ABET Course Syllabi for IND E 250: Fundamentals of Engineering Economy

1. **Course number and name:** IND E 250: Fundamentals of Engineering Economy

2. **Credits and contact hours:** 4 credit hours, 5 hours per week

3. **Instructor’s name:** Wanpracha Art Chaovalitwongse

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

5. **Specific course information**
   5a. **Brief description of the content of the course (catalog description):**
       Basics of industrial cost analysis and accounting. Application of engineering economics to decision making. Analysis of engineering alternatives based on use of interest computations, valuations, depreciation, and cost estimates.
   5b. **Prerequisites or co-requisites:** None.
   5c. **Required, elective, or selected elective (as per Table 5-1) course in the program:**
       Required.

6. **Specific goals for the course**
   The objective of this course is to introduce the basic concepts of engineering economy and to demonstrate the importance of financial management and engineering decisions in financial project analysis. This includes an overview of financial accounting, time-value of money, risk in financial decisions, and book and tax depreciation.

6a. **Specific outcomes of instruction**
   - Students will understand the role of profit on decision making such as how decisions affect revenues, costs and profits.
   - Students will understand the role of the time-value of money in making financial decisions.
   - Students will be able to determine whether an investment is a good idea by performing time-value of money analysis.
   - Students will be able to compare investment alternatives and select the best one based on time-value of money analysis.
   - Students will understand the role of financial accounting information.
   - Students will be aware of financial information of public firms that are reported publically.
   - Students will understand the role of managerial accounting information for making decisions and able to perform financial ratio analysis to evaluate and compare firms.
   - Students will understand the role of economics in engineering design decisions and their impact on investment, revenues and profits.
• Students will understand the role of risk in making financial decisions and be aware of the trade-off between risk and return.
• Student will understand the role of hedging and insuring in a risky environment

6b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
   a) an ability to apply knowledge of mathematics, science and engineering
   e) an ability to identify, formulate, and solve engineering problems
   h) the broad education necessary to understand the impact of engineering solutions in a global and societal context
   j) a knowledge of contemporary issues
   k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
   l) an understanding of the integrated, interdisciplinary nature of the discipline.

7. Brief list of topics to be covered
   • Engineering Economic Decisions
   • Time is Money
   • Understanding Financial Statements
   • Cost Concepts and Behaviors
   • Understanding Money and Its Management
   • Principles of Investing
   • Present Worth Analysis
   • Annual Equivalent Worth Analysis
   • Rate of Return Analysis
   • Depreciation
   • Capital Budgeting Decisions