

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

2023 - 2024 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)	Assoc.Prof. Mehtap DURSUN KARAHÜSEYİN				
Assistant(s)	Ömer Karayığit (omer.karayigit@std.medipol.edu.tr)				
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; Introduction to Engineering Economics, 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	
Can perform cost estimation using engineering economics terms.			12, 14, 16, 9	A, G	
Using engineering economics terminology, derives factors for calculating the time value of money.			12, 14, 16, 9	A, G	
Uses present value and different annual valuation techniques to evaluate or select alternatives.			12, 14, 16, 9	A, G	
Analyzes rate of return and incremental rate of return.			12, 14, 16, 9	A, G	
Does cost/benefit analysis of public sector projects. Uses methods for reducing the book value of capital investment, considers the effects of inflation.			12, 14, 16, 9	A, G	
Teaching Methods	12: Problem Solving Method, 14: Self Study Method, 16: Question - Answer Technique, 9: Lecture Method				
Assessment Methods	A: Traditional Written Exam, G: Quiz				
Lecture Schedule					
Sequence	Topics	Preliminary Preparation			
1	Introduction to Engineering Economics	Lecture Notes			
2	Time Value of Money and Economic Equivalence	Lecture Notes			
3	Engineering Economy Factors	Lecture Notes			
4	Nominal and Effective Rates	Lecture Notes			
5	Present Worth Analysis	Lecture Notes			
6	Annual Worth Analysis	Lecture Notes			
7	Determination of Rate of Return	Lecture Notes			
8	Resolution of Multiple Rates of Return	Lecture Notes			
9	Decision Rules in Rate of Return Analysis	Lecture Notes			
10	Benefit Cost Analysis	Lecture Notes			
11	Capital Budgeting	Lecture Notes			
12	Inflation and Index Numbers	Lecture Notes			
13	Replacement Analysis	Lecture Notes			
14	After Tax Economic Analysis	Lecture Notes			
Evaluation Methods		Weight(%)			
Midterm Exam		30			
General Exam		70			
Resources					
Engineering Economy, Leland Blank and Anthony Tarquin, McGraw Hill Lecture notes					