

COURSE DESCRIPTION FORM

Course Code and Title	KM362 Solar Energy Technology		
Course Semester	6		
Catalog Description (Content) of the Course	Sun and solar energy. Sun collectors. Water heating systems using solar energy. Photovoltaic batteries. Cooling by solar energy. Sun pools. Use solar energy in distillation and drying processes.		
Main Textbook	1. John A. Duffie and William A. Beckman, Solar Engineering of Thermal Processes, Fourth Edition, John Wiley & Sons, Inc., 2014.		
Supporting Textbooks	1. Soteris A. Kalogirou, Solar Energy Engineering: Processes and Systems, Second Edition, Elsevier Academic Press, 2014. 2. Christoph Richter, Daniel Lincot and Christian A. Gueymard (Eds.), Solar Energy, Springer, New York, 2013.		
Course Credit (ECTS)	3		
Prerequisites of the Course (Compulsory attendance should be indicated here.)	There is no prerequisite for this course, Compulsory attendance (70 %)		
Type of the Course	Elective		
Instruction Language of the Course	Turkish		
Object and Target of the Course	To teach the technics for the benefits of solar energy and to lead the students to make researchs.		
Learning Outcomes of the Course	To provide understanding the properties of solar power and to teach to onstruct and the technics of the systems to use solar power systems.		
Mode of Delivery	Face to face		
Weekly Schedule of the Course	Weeks	Topics	
	1	Solar radiation	
	2	Available solar radiation	
	3	Selected heat tansfer topics	
	4	Radiation Characteristics of Opaque Materials.	
	5	Radiation Transmission through Glazing: Absorbed Radiation	
	6	Flat-Plate Collectors.	
	7	Concentrating Collectors	
	8	Concentrating Collectors	
	9	Energy Storage	
	10	Solar Process Economics	
	11	Simulations in Solar Process Design. Design of Active Systems:f-Chart	
	12	Design of Photovoltaic Systems.	
	13	Design of Photovoltaic Systems.	
	14	Wind Energy	
Educative Activities (Credit will be determined based on the time given for these activities. Should be filled carefully.)	Theoretical Study Hours of Course Per Week Reading Searching in Internet and Library Preparing Reports Preparing Presentation Presentation Mid-Term and Studying for Mid-Term Final and Studying for Final		
Assessment Criteria		Sayı	Toplam Katkı (%)
	Midterm	2	25
	Homework		
	Assignment		
	Projects	1	10
	Practice		

	Quiz								
	Contribution of In-term Studies to Overall Grade		60						
	Contribution of Final Examination to Overall Grade		40						
	Attendance								
Workload of the Course	Ekinlik	Hafta sayısı	Süre Saat/Hafta	D.Sonu toplam iş yükü					
	Theoretical Study Hours of Course Per Week	14	3	42					
	Practising Hours of Course Per Week								
	Reading	6	1	6					
	Searching in Internet and Library	6	1	6					
	Designing and Applying Materials								
	Preparing Reports	1	5	5					
	Preparing Presentation	1	5	5					
	Presentation	1	1	1					
	Mid-Term and Studying for Mid-Term	2	4	8					
	Final and Studying for Final	1	5	5					
	Other								
	Total Workload			78					
	Total Workload / 25			3.12					
	ECTS Credit			3					
Course's Contribution To Program	Num.	Program Ourcomes			1	2	3	4	5
	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.					×		
	2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.				×			
	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.							
	9	Ability to communicate effectively in Turkish, both orally and in writing; knowledge of a minimum of one foreign language.			×				
	10	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.						×	
	11	Awareness of professional and ethical responsibility.					×		
	12	Information about business life practices such as project management, risk management, and change management.					×		
	13	Information about awareness of entrepreneurship, innovation, and sustainable development.				×			
	14	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety.				×			
	15	Knowledge about awareness of the legal consequences of engineering solutions.				×			
	16	Ability to write effective reports and comprehend written reports, prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.					×		
	17	Knowledge on standards used in engineering practice.					×		

Name of Lecturer(s) and Contact Information

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