



T.C. ESKİŞEHİR OSMANGAZİ UNIVERSITY
ARCHITECTURE AND ENGINEERING FACULTY
MECHANICAL ENGINEERING DEPARTMENT

COURSE INFORMATION FORM

SEMESTER	Fall
-----------------	------

COURSE CODE	151817644 151837644	COURSE NAME	Engineering Economy
--------------------	------------------------	--------------------	---------------------

SEMESTER	WEEKLY COURSE PERIOD			COURSE OF			
	Theory	Practice	Laboratory	Credit	ECTS	TYPE	LANGUAG E
7	3	0		3	4	COMPULSORY () ELECTIVE (X)	Turkish

COURSE CATAGORY

Basic Science	Basic Engineering	Mechanical Engineering Subjects [if it contains considerable design, mark with (√)]	Social Science
	50%	25%	25%

ASSESSMENT CRITERIA

	Evaluation Type	Quantity	%
MID-TERM	1st Mid-Term	1	50
	2nd Mid-Term		
	Quiz		
	Homework		
	Project		
	Report		
	Others (.....)		
FINAL EXAM		1	50

PREREQUIEITE(S)	
------------------------	--

COURSE DESCRIPTION	The description and importance of engineering economy, compound interest, installment payments, basic assessment techniques, compare alternatives, break-even analysis, replacement investments, the effect of inflation on investments, and the effect of amortization and income tax on investment decisions.
---------------------------	---

COURSE OBJECTIVES	<ol style="list-style-type: none"> To gain the ability of applying economic analyses in the related engineering discipline To understand the major capabilities and limitations of discounted cash flow analysis for evaluating proposed capital investments To be able to recognize, formulate, and analyze cash flow models in practical situations. Understand the assumptions underlying these models, and the effects on the modeling process To be able to communicate the results of the modeling process to management and other non-specialist users of engineering analyses
--------------------------	---

ADDITIVE OF COURSE TO APPLY PROFESSIONAL EDUATION	Teach how to use the sources efficiently such as labor, machine, material, energy at manufacturing and service environments.
--	--

COURSE OUTCOMES	<ol style="list-style-type: none"> Gain the ability of defining, describing, formulating and solving an investment problem. Move single cash flows along a time line using a compound interest rate; Move annualized cash flows along a time line using a compound interest rate; Convert nominal and effective interest rates Convert cash flows into Net Present Worth (NPW), net future worth, annualized series, gradient series or escalating series Compare alternatives using NPW Compare alternatives with differing life-cycles and compare infinite-life projects using capitalized costs Compute an Internal Rate of Return (IRR) for a set of cash flows and identify spurious IRR from complex cash flows Compare alternatives using Rate-of-Return (ROR) analysis Classify benefits, disbenefits and cost for Benefit/Cost analysis
------------------------	--

	10. Apply fundamental income taxation, inflation, and depreciation to their analysis 11. Apply economic analysis under risk and uncertainty and multiple criteria
TEXTBOOK	Kahya, E., 2009, Mühendislik Ekonomisi , ESOĞÜ Endüstri Müh. Bölümü, Eskişehir.
OTHER REFERENCES	Mühendislik Ekonomisi, Okka, O., 2010 Mühendislik Ekonomisi Ders Notları, Hızıroğlu, A. Engineering Economy, Blank, L., Tarquin, A., 2004 Engineering Economy, Degarmo, E.P., Sullivan, W.G., Bontadelli, J.A., 2008 Mühendislik Ekonomisi, Işık, A., 2005
TOOLS AND EQUIPMENTS REQUIRED	

COURSE SYLLABUS	
WEEK	TOPICS
1	Basic Concepts of Engineering Economics
2	Compound interest- Time value of the money, interest systems.
3	Compound Interest- Applications.
4	Installment Payments- Capital formation.
5	Installment Payments- Debt payment
6	Basic Assessment Techniques – Cash value, future value
7	Basic Assessment Techniques - Internal rate of return, profitability index, the repayment period
8	Mid-Term Examination
9	Mid-Term Examination
10	Comparing the Alternatives – Process
11	Comparing the Alternatives – Sensitivity Analysis
12	Break – Even Analysis
13	Replacement Investments
14	The Effect of Inflation on Investment Decisions
15,16	Final Exam

NO	PROGRAM OUTCOMES	3	2	1
1	Sufficient knowledge of engineering subjects related with mathematics, science and own branch; an ability to apply theoretical and practical knowledge on solving and modeling of engineering problems.		X	
2	Ability to determine, define, formulate and solve complex engineering problems; for that purpose an ability to select and use convenient analytical and experimental methods.	X		
3	Ability to design a complex system, a component and/or an engineering process under real life constraints or conditions, defined by environmental, economical and political problems; for that purpose an ability to apply modern design methods.			
4	Ability to develop, select and use modern methods and tools required for engineering applications; ability to effective use of information technologies.		X	
5	In order to investigate engineering problems; ability to set up and conduct experiments and ability to analyze and interpretation of experimental results.			
6	Ability to work effectively in inner or multi-disciplinary teams; proficiency of interdependence.			
7	Ability to communicate in written and oral forms in Turkish/English; proficiency at least one foreign language.			
8	Awareness of life-long learning; ability to reach information; follow developments in science and technology and continuous self-improvement.	X		
9	Understanding of professional and ethical issues and taking responsibility			
10	Awareness of project, risk and change management; awareness of entrepreneurship, innovativeness and sustainable development.			
11	Knowledge of actual problems and effects of engineering applications on health, environment and security in global and social scale; an awareness of juridical results of engineering solutions.			
1:None. 2:Partially contribution. 3: Completely contribution.				

Prepared by: Doç. Dr. Mesut TEKKALMAZ

Date: 28.05.2014

Signature(s):