

EST 392 ENGINEERING AND MANAGERIAL ECONOMICS

Mon 5:30 – 8:30PM Room: Javits Lecture Hall 103
Instructor: Professor Moriarty,
Old Computer Science Room 1423 Ph# 632-1898
Office Hours:

Monday 4:00-5:15pm,
Tuesday 10:00–11:00am & Appointments
Wednesday appointments
Thursday 10:00-11:00am & appointments
Other times available by appointment

Spring Semester 2019
Email: kevin.moriarty@sunysb.edu

COURSE OBJECTIVES:

This is a course in Engineering Economic capital allocation theory. The objective is to give the student a fundamental understanding of what is required to justify the expenditure of capital investments in industry today. The student will also understand how engineering decisions are influenced by financial analysis when making project plans.

The student will perform the following to achieve this:

1. Establish cash flow equivalencies. Analyze cash flows and develop them, and apply time-value-of-money techniques
2. Evaluate the aspects of engineering alternatives and use financial concepts using evaluation techniques, such as annual cost, present worth, incremental rate of return and cost-benefit analysis.
3. The student will also develop an understanding of the economics of engineering, business organization, & capital investment,

TEXT: Course Engineering Economics Course Number EST 392

Physical Text: ISBN-13: 978-0073523439

eBook: Discounted Connect Access Card for Engineering Economy for EST 392

Amazon should have the eBook available.

Engineering Economy, 8e by Blank, Tarquin

i. Preface to 8th ed: Chapter from Engineering Economy, 8th ed

ISBN-13: 978-0073523439

ISBN-10: 0073523437

GENERAL NOTES: The course will be conducted as a Lecture, Black Board, during scheduled weeks. Homework solutions to engineering economics problems will be required. This provides ample opportunity for learning, and also evaluation of the student's performance. Homework assignments will be due the following week in which they are assigned as designated by the online calendar of assignments. The problem solutions should be presented in a clear format so computations can be evaluated easily. Prepared spreadsheet solutions and graphics will be accepted. Any notes and assumptions or summary comments should be included. All homework and tests will be promptly graded. Late home works will not be accepted.

Three examinations will be given under academic conditions, and will be administered by faculty and/or TA's. Homework assignments should be prepared individually, although they are not required to be, and it is understood that collaboration with others on the homework may be educationally beneficial.

The details of this syllabus are subject to change as the course progresses.

GRADES: Tests (3-25pts ea): 75% Homework: 12 (2 pts ea) 25% plus 1pt, HW#1

COURSE SYLLABUS:

WEEKLY CONTENT

Week 1 1/28 The Fundamentals Chapter from Engineering Economy, 8th ed

1. Introduction: Chapter from Engineering Economy, 8th ed
1. Foundations of Engineering Economy: Chapter 1 from Engineering Economy, 8th ed

Week 2 2/4

1. Foundations of Engineering Economy: Chapter 1 from Engineering Economy, 8th ed
2. Factors: How Time and Interest Affect Money: Chapter 2 from Engineering Economy, 8th ed,

Week 3 2/11

2. Factors: How Time and Interest Affect Money: Chapter 2 from Engineering Economy, 8th ed,
3. Combining Factors and Spreadsheet Functions: Chapter 3 from Engineering Economy, 8th ed

Week 4 2/18 Basic Analysis Tools

4. Nominal and Effective Interest Rates: Chapter 4 from Engineering Economy, 8th ed

Week 5 2/25

5. Present Worth Analysis: Chapter 5 from Engineering Economy, 8th ed
6. Annual Worth Analysis: Chapter 6 from Engineering Economy, 8th ed

Week 6 3/4 Basic Analysis Tools

7. Rate of Return Analysis: One Project: Chapter 7 from Engineering Economy, 8th ed
8. Rate of Return Analysis: Multiple Alternatives: Chapter 8 from Engineering Economy, 8th ed,

Week 7 3/11 Test#1

Week 8 3/18 SPRING BREAK

Week 9 3/25

9. Benefit/Cost Analysis and Public Sector Economics:
10. Project Financing Cost of Capital Noneconomic Attributes: Chapter 10 from Engineering Economy, 8th ed

Week 10 4/1 Making Better Decisions

10. Project Financing Cost of Capital Noneconomic Attributes: Chapter 10 from Engineering Economy, 8th ed
11. Replacement and Retention Decisions: Chapter 11 from Engineering Economy, 8th ed

Week 11 4/8 Test#2

Week 12 4/15

11. Replacement and Retention Decisions: Chapter 11 from Engineering Economy, 8th ed
12. Independent Projects with Budget Limitation: Chapter 12 from Engineering Economy, 8th ed

Week 13 4/22 Rounding Out the Study

13. Breakeven and Payback Analysis: Chapter 13 from Engineering Economy, 8th ed
14. Effects of Inflation: Chapter 14 from Engineering Economy, 8th ed
16. Depreciation Methods: Chapter 16 from Engineering Economy, 8th ed

Week 14 4/29 Thanksgiving Day NO CLASS

14. Effects of Inflation: Chapter 14 from Engineering Economy, 8th ed
16. Depreciation Methods: Chapter 16 from Engineering Economy, 8th ed

Week 15 5/6 Course Review Ch 1-16

- 1-16. Review: Chapter 1-16 from Engineering Economy, 8th ed
A. Appendix A: Using Spreadsheets and Microsoft Excel®: Chapter from Engineering Economy, 8th ed,
B. Appendix B: Basics of Accounting Reports and Business Ratios: Chapter from Engineering Economy, 8th ed
C. Appendix C: Code of Ethics for Engineers: Chapter from Engineering Economy, 8th ed,
D. Appendix D: Alternate Methods for Equivalence Calculations: Chapter from Engineering Economy, 8th ed
E. Appendix E: Glossary of Concepts and Terms: Chapter from Engineering Economy, 8th ed,
F. Reference Materials: Chapter from Engineering Economy, 8th ed
G. Compound Interest Factor Tables: Chapter from Engineering Economy, 8th ed ,

Week 15 5/6 Test#3

Note: This is a general guideline of the course content and syllabus. This outline is subject to change as determined by the instructor during the semester.

REQUIRED STATEMENTS:

Student Accessibility Support Center Statement

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Student Accessibility Support Center, ECC (Educational Communications Center) Building, Room 128, (631)632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Student Accessibility Support Center. For procedures and information go to the following website: <http://www.stonybrook.edu/ehs/fire/disabilities>.

Academic Integrity Statement

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.

Course Academic Integrity:

Fundamental Engineering Ethics require engineers to give proper credit for engineering work where credit is due. Therefore, references should be cited on all written work to acknowledge the aid of other individuals and both published and unpublished references. “Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at <http://www.stonybrook.edu/uaa/academicjudiciary/>”

“The University at Stony Brook expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty is required to report disruptive behavior that interrupts faculty’s ability to teach, the safety of the learning environment, and/or students’ ability to learn to Judicial Affairs.”

The University Senate Undergraduate and Graduate Councils have authorized that the following required statements appear in all teaching syllabi (graduate and undergraduate courses) on the Stony Brook Campus.

Americans with Disabilities Act:

If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room128, (631) 632-6748. They will determine with you what accommodations, if any, are necessary and appropriate. All information and documentation is confidential.