

Course Code	Course Name	Teorical	Practice	Laboratory	Credits	ECTS
FZK-4025	Solar Energy Technologies	2.00	2.00	0.00	3.00	7.00
Course Detail						
Course Language	: Turkish					
Qualification Degree	: Bachelor					
Course Type	: Optional					
Preconditions	: Not					
Objectives of the Course	: This lecture aims to gives information about clean energy.					
Course Contents	: This lecture gives information about clean energy. At this lecture, the subjects that are discussed are particularly obtaining solar energy, using solar energy and applications of solar energy.					
Recommended or Required Reading	: Solar Energy Technology Advances, Tiwari, G.N., (2005), Springer. Wind and Solar Power Systems, Patel, M.R., (2005), CRC Press. Öztürk,H. (2008) Güneş Enerjisi ve Uygulamaları , Birsen Yayınevi					
Planned Learning Activities and Teaching Methods	: Midterm (40) final (% 60)					
Recommended Optional Programme Components	: It is important to know basic information about energy sources.					
Course Instructors	: Prof. Dr. Faruk Soyduğan					
Instructor's Assistants	: Non					
Presentation Of Course	: Face to face					

Course Outcomes

Upon the completion of this course a student :

- 1 1) Apply knowledges which are related with natural sciences (mathematics, physics,
- 2 2) Identify solar energy by knowing basic information about the sun
- 3 3) Identify energy and clean energy
- 4 4) Analyze engineering applications for solar energy
- 5 5) Define problems of related fields , to create formulation for problems and to solve them.
- 6 6) Collect sun datas and analyze by comparing it.
- 7 7) Identify work method of interdisciplinary.
- 8 8) Gain technological knowledge and industrial skills.

Preconditions

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Weekly Contents					
	Teorical	Practice	Laboratory	Preparation Info	Teaching Methods
1.Week	*Introduction	*Introduction			*Oral lectures with interactive discussions, Homeworks, Applications
2.Week	*Structural features of the sun	*Structural features of the sun			*Oral lectures with interactive discussions, Homeworks, Applications
3.Week	*Solar radiation and solar energy	*Solar radiation and solar energy			*Oral lectures with interactive discussions, Homeworks, Applications
4.Week	*Energy balance in solar panels	*Energy balance in solar panels			*Oral lectures with interactive discussions, Homeworks, Applications
5.Week	*Solar pool	*Solar pool			*Oral lectures with interactive discussions, Homeworks, Applications
6.Week	*Solar energy heating	*Solar energy heating			*Oral lectures with interactive discussions, Homeworks, Applications
7.Week	*Solar architecture	*Solar architecture			*Oral lectures with interactive discussions, Homeworks, Applications
8.Week	*Midterm Exam				*Oral lectures with interactive discussions, Homeworks, Applications
9.Week	*Greenhouse heating with solar energy	*Greenhouse heating with solar energy			*Oral lectures with interactive discussions, Homeworks, Applications
10.Week	*Solar cooling	*Solar cooling			*Oral lectures with interactive discussions, Homeworks, Applications
11.Week	*Solar energy and water	*Solar energy and water			*Oral lectures with interactive discussions, Homeworks, Applications
12.Week	*Solar energy and electricity generation	*Solar energy and electricity generation			*Oral lectures with interactive discussions, Homeworks, Applications
13.Week	*Solar cells	*Solar cells			*Oral lectures with interactive discussions, Homeworks, Applications
14.Week	*Focusing methods	*Focusing methods			*Oral lectures with interactive discussions, Homeworks, Applications

Assesment Methods %
1 Vize : 40.000
2 Final : 60.000

ECTS Workload			
Activities	Count	Time(Hour)	Sum of Workload
Vize	1	2.00	2.00
Final	1	2.00	2.00
Attending lectures	14	4.00	56.00
Individual study before lecture	14	2.00	28.00
Individual study after lecture	14	2.00	28.00
Class Hours (14 weeks)	14	4.00	56.00
Final Exam Preparation	1	25.00	25.00
Mid Term Exam Preparation	1	20.00	20.00
Total :			217.00
Sum of Workload / 30 (Hour) :			7
ECTS :			7.00

