

**University of Jordan**  
**Faculty of Engineering and Technology**  
**Civil Engineering Department**

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1. **Course number and name:** (0901420) Engineering Economy
2. **Class schedule:** 3 credits
  - a. Time and place: Sunday, Tuesday, Thursday: 9:00 - 10:00 at Civil 108  
Sunday, Tuesday, Thursday: 11:00-12:00 at Civil 104  
Monday, Wednesday: 9:30-11:00 at Middle Auditorium
  - b. Office hours: Sunday, Tuesday, Thursday 10:00 – 11:00
3. **Instructor:** Dr. Rana Imam
4. **Text book:** Sullivan, William G., Elin M. Wicks & James T. Luxhoj, Engineering Economy, 15th Edition, Engineering Economy, Upper Saddle River, NJ: Pearson Prentice-Hall, 2012. ISBN 13:978-0-273-75153-3. (Required)
5. **Course information:**
  - a. 2005-2006 Catalog description: Engineering Economy (0901420), 3 credits, this course introduces the economic dimension of evaluating and selecting alternative investment projects. By the end of the course, the student will be able to investigate engineering economy problems, and formulate and solve such problems using appropriate conceptual and mathematical skills and modeling structures.
  - b. Prerequisite: None
  - c. Faculty required course.
6. **Specific goals of the course:**
  - a. Expected outcomes: Students will be expected to develop the following skills/understanding upon the successful completion of this course:
    - i. The student will use EXCEL spreadsheets and financial functions to model and solve engineering economic analysis problems.
    - ii. The student will define and provide examples of the time value of money.
    - iii. The student will solve economical problems involving comparison of alternatives by using a variety of analytical techniques including present worth analysis, annual worth analysis, future worth analysis, rate of return analysis, and payback period analysis.
    - iv. The student will be able to identify which alternative should be selected from two or more mutually exclusive alternatives on the basis of economic considerations.
    - v. The student will demonstrate the effects of depreciation, income taxes, and price change in engineering economic analysis problems.
7. **Topics covered:** Syllabus includes 42, 50-minute class periods, a one-hour midterm exam, and two-hour final exam. The topic are:
  - a. Introduction to Engineering Economy.
  - b. Cost concepts and Design Economics.
  - c. Cost Estimation Techniques.
  - d. The Time Value of Money: Simple versus Compound Interest.
  - e. The Time Value of Money: Present Values, Future Values, and Annuities.

- f. The Time Value of Money: Gradient Formulas, Nominal and Effective Interest Rates, Continuous Compounding
- g. Evaluating a Single Project: present worth, future worth annual worth.
- h. More Applications: Conventional and Discounted Payback Periods; Internal and External Rates of Return
- i. Comparison and Selection among Alternatives
- j. Depreciation and Income Taxes
- k. After-Tax Cash Flow Analysis

**8. Minimum student materials:** Text book, class handouts, engineering calculator, and an access to Personal Computer with Microsoft Excel (spreadsheet application).

**9. Instructional methods:**

- a. Lecture/Problem solving sessions.
- b. Case studies.
- c. Homework.
- d. Reading assignments.

**10. Assessment & Grading:**

Quizzes	:	20%
Midterm Exam	:	30%
<u>Final exam</u>	:	<u>50%</u>
<b>Total</b>	:	<b>100%</b>

**11. Notes:**

- a. All cases of academic dishonesty will be handled in accordance with university policies and regulations.
- b. There will be two announced quizzes during the semester. There will be no make-up quizzes.
- c. Students are expected to attend EVERY CLASS SESSION and they are responsible for all material, announcements, schedule changes, etc., discussed in class. The university policy regarding the attendance will be strictly adhered
- d. Any students with disabilities who need accommodations in this course are encouraged to speak with the instructor as soon as possible to make appropriate arrangements for these accommodations.