ABET course syllabus (Engineering Economy)

1. Course number and name
   CE 0901420: Engineering Economy.

2. Credits and contact hours
   3 Credit Hours.

3. Instructor’s name and contact information
   Husam A. Abu Hajar, Assistant Professor of Civil Engineering.
   Email: h.abuhajar@ju.edu
   Office hours: 10 am – 12 pm (Su, Tu, Th), Civil Engineering Department, 2nd floor.

4. Text book, title, author, and year
     a. other supplemental materials
        • Class handouts.

5. Specific course information
   a. brief description of the content of the course (catalog description)
   b. prerequisites or co-requisites
      None.
   c. indicate whether a required, elective, or selected elective course in the program
      Required for Engineering.

6. Specific goals for the course
   a. specific outcomes of instruction: The student is expected to develop the following skills upon the successful completion of this course:
      • Using EXCEL spreadsheets and financial functions to model and solve engineering economic analysis problems.
      • Defining and providing examples of the time value of money.
      • Solving 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.
      • Selection among alternatives on the basis of economic considerations.
      • Demonstrating the effects of depreciation, income taxes, and price change in engineering.
b. Explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
Course addresses ABET Student Outcome(s): h and k.

7. Brief list of topics to be covered
   • Introduction to engineering economy.
   • Cost concepts and design economics.
   • Cost estimation techniques.
   • The time value of money: simple versus compound interest.
   • The time value of money: present values, future values, and annuities.
   • The time value of money: gradient formulas, nominal and effective.
   • Interest rates, continuous compounding.
   • Evaluating a single project: present worth, future worth annual worth.
   • More applications: conventional and discounted payback periods; internal and external rates of return.
   • Comparison and selection among alternatives.
   • Depreciation and income taxes.
   • After-tax cash flow analysis.