INDUSTRIAL ENGINEERING DEPARTMENT

IE 341
Engineering Economics
Fall 2023

Type:	IE Required
Credits/ECTS:	4 Credits / 7 ECTS
Instructor:	Mustafa Akan

Course objectives (and program outcomes):
Besides technical details, today's engineers should consider many other concerns in developing solutions to engineering problems; they need to develop environmentally friendly, socially responsible, and economically feasible solutions. The aim of this course is to introduce students to techniques used in economical evaluation of engineering solutions. At the end of the course, students will gain the knowledge and capability to perform financial analysis of projects with capital investment.

Considering these objectives, this course mainly addresses the following student outcomes of the industrial engineering undergraduate program;

> *Student Outcome (1):* An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

References:

> **Financial Management: Core Concepts;** Raymond M. Brooks; Pearson Education; 3rd Edition; 2015.
>
> **Modern Portfolio Theory and Investment Analysis;** Edwin J. Elton, Martin J. Gruber, Stephen J. Brown, and William N. Goetzmann; Wiley; 8th Edition; 2010.

Topics covered:

Course Organization and Overview
Time Value of Money
Financial Ratios and Firm Performance
Interest Rates
Bonds and Bond Valuation
Capital Budgeting Decision Models
Breakeven Analysis
Risk and Return
Portfolio Theory
Replacement Theory
International Financial Management
CAPM & PERT

Grading:

Midterm	30%
Final	40%
Attendance	10%

Project	20%

Prepared by, and date of preparation: Mustafa Akan, January 2023