

ENGINEERING ECONOMY (ISE 460) Spring 2014

MW, 5:00 – 6:20 pm, Room OHE122

Professor: F. Stan Settles

Office: OHE 310D (MW, 2:30-3:15 pm, and 6:30-7:00 pm)

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Teaching Assistant: TBD

Office: GER 309 (TBD)

Phone : TBD

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Course Text: Chan S. Park, Contemporary Engineering Economics, 5th Edition, Prentice Hall, (2011).

Course References: In addition to the above texts, some course material and in-class problems may come from various other sources.

Pre-requisites: Basic computational skills with spreadsheet modeling in Excel. Upper division standing in any engineering major. Other students may be admitted on a case-by-case basis.

Course Objectives: The course focuses on the efficient allocation of scarce resources in circumstances in which alternatives can be enumerated. The course provides engineers with skills to assess the costs and benefits of engineering investments, such as product and technology development programs and capital purchases. It will also provide the framework for selecting among alternative designs, for managing technologies over their lifecycles, and for evaluating the finances of new ventures.

Course Websites:

5th Edition Website www.pearsonhighered.com

Epstein Department www.usc.edu/dept/ise

Institute of Industrial Engineers www.iienet.org

Business Week www.businessweek.com

The Economist www.economist.com

Fast Company www.fastcompany.com/homepage/index.html

Forbes www.forbes.com

Harvard Business Review www.hbr.com

Wall Street Journal online www.wsj.com/public/us

Financial Times of London www.ft.com/home/us

Course Schedule: See below.

Course Assignments: See below.

Grading: There are 12 separate homework assignments, each of which is valued at 20 points (45% of grade). The midterm exam is 120 points (23%) and the final examination is 170 points (32%). The exams will be open book and open notes. You may bring a pocket calculator, but not a laptop, PDA, or any wireless devices.

Under close guidance from the professor, the grader will grade all homework and exams. If dissatisfied with the grader's feedback in a specific instance, the student may appeal to the professor to re-evaluate the grade. An appealed grade may be raised, lowered, or remain as originally scored. **(Caution: The final grade in this course depends to significant extent on the graded assignments, and thus we take very seriously the academic integrity issue inherent in this activity. Do your own work.)**

Class Participation: Attendance will be taken; it is expected that students will want to attend every class meeting. Active participation in class and on the DEN discussion board will be noted and reflected in the final grade.

Office Hours: Prof. Settles is available for office hours as shown above, in OHE 310D. The TA, TBD is available TBD, in GER309.

Homework: All homework assignments are due at 11:59pm on the dates indicated below and will be submitted via the DEN website. It is your responsibility to make sure you have submitted the correct files and to verify after submission that the uploaded files are readable. Include your name, date, course number and assignment number in your submitted homework. Late homework will be accepted up to two days past due date with 2 points penalty per day. Homework turned in later than past due date + 3 days will not receive any credit. No homework will be accepted after the last class meeting.

Course schedule and assignments are summarized below. This syllabus is subject to change as announced in class and as economic events occur.

DATE CLASS TOPIC(S) HOMEWORK

Week 1, Jan 13, Jan 15

Why are we here? Instructor's background. Engineering economic decisions. Financial statements.

Assigned: #1

Week 2, Jan 20 no class, Jan 22

Cost of money and economic equivalence.

Due: #1 (Jan 22), Assigned: #2

Week 3, Jan 27, Jan 29

Interest Formulas. Debt management.

Due: #2 (Jan 29), Assigned: #3

Week 4, Feb 3, Feb 5

Project cash flows. Cash flow analysis.

Due: #3 (Feb 5), Assigned: #4

Week 5, Feb 10, Feb 12

Mutually exclusive alternatives. Annual equivalent worth analysis.

Due: #4 (Feb 12), Assigned: #5

Week 6, Feb 17 no class, Feb 19

Design economics. Rate of return.

Due: #5 (Feb 19), Assigned: #6

Week 7, Feb 24, Feb 26

Internal rate of return. Due: #6 (Feb 26)

Week 8, Mar 3, Mar 5

Cost concepts. Costs for business decisions.

Due (Mar 3) Optional - potential exam questions.

Week 9, Mar 10, Mar 12

Depreciation. **MIDTERM EXAM Mar 12, (Based on material covered through Week 8)**

Assigned: #7

Week 10, Mar 24, Mar 26

Midterm Exam Feedback. Corporate taxes. Developing cash flow statements.

Due: #7 (Mar 26), Assigned: #8

Week 11,

Mar 31, Apr 2

Inflation.

Due: #8 (Nov 8), Assigned: #9

Week 12,

Apr 7, Apr 9

22; 23

Project risk. Risk Simulation. Due: #9 (Nov 15)

Assigned: #10

Week 13,

Apr 14, Apr 16

Benefit-Cost ratio.

Due: #10 (Nov 20)

Assigned: #11

Week 14,

Apr 21, Apr 23

Replacement problems.

Due: #11 (Nov 29), Assigned: #12

Week 15,

Apr 28, Apr 30

Minimum attractive rate of return.

Due: #12 (Dec 6)

Week 16,

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Final Exam FINAL EXAM

Comprehensive

Academic Integrity. The Viterbi School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus (<http://www.usc.edu/dept/publications/SCAMPUS/>). Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

Students with Disabilities. Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776