or Future Worth or Equivalent Annual Worth of a cash flow.
7. An understanding of the basics of determining the Rate of Return of a proposal and it's acceptability compared to the Minimum Attractive Rate of Return.
8. An understanding of the basics of Mutually Exclusive and Independent sets of alternatives and how to choose the optimum solution based on given methods and criteria.
9. An understanding of Benefit/Cost ratios and their use
10. An understanding of the calculation of depreciation and its role in tax calculations and capital gains.
11. An understanding of the ramifications of before and after tax cash flow analysis.
12. The ability to use a computer based software to make standard Engineering Economy calculations.

b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course:

ABET/Program Outcomes

A. An appropriate mastery of the knowledge, techniques, skills and modern tools associated with construction engineering technology.

F. An ability to identify, analyze and solve technical problems associated with construction engineering technology.

Program Criteria

2. A development of mathematical skills sufficient to solve and analyze technical problems associated with construction projects including building, highway and heavy construction.

11. A development and understanding of the proper management techniques of construction projects relative to budget, schedule and organization.

7. Brief list of topics to be covered:

1. Cash Flows, Terms and Simple Interest
2. Compound Interest
3. Interest Factors
4. Multiple Factor Usage
5. Present Worth Evaluations
6. Equivalent-Uniform Annual Worth Evaluations
7. Rate of Return Single Projects
8. Rate of Return Evaluations of Multiple Projects
9. Benefit/Cost Ratios
10. Replacement Analysis
11. Bonds
12. Inflation
13. Depreciation
14. Income Tax Basics
15. After Tax Analyses