DEPARTMENT OF ENERGY SCIENCE AND TECHNOLOGIES
COURSE SYLLABUS

Course Details						
Code				**Academic Year**		**Semester**
MWT307				4		7
Title				**T**	**A**	**L**	**ECTS**
Polymeric Materials				2	1	1	6

Language	German					
Level	**Undergraduate**	X	**Graduate**		**Postgraduate**	
Department / Program	Energy Science and Technology					
Forms of Teaching and Learning	Face-to-face					
Course Type	**Compulsory**		**Elective**		X	
Objectives	It is aimed to provide a general overview of polymer design principles, learn polymer characterization strategies, and understand material properties and the applications of various polymer classes discovered over the years or currently being developed.					
Content	It covers the definitions of polymerization processes, polymer solutions, polymer chain conformations, the crystalline and amorphous states of polymers; glass transition, and the characterization of polymers in terms of their thermal, mechanical, electrical, and optical properties.					
Prerequisites	None					
Coordinator	Associate Prof.Dr. ÇAĞLA SÖZ					
Lecturer(s)	Associate Prof.Dr. ÇAĞLA SÖZ					
Assistant(s)	None					
Work Placement	None					

Recommended or Required Reading	
Books / Lecture Notes	Lecture Notes
Other Sources	Polymer-Werkstoffe, G. W. Ehrenstein, Hanser Verlag (2011)

Additional Course Material	
Documents	-
Assignments	2 Assignments
Exams	1 Midterm, 1 Final

Course Composition		
Mathematics und Basic Sciences	-	%
Engineering	50	%
Engineering Design	-	%

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Social Sciences	-	%
Educational Sciences	-	%
Natural Sciences	30	%
Health Sciences	-	%
Expert Knowledge	20	%

Assessment		
Activity	**Count**	**Percentage (%)**
Midterm Exam	1	20
Quiz		
Assignments	2	20
Attendance		
Recitations	2	20
Projects		
Final Exam	1	40
	Total	**100**

ECTS Points and Work Load			
Activity	**Count**	**Duration**	**Work Load (Hours)**
Lectures	14	2	28
Self-Study	12	6	72
Assignments	2	10	20
Presentation / Seminar Preparation	-	-	-
Midterm Exam	1	3	3
Recitations	14	1	14
Laboratory	14	2	28
Projects	-	-	-
Final Exam	1	3	3
		Total Work Load	**168**
		ECTS Points (Total Work Load / Hours)	**6**

Learning Outcomes	
1	Students will have knowledge about the relationship between the structure, properties and synthesis/processing of polymer materials.
2	They learn the diversity of polymers and their usability in different applications.
3	They will have knowledge about polymerization processes.
4	They know the main methods used to characterize the properties of polymers.

Weekly Content	
1	Introduction to Polymer Science

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2	Polymer Morphology and Physical Properties - I
3	Polymer Morphology and Physical Properties - II
4	Polymer Molecular Weight Characterization
5	Synthesis of Polymers I
6	Synthesis of Polymers II
7	Synthesis of Polymers III
8	Midterm exam
9	Mechanical properties of polymers - I
10	Mechanical properties of polymers - II
11	Thermal and spectroscopic properties - I
12	Thermal and spectroscopic properties - II
13	Processing and production of polymers - I
14	Processing and production of polymers - II
15	Processing and production of polymers - III
16	Final Exam

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7	P8	P9
1		4				5			
2		4			5				
3			5			4			
4					4	5			

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=EN&curSunit=5706	
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