

1. Course Description

COURSE DESCRIPTION FORM															
Course Code and Title	KM331 ENERGY EFFICIENCY AND ENERGY MANAGEMENT IN INDUSTRY														
Course Semester	5														
Catalog Description (Content) of the Course	A general perspective of energy use in Turkey Nature of Turkish industry, efficient use of fuels and combustion systems, importance of insulation, improvements in heat transfer efficiency, waste heat recovery. Energy management program. Monitoring of energy consumption and target formation														
Main Textbook	• “Sanayide Enerji Yönetimi Esasları” (4 cilt), Elektrik İşleri Etüd İdaresi Genel Müdürlüğü, Ulusal Enerji Tasarrufu Merkezi, Ocak 1997, Ankara.														
Supporting Textbooks	• Payne, G.A., “Energy Manager’s Handbook”, 2nd Edition, Great Britain, 1980. • Foell, K.W., “Management of Energy/Environment Systems-Methods and Case Studies”, International Institute of Applied Systems Analysis, John Wiley & Sons, 1979. • “Energy Manager’s Workbook”, British Institutes of Management and Department of Energy, Great Britain, (1982).														
Course Credit (ECTS)	3														
Prerequisites of the Course (Compulsory attendance should be indicated here.)	There is no prerequisite or co-requisite for this course														
Type of the Course	Elective														
Instruction Language of the Course	Turkish														
Object and Target of the Course	To gain the application of mathematics/science/engineering knowledge To gain the professional responsibility and engineering ethics To gain the ability of to define, to formulate and to solve the engineering problems. To gain the consciousness about the social and global effects of the engineering applications														
Learning Outcomes of the Course	1. 2. 3. 														
Mode of Delivery	The mode of delivery of this course is face to face														
Weekly Schedule of the Course	<table> <tr> <td>1. Week</td><td>General situation of energy in Türkiye, Importance of energy efficiency in industry</td></tr> <tr> <td>2. Week</td><td>Energy management concept, importance and its applications</td></tr> <tr> <td>3. Week</td><td>Energy management concept, importance and its applications (Continue)</td></tr> <tr> <td>4. Week</td><td>Energy efficiency studies in industry, Energy efficiency in boilers.</td></tr> <tr> <td>5. Week</td><td>Energy efficiency studies in industry, Energy efficiency in boilers (Continue)</td></tr> <tr> <td>6. Week</td><td>Studies for energy efficiency in steam systems</td></tr> <tr> <td>7. Week</td><td>Heat and mass balances, Insulation</td></tr> </table>	1. Week	General situation of energy in Türkiye, Importance of energy efficiency in industry	2. Week	Energy management concept, importance and its applications	3. Week	Energy management concept, importance and its applications (Continue)	4. Week	Energy efficiency studies in industry, Energy efficiency in boilers.	5. Week	Energy efficiency studies in industry, Energy efficiency in boilers (Continue)	6. Week	Studies for energy efficiency in steam systems	7. Week	Heat and mass balances, Insulation
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	8. Week	Increase for energy efficiency of furnaces		
	9. Week	Increase for energy efficiency in pressurized air applications		
	10. Week	Increase for energy efficiency in electrical systems		
	11. Week	Increase for energy efficiency in lighting systems, Cogeneration applications		
	12. Week	Methods of economical analysis		
	13. Week	Energy efficiency increasing methods in industry, Preparation of energy efficiency report		
	14. Week	Technical visit to energy efficiency application plant		
Educative Activities <i>(Credit will be determined based on the time given for these activities. Should be filled carefully.)</i>		Theoretical Study Hours of Course Per Week Reading Searching in Internet and Library Mid-Term and Studying for Mid-Term Final and Studying for Final		
Assessment Criteria		Quantity	Total Contribution (%)	
	Midterm	2	40	
	Homework	0	0	
	Assignment	0	0	
	Projects	0	0	
	Practice	0	0	
	Quiz	4	20	
	Contribution of In-term Studies to Overall Grade		60	
	Contribution of Final Examination to Overall Grade		40	
	Attendance			
Workload of the Course	Activity	Total Week Count	Weekly Duration (in hour)	Total Workload in Semester
	Theoretical Study Hours of Course Per Week	14	3	42
	Practicing Hours of Course Per Week			
	Reading	6	1	6
	Searching in Internet and Library	3	1	3
	Designing and Applying Materials			
	Preparing Reports			
	Preparing Presentation			
	Presentation			
	Mid-Term and Studying for Mid-Term	4	4	16
	Final and Studying for Final	2	3	6

	Other				
	Total work load				76
	Total work load/25				3.08
	ECTS of the course				3
Course's Contribution To Program	1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.		X	
	2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.	X		
	3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose. (Realistic constraints and conditions may include factors such as economic and environmental issues, sustainability, manufacturability, ethics, health, safety issues, and social and political issues, according to the nature of the design.)			
	4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.			
	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.			
	6	Ability to work efficiently in intra-disciplinary teams.			
	7	Ability to work efficiently in multi-disciplinary teams.			
	8	Ability to work individually.		x	
	9	Ability to communicate effectively in Turkish/English, both orally and in writing; Ability to write effective reports and comprehend written reports, make effective presentations,	X		
	10	Prepare design and production reports, give and receive clear and intelligible instructions.	X		
	11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.			
	12	Awareness of professional and ethical responsibility.		X	
	13	Information about business life practices such as project management, risk management, and change management.			
	14	Information about awareness of entrepreneurship, innovation, and sustainable development.		X	
	15	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety.			X
	16	Knowledge about awareness of the legal consequences of engineering solutions.			
	17	Knowledge on standards used in engineering practice.			
Name of Lecturer(s) and Contact Information	1. Prof.Dr.İrfan Ar 2. 3.				