

SOLAR CELLS II

1	Course Title:	SOLAR CELLS II	
2	Course Code:	FZK5616	
3	Type of Course:	Optional	
4	Level of Course:	Second Cycle	
5	Year of Study:	1	
6	Semester:	2	
7	ECTS Credits Allocated:	6.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. AHMET PEKSÖZ	
15	Course Lecturers:		
16	Contact information of the Course Coordinator:	peksoz@uludag.edu.tr, (0224) 29 41 713, Prof. Dr. Ahmet PEKSÖZ, UÜ Fen Edebiyat Fakültesi, Fizik Bölümü 16059 Görükle Kampüsü Bursa	
17	Website:		
18	Objective of the Course:	To teach production of thin film-based solar cells and preparing solar cells as solar panels	
19	Contribution of the Course to Professional Development:	Gain problem-solving skills about thin film based-solar cells and its panel technology	
20	Learning Outcomes:		
		1	Learns about efficiency limitations in solar cells
		2	Learns efficiency losses in solar cells
		3	Learns to prepare solar cells as solar panels
		4	Learns types of thin film-based solar cells
		5	Learns production techniques of thin film-based solar cells
		6	Has knowledge about current improvements related with solar cells
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		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Efficiency limitations in solar cells		
2	Efficiency loss in solar cells		
3	Efficiency measurement in solar cells		
4	Crystalline silicon solar cells		
5	Thin film technology		
6	Cadmium telluride (CdTe) based-solar cells		

7	Copper indium gallium selenide (CIGS) based- solar cells	
8	Copper zinc telluride sulphur (CZTS) based- solar cells	
9	MIDTERM EXAM	
10	Polymer based solar cells	
11	Flexible solar cells	
12	Hybrid organic-inorganic materials	
13	Panel technologies for solar cells	
14	Preparing solar cells as solar cell panels	

22	Textbooks, References and/or Other Materials:	<p>1) M. A. Green , Solar Cells, Prentice-Hall, Inc., Englewood Clifs, N. J., 1982.</p> <p>2) Jef Poortmans and Vladimir Arkhipov, Thin Films Solar Cells, Fabrications, Characterization and Applications, John Wiley & Sons Ltd., England, 2006.</p> <p>3) "Principle of Solar Engineering" by D. Yogi Goswami, Frank Kreith and Jan F. Kreider, 2nd ed. Taylor & Francis, 2000, ISBN-10: 1-56032-714-6, ISBN -13:978- 156032-714-1.</p>
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23	Assesment
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TERM LEARNING ACTIVITIES	NUMBE R	WEIGHT
Midterm Exam	1	25.00
Quiz	0	0.00
Home work-project	1	25.00
Final Exam	1	50.00
Total	3	100.00
Contribution of Term (Year) Learning Activities to Success Grade		50.00
Contribution of Final Exam to Success Grade		50.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course	Written examination	

24	ECTS / WORK LOAD TABLE
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Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	3.00	42.00
Homeworks	1	5.00	5.00
Projects	14	6.00	84.00
Field Studies	0	0.00	0.00
Midterm exams	1	3.00	3.00
Others	0	0.00	0.00
Final Exams	1	4.00	4.00
Total Work Load			183.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	4	3	4	5	5	4	3	4	5	5	0	0	0	0	0	0
ÖK2	4	3	5	5	5	4	5	4	5	4	0	0	0	0	0	0
ÖK3	4	3	4	4	5	3	5	5	5	4	0	0	0	0	0	0
ÖK4	4	5	4	5	4	4	4	5	4	4	0	0	0	0	0	0
ÖK5	4	5	4	3	5	4	5	4	4	5	0	0	0	0	0	0
ÖK6	4	3	4	4	5	3	4	4	5	5	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			