

School of Engineering and Natural Sciences / Industrial Engineering (English)

2022 - 2023 Academic Year

ENGINEERING ECONOMICS

Syllabus

Course Description					
Name	Code	Semester	T+A Hour	Credit	ECTS
ENGINEERING ECONOMICS	IND3149160	Fall Semester	3+0	3	6
Prerequisites Courses					
Recommended Elective Courses					
Language of Instruction	English				
Course Level	First Cycle (Bachelor's Degree)				
Course Type	Required				
Course Coordinator	Assoc.Prof. Melis Almula KARADAYI				
Name of Lecturer(s)	Assist.Prof. Merve Yüstra DOĞAN				
Assistant(s)					
Aim	To introduce the basic concepts of the economic analysis of engineering and management decisions, to explain how to apply these concept in the project planning and decision making process of a firm or government				
Course Content	This course contains; Time Value of Money and Economic Equivalence,Engineering Economy Factors,Nominal and Effective Rates,Present Worth Analysis,Annual Worth Analysis,Determination of Rate of Return,Resolution of Multiple Rates of Return,Decision Rules in Rate of Return Analysis ,Benefit Cost Analysis ,Capital Budgeting, Inflation and Index Numbers ,Replacement Analysis,After Tax Economic Analysis.				
Course Learning Outcomes			Teaching Methods	Assessment Methods	
Using engineering economics terminology, derives factors for calculating the time value of money and calculates interest rates on a one-year and non-one-year basis.			1, 14, 15, 2	A, E	
Uses present value and different annual valuation techniques to evaluate or select alternatives.			1, 14, 15, 2	A, E	
Analyzes rate of return and incremental rate of return			1, 14, 15, 2	A, E	
Does cost/benefit analysis of public sector projects. Uses methods for reducing the book value of capital investment, considers the effects of inflation.			1, 14, 15, 2	A, E	
Performs replacement analysis and post-tax economic evaluation			1, 14, 15, 2	A, E	
Teaching Methods	1: Lecture, 14: Self-Study, 15: Problem solving, 2: Question - Answer				
Assessment Methods	A: Written Exam, E: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Time Value of Money and Economic Equivalence				
2	Engineering Economy Factors				
3	Nominal and Effective Rates				
4	Present Worth Analysis				
5	Annual Worth Analysis				
6	Determination of Rate of Return				
7	Resolution of Multiple Rates of Return				
8	Decision Rules in Rate of Return Analysis				
9	Benefit Cost Analysis				
10	Capital Budgeting				
11	Inflation and Index Numbers				
12	Replacement Analysis				
13	After Tax Economic Analysis				
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			

Resources
Engineering Economy, Leland Blank and Anthony Tarquin, McGraw HillLecture notes