FUNCTIONAL POLYMERS

1	Course Title:	FUNCTIONAL POLYMERS
2	Course Code:	TEK5040
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. YAKUP AYKUT
15	Course Lecturers:	Yok
16	Contact information of the Course Coordinator:	aykut@uludag.edu.tr
17	Website:	
18	Objective of the Course:	The aim of the course is to teach functional polymers used in products structures. To investigate the chemical and physical structures of polymers those provide functionality to them and teach how to transfer functionality of the polymers to textile structures without any functionality loss. Conductive, shape memory, self-healing, optical, and biological based polymeric structures will be examined.
19	Contribution of the Course to Professional Development:	The mechanisms of polymeric structures that have specific functionality such as conductive, shape-memory, self-healing will be comprehended.
20	Learning Outcomes:	

		1	Being able to understand the functionality of polymers
		2	Being able to argue how the chemical and physical structures of polymer provide functionality to them
		3	Being able to distinguish how to transfer functionality of the polymers to novel structures
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice

1	Introduction to polymer science 1: Types of Polymerization			
2	Introduction to polymer science 2: Types of Polymerization			
3	Functionality Concept in Polymers			
4	Conductive polymers, Electroactive polymers			
5	Organic Electronics and Photovoltaics, Polymers in energy generation and storage			
6	Biopolymers, Biodegradable polymers, Organic Biosensors and Biochips, Biomimetic			
7	Hydrogels, Drug delivery			
8	Self-healing polymers, Shape memory polymers			
9	Liquid crystalline and High performance polymers			
10	Nanostructured functional polymers			
11	Article analysis and student presentations in accordance with the subject content			
12	Article analysis and student presentations in accordance with the subject content			
13	Article analysis and student presentations in accordance with the subject content			
14	Öğrencilerin belirlediği eksik konuları tekrar anlatmak			

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	14	3.00	42.00
Projects	1	10.00	10.00
Field Studies	0	0.00	0.00
Midterm exams	1	1.00	1.00
Others	14	3.00	42.00
Final Exams	1	1.00	1.00
Total Work Load			180.00
Total work load/ 30 hr			6.00
ECTS Credit of the Course			6.00

23	Assesment	R		
	Midterm Exam	1	30.00	
	Quiz	0	0.00	
	Homework project	1	10.00	
	Final Exam	1	60.00	
	Total	3	100.00	
	Contribution of Term (Year) Learning Activities to Success Grade	40.00		
	Contribution of Final Exam to Success Grade	60.00		
	Total	100.00		
	Measurement and Evaluation Techniques Used in the Course	Questions will be asked in the midterm and final exams within the scope of the topics covered in the course. Exams will be done in a classical way In the project assignment, students are asked to search the relevant literature. The project will be evaluated within the scope of the prepared report and presentation.		

24	ECTS / WORK LOAD TABLE

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	3	5	3	3	5	5	3	2	0	0	0	0	0	0	0	0
ÖK2	5	3	4	4	4	4	3	3	0	0	0	0	0	0	0	0
ÖK3	5	4	5	5	5	3	5	5	0	0	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