



**ÇANKAYA UNIVERSITY**  
**FACULTY OF ENGINEERING**  
**Department of Industrial Engineering**  
**IE 345**

**Engineering Economy**  
**Spring 2023-2024**



## TENTATIVE COURSE SYLLABUS

Course Code : IE 345

Course Title : Engineering Economy

Credit Hours : (3 0 3) 4

Pre-requisites : ---

Students: Non-IE

Year : 4

Semester : Spring '2023

Sections :

Instructors: **Assoc. Prof. Dr. Ayyüce AYDEMİR KARADAĞ**

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**Catalog Data:** This course highlights the importance of economic principles in engineering applications, especially in project evaluation procedures. Basics of economic evaluation of engineering decisions such as time value of money, inflation, depreciation and income taxes and related techniques are given.

**Course Outline:** The following topics will be covered:

Weeks	Title
1	Foundations of Engineering Economy, Time Value of Money and Economic Equivalence
2	Engineering Economy Factors: How Time and Interest Affect Money
3	Combining Engineering Economy Factors
4	Nominal and Effective Interest Rates
5	Methods for Project Evaluation and Selection: Present Worth Analysis
6	Methods for Project Evaluation and Selection: Annual Worth Analysis
7	Rate of Return Analysis: Single Project
8	Rate of Return Analysis: Multiple Alternatives
9	Rate of Return Analysis: Multiple Alternatives (continued)
10	Public Sector Projects and Benefit/Cost Analysis
11	Breakeven and Payback Analysis
12	Replacement and Retention Decisions
13	Cost Concepts and Basics of Cost Analysis, Depreciation Methods and After-Tax Economic Analysis
14	Effects of Inflation

**Textbook:** The course is based around the following textbook:

- Leland Blank and Anthony Tarquin, "Engineering Economy", 7<sup>th</sup> ed., McGraw-Hill Education, (2012). ISBN 978-0071086097.

**References:** The following useful reference books are available in the University Library:

- William G. Sullivan, Elin M. Wicks, and C. Patrick Koelling, "Engineering Economy", 16<sup>th</sup> ed., Prentice Hall, (2014). ISBN 978-0133439274
- Donald G. Newnan, Jerome P. Lavelle, and Ted G. Eschenbach, "Engineering Economic Analysis", 12<sup>th</sup> ed., Oxford University Press, (2013), ISBN 978-0199339273

**Teaching Method:** Teaching will be based on enabling the students to understand the concepts and procedures in each topic section and to be able to apply them.

**Lectures:** In lectures, the instructor will attempt to summarize and explain only selected important concepts and points as clearly as possible. To be familiar with the material presented in lectures and to participate in class discussions, the students are expected to read the material covered in the previous lectures prior to the class meeting. Students will then find the lectures more interesting, and will benefit from the discussion if they come well prepared.

**Home Work:** Students should work on two separate sets of assigned questions in order to get prepared for midterm and final exams. Students should form groups of at most **4 students** in order to perform both homework and case study.

**Exams:** All examinations will be based on lectures, tutorials, labs, and project work. To pass these exams students will need to have studied the material well in advance in order to understand the concepts, procedures and techniques. To discourage last minute cramming, the instructor and the assistants will not answer any questions from students on the day of an examination. Descriptions of these examinations are as follows:

**Midterm Exam:** There will be one midterm examination that covers all the material up to the date of the examination.

**Final Exam:** The Final Examination will cover all the material studied throughout the semester.

**Make-up Exam:** Make-up examination will only be offered (at the end of the semester) to students who missed the final examination or midterm exam and provided adequate documentations for the reason of their absence.

**Attendance:** Attendance requirements. Minimum required attendance is %45 to lectures. Please note that although this is the minimum requirements outlined for this course, it is best if you fully attend every hour. If you miss even a single hour, you will find it hard to understand the following course material since the topics are interrelated. Also note that attendance-related Çankaya University regulations will be applied.

**Academic Dishonesty:** Any act not suitable for a university student will not be tolerated and may lead to formal disciplinary action. Example of this are: getting someone else to take the examinations for you, misrepresentation of your own answer sheet as another's work, cheating, knowingly assisting other students to cheat, abusing the tolerance or breaking the discipline of the class.

**Honor Code:** Every student should declare her/his understanding and belief in the Honor Code stated by the department for the examinations and assignments:

*Exam:*

Please read the following Honor Code carefully. Then write I agree. [Kabul ediyorum.] and sign underneath to show your understanding and belief in the Honor Code.

*I hereby declare that I have neither given nor received any aid during the exam. [Sınav sırasında hiç kimse den hiçbir şekilde yardım almadığımı ve hiçbir kimseye hiçbir şekilde yardım etmediğimi beyan ederim.]*

*Assignment:*

For individual assignments, each student (for team work assignments, only one member of the study team) should write the following Honor Code with her/his own handwriting on the cover page of your assignment report, and each student should sign underneath.

*I(We) hereby declare that, except where I(we) have indicated, the work I(we) am(are) submitting in this assignment (project, report, ...)is my(our) own work. [Sunmakta olduğum (olduğumuz) bu ödevin (projenin, raporun,...), belirttiğim (belirttiğimiz) kısımların haricinde, tamamen kendi eserim (eserimiz) olduğunu beyan ederim(ederiz).]*

**Grading Policy:** Although the student's overall grade will be based on the general assessment of the instructor, the following percentages may give an idea about the relative importance of various assessment tools.

Homework	30 %
Midterm Exam	30 %
Final Exam	40 %
TOTAL	100 points

Note that the instructor reserves the right to modify these percentages in case he finds it necessary. Letter grade equivalents of numerical performances will be announced by the Registrar's Office after the last day for the submission of letter grades.

**NA Grading:** Conditions that might lead to "NA" grade:

1. Not attending **both Final Exam and Midterm Exam or their Make-up Exams without a valid excuse.**
2. **having an overall grading either "FF" or "FD" and the overall attendance to lectures/tutorials/labs/etc. less than 45%.**

**Web page:** Every student is responsible to check the web site of the course, at [webonline.cankaya.edu.tr](http://webonline.cankaya.edu.tr), regularly (at least twice a week). All the related announcements, lecture notes, grades, attendance and other information will be uploaded. You are responsible for all announcements made in class and on course web site, as well as for printing the materials from the web page.