

**J. Sargeant Reynolds Community College
Course Content Summary**

Course Prefix and Number: EGR 206

Credits: 3

Course Title: Engineering Economics

Course Description: Presents economic analysis of engineering alternatives. Studies economic and cost concepts, calculation of economic equivalence, comparison of alternatives, replacement economy, economic optimization in design and operation, depreciation, and after-tax analysis. Prerequisite or Co-requisite: ENG 111. Lecture 3 hours per week.

General Course Purpose: Engineering elective for all AS Engineering majors.

Course Prerequisites and Co-requisites:

Prerequisite or Co-requisite: ENG 111

Student Learning Outcomes:

Upon completing the course, the student will be able to

- a. Determine which alternative should be chosen based on the present economy;
- b. Use the interest formulas to solve engineering economics problems;
- c. Explain the meaning of equivalence;
- d. Solve problems of equivalence using a single factor or several factors;
- e. Explain the different types of depreciation;
- f. Solve engineering economics problems using the methods of depreciation;
- g. Classify the different costs involved in an engineering project;
- h. Solve problems involving these costs;
- i. Explain the bases for comparison of alternatives;
- j. Solve problems of comparison of alternatives with unequal first cost, unequal service lives, etc.;
- k. Determine the break-even costs between two alternatives;
- l. Determine the minimum cost with one alternative;
- m. Explain the reasons for replacement;
- n. Determine the cost of replacements in engineering economics;
- o. Determine the cost of public activities in engineering economics;
- p. Determine the amount of income taxes involved in engineering economy analysis;
- q. Determine the cost of existing operations in engineering projects;
- r. Solve problems of inflationary effects of engineering economy;
- s. Solve problems of probability of future events in engineering economy; and
- t. Solve problems using an electronic spreadsheet such as Excel.

Major Topics to Be Included:

- a. Introduction to engineering economy
- b. Cost concepts
- c. Time value of money operations
- d. Comparison of alternatives
- e. Depreciation and income tax considerations
- f. Economic analysis of projects in the public sector
- g. Break-even, sensitivity, and risk analysis
- h. Inflation and purchasing power of money

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