

**School of Engineering and Natural Sciences / Biomedical Engineering (English)**

**2024 - 2025 Academic Year**

**ENGINEERING ECONOMICS**

**Syllabus**

<b>Course Description</b>					
<b>Name</b>	<b>Code</b>	<b>Semester</b>	<b>T+A Hour</b>	<b>Credit</b>	<b>ECTS</b>
ENGINEERING ECONOMICS	BME4149160	Fall Semester	3+0	3	6
<b>Prerequisites Courses</b>					
<b>Recommended Elective Courses</b>					
<b>Language of Instruction</b>	English				
<b>Course Level</b>	First Cycle (Bachelor's Degree)				
<b>Course Type</b>	Required				
<b>Course Coordinator</b>	Assoc.Prof. Melis Almula KARADAYI				
<b>Name of Lecturer(s)</b>	Assoc.Prof. Mehtap DURSUN KARAHÜSEYİN				
<b>Assistant(s)</b>	Ömer Karayığit (omer.karayigit@std.medipol.edu.tr)				
<b>Aim</b>	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				
<b>Course Content</b>	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.				
<b>Course Learning Outcomes</b>			<b>Teaching Methods</b>	<b>Assessment Methods</b>	
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	
<b>Teaching Methods</b>	12: Problem Solving Method, 14: Self Study Method, 16: Question - Answer Technique, 9: Lecture Method				
<b>Assessment Methods</b>	A: Traditional Written Exam, G: Quiz				
<b>Lecture Schedule</b>					
<b>Sequence</b>	<b>Topics</b>	<b>Preliminary Preparation</b>			
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			
<b>Evaluation Methods</b>		<b>Weight(%)</b>			
Midterm Exam		30			
General Exam		70			
<b>Resources</b>					
Engineering Economy, Leland Blank and Anthony Tarquin, McGraw Hill Lecture notes					