Engineering Economic Analysis

General Information:
Course ID#: IE1040
Prerequisites: none
Credit hours: 3
Time: T 1:50 – 4:25pm
Office hours: M 1:00 – 3:30pm, T 1:00 – 1:40pm, W 1:00 – 3:30pm, Th 10:00 – 11:30am, 1:00 – 1:40pm and by appointment
Office location: SCUPI Zone 3 #324A
Email: lizyunli@scu.edu.cn
TA: Liu Miao, Yang Jingsong
Course Website: https://learn.scupi.cn
Course QQ: See code picture on the last page

Microsoft Excel: It is assumed that all students in the course have at least a basic understanding of how to use Microsoft Excel for spreadsheets.

Course Description:
Discuss cost estimation, time value of money, interest rate calculations, economic equivalence concepts, comparison of alternative investments, evaluating replacement alternatives, depreciation, the impact of taxes on engineering economic decisions, inflation, and dealing with uncertainty.

Course Objectives:
• To provide an understanding of why economic analysis is a core competency for any engineer in a decision-making role.
• To teach the fundamental concepts and techniques used in engineering economic analysis.
• To provide an understanding of the use of economic analysis in contemporary problems.
• To familiarize students with the use of spreadsheets for economic analysis.

Applicable ABET Outcomes:
(a) An ability to apply knowledge of mathematics, science and engineering
(e) An ability to identify, formulate and solve engineering problems
(f) An understanding of professional and ethical responsibility
(h) The broad education necessary to understand the impact of engineering solutions in a global, economic, environmental and societal context.
(j) A knowledge of contemporary issues.
**Required Texts:**

**Course Website:**
We’ll use blackboard to make announcement, distribute lecture notes, homework problems and answer keys, etc. Make sure to check the course page in blackboard frequently to stay updated.

**Course QQ group**
We’ll also have a course QQ group managed by the head TA, Liu Miao. That’ll be another place where we may make announcements, or you could ask questions and have discussions. Instead of holding office hours in a physical location, the TA will be available to answer course-related questions through QQ.

**Course Requirements:**
- Read the chapter before coming to class
- Check blackboard for lecture notes, answer key to homework and quizzes, and other course related announcements and materials
- Be focused and actively participate in class discussion and studio work
- Review after class, work on the homework problems, raise questions if any
- Be on time, and keep your cell phones off during class time
- We’ll have studio work and quizzes where your attendance and participation are important. No makeup quiz or studio work will be given. If you have a legitimate reason to miss a class, make sure to email me and cc your class counselor beforehand.
- **Uphold Academic Honesty:** cheating in a quiz or a homework will result in a 0 for it. Cheating in an exam will result in an F for the course.

**Exams:**
One Midterm and one Final, noncumulative. One A4 size note allowed.

**Quizzes:**
We’ll have about six quizzes in class. One A4 size note allowed.

**Studio work:**
We’ll do problem solving and case studies in small groups in class. Sometimes you will be randomly divided into groups, sometimes you will have the opportunity to choose your own group members. At the end of the group activities you should be ready to share your group’s work with the rest of the class.

**Homework**
Homework will be assigned for each chapter and you’re expected to work on them before next week’s class. Feel free to work in groups and discuss homework problems with your classmates. Homework will not be collected, instead we’ll use studio work and quizzes to
make sure that you have done your homework and mastered the materials in time. No makeup quiz or studio work will be given.

**Grading:**
- Studio work: 20%
- Quizzes: 26%
- Midterm Exam: 27%
- Final Exam: 27%

**Approximate Course Schedule:**

Week One  
Chapter 1 Making Economic Decisions  
Chapter 2 Estimating Engineering Costs and Benefits

Week Two  
Chapter 2 Estimating Engineering Costs and Benefits

Week Three  
Chapter 3 Interest and Equivalence

Week Four  
Chapter 4 Equivalence for Repeated Cash Flows

Week Five  
National Day Break

Week Six  
Chapter 5 Present Worth Analysis

Week Seven  
Chapter 6 Annual Cash Flow Analysis

Week Eight  
Chapter 7 Rate of Return Analysis

Week Nine  
**Midterm Exam**

Week Ten  
Chapter 8 Choosing the Best Alternative

Week Eleven  
Chapter 9 Other Analysis Techniques
Week Twelve
   Chapter 10 Uncertainty in Future Events

Week Thirteen
   Chapter 11 Depreciation and Capital Allowances

Week Fourteen
   Chapter 12 Taxes

Week Fifteen
   Chapter 13 Replacement Analysis

Week Sixteen
   Review and Catchup

Week Seventeen
   Final Exam

Course QQ

![QR Code]

工程经济
扫一扫二维码，加入群聊。