

Course Description Form	
Course Code and Name	ME 315 ENGINEERING ECONOMICS
Course Semester	5
Catalog Content	Economic analysis for engineering and managerial decision making. cost per unit calculation, present economy studies, break-even point analysis, techniques for evaluating the worth of prospective projects, investment opportunities and design choices. interest and time value of money, methods for evaluation of alternatives: present worth, annual equivalent worth, rate of return, payback method. Project feasibility, depreciation, inflation and cost estimation. After tax economic analysis, feasibility studies.
Textbook	1. Engineering Economy, W. G. Sullivan, C. P. Koelling, Pearson Education Limited, Fifteenth Edition, 2012.
Supplementary Textbooks	1. Contemporary Engineering Economics, Chan S. Park, Pearson Education Ltd, Fifth Edition, 2011.
Credit	4
Prerequisites of the Course (Attendance Requirements)	-----
Type of the Course	Compulsory
Instruction Language	English
Course Objectives	<ol style="list-style-type: none"> 1. At the end of the course, the students will develop an understanding of present economy studies and time value of money and economic equivalence. 2. At the end of the course, the students will understand the economic feasibility of projects 3. At the end of the course, the students will learn the techniques for evaluating the worth of prospective projects, investment opportunities and design choices.
Course Learning Outcomes	<ol style="list-style-type: none"> 1. Be able to calculate cost per unit, break-even point and compare projects without interest 2. understand time value of money and its relation to interest rate 3. determine a project' economic feasibility using present worth, future worth, annual worth and internal rate of return methods. 4. understand the depreciation, inflation and their effects on a project's economic feasibility 5. be able to infer inflation rate from index numbers 6. compare mutually exclusive alternatives by different evaluation methods 7. make feasibility studies
Instruction Methods	In class, teaching using blackboard/projection machine.
Weekly Schedule	1- INTRODUCTION: Origins/Importance of Engineering Economy, Definition of decision making/selection processes, Accounting Studies, Cost/revenue relationship

	2- INTRODUCTION: Origins Importance of Engineering Economy, Definition of decision making selection processes, Accounting Studies, Cost revenue relationship				
	3- COST CONCEPTS: Cost terminology, Cost-driven design optimization, Break-even chart applications, Present Economy Studies.				
	4- MONEY-TIME RELATIONSHIPS AND EQUIVALENCE: Origins of Interest, Simple-Interest, Compound Interest, The Concept of Equivalence, Nominal Effective Interest				
	5- MONEY-TIME RELATIONSHIPS AND EQUIVALENCE: Origins of Interest, Simple-Interest, Compound Interest, The Concept of Equivalence, Nominal Effective Interest				
	6-APPLICATIONS OF MONEY-TIME RELATIONSHIPS: Determining minimum attractive rate of return, Present worth method, Future worth method, Annual worth method				
	7- Midterm 1: COMPARING ALTERNATIVES: Basic Concepts for comparing alternatives, The study period, Case 1: Useful lives are equal to the study period, Case 2: Useful				
	8- COMPARING ALTERNATIVES: Basic Concepts for comparing alternatives, The study period, Case 1: Useful lives are equal to the study period, Case 2: Useful				
	9- COMBINATIONS OF PROJECTS: Categorization of investment projects, economic evaluation of groups of projects, goal programming applications				
	10- COMBINATIONS OF PROJECTS: Categorization of investment projects, economic evaluation of groups of projects, goal programming applications				
	11- EVALUATION OF PROJECTS WITH ACTUAL VALUES OF CASH FLOWS: Depreciation analysis, Investment Financing, Working Capital, Determination of cash flows				
	12- EVALUATION OF PROJECTS WITH ACTUAL VALUES OF CASH FLOWS: Depreciation analysis, Investment Financing, Working Capital, Determination of cash flows				
	13- INFLATION AND UNCERTAINTIES IN PROJECT EVALUATION: Inflation its formulation, Affect of inflation in project cash flows.				
	14- INFLATION AND UNCERTAINTIES IN PROJECT EVALUATION: Inflation its formulation, Affect of inflation in project cash flows.				
	15- Final Exam				
	Teaching and Learning Methods <i>(These are examples. Please fill which activities you use in the course)</i>	Weekly theoretical course hours: 3 Weekly applied course hours: 0 Reading Activities:2 Internet browsing, library work:2 Preparation for Midterm Exam and Midterm Exam:7 Final Exam and Preparation for Final Exam:7			
Assessment Criteria		Numbers	Total Weighting (%)		
	Midterm Exams	1	40		
	Assignment	0	0		
	Application	0	0		
	Projects	0	0		
	Practice	0	0		
	Quiz	3	15		
	Percent of In-term Studies (%)			60	
	Percentage of Final Exam to Total Score (%)			40	
	Attendance			05	
Workload		Activity	Total Number of Weeks	Duration (weekly hour)	Total Period Work

				Load
Weekly Theoretical Course Hours	14	3		42
Weekly Tutorial Hours				
Reading Tasks	13	2		26
Studies	9	2		18
Material Design and Implementation				
Report Preparing				
Preparing a Presentation				
Presentations				
Midterm Exam and Preperation for Midterm Exam	1	7		7
Final Exam and Preperation for Final Exam	1	7		7
Other (should be emphasized)				
Total Workload				100
Total Workload / 25				4,0
Course Credit (ECTS)				4

No	Program Outcomes	1	2	3	4	5
1	Adequate knowledge of subjects specific to mathematics, natural sciences and related engineering disciplines; ability to use theoretical and applied knowledge related to these areas in complex engineering problems.					X
2	Ability to identify, define, formulate, and solve complex engineering problems; ability to select and apply appropriate analysis and modeling methods to this end.				X	
3	Ability to design a complex system, process, device or product under realistic constraints and conditions to meet specific requirements; ability to apply modern design methods for this purpose.				X	
4	Ability to develop, select and use modern techniques and tools required for the analysis and solution of complex problems encountered in engineering practice; ability to use information technologies effectively.					
5	Ability to design and conduct experiments, collect data, analyze and interpret results to investigate complex engineering problems or discipline-specific research topics					
6	Ability to work effectively in disciplinary and multi-disciplinary teams; ability to work individually.					
7	Ability to communicate effectively in Turkish, both orally and in writing; knowledge of at least one foreign language; the ability to write effective reports and understand written reports, to prepare design and production reports, to deliver effective presentations, to give and receive clear and understandable instructions.					
8	Awareness of the necessity of lifelong learning; the ability to access information, to follow developments in science and technology, and to renew oneself constantly.					

Contribution Level Between Course Learning Outcomes and Program Outcomes

	9	Acting in accordance with ethical principles, professional and ethical responsibility; information about standards used in engineering applications.			X			
	10	Information about business life practices such as project management, risk management and change management; awareness of entrepreneurship, innovation; information about sustainable development.						
	11	Knowledge about the universal and social effects of engineering applications on health, environment and safety and the problems of the age reflected in the engineering field; awareness of the legal consequences of engineering solutions.						
The Course's Lecturer(s) and Contact Informations	1. yurdakul@gazi.edu.tr Prof. Dr. Mustafa YURDAKUL							