

DEPARTMENT OF MATERIALS SCIENCE AND TECHNOLOGY  
COURSE SYLLABUS

Course Details					
<b>Code</b>				<b>Academic Year</b>	<b>Semester</b>
MWT307				3	Winter
<b>Title</b>	<b>T</b>	<b>A</b>	<b>L</b>	<b>ECTS</b>	
Polymeric Materials	2	1	1	6	
<b>Language</b>	German				
<b>Level</b>	<b>Undergraduate</b>	X	<b>Graduate</b>		<b>Postgraduate</b>
<b>Department / Program</b>	Materials Science and Technology				
<b>Forms of Teaching and Learning</b>	Face to face				
<b>Course Type</b>	<b>Compulsory</b>		<b>Elective</b>	X	
<b>Objectives</b>	The aim of this course is to give the students a basic understanding of the general design principles of polymers, polymer characterization strategies, material properties, and applications of the various classes of polymers discovered over the years or currently under development.				
<b>Content</b>	<ul style="list-style-type: none"> <li>- Descriptions of the polymerization processes</li> <li>- Polymer solutions, polymer chain conformations,</li> <li>- The crystalline and amorphous states of polymers; the glass transition</li> <li>- Thermal, mechanical, electrical and optical properties of polymers and characterization techniques.</li> </ul>				
<b>Prerequisites</b>	None				
<b>Coordinator</b>	None				
<b>Lecturer(s)</b>	Asst. Prof. Dr. Duygu Ekinci				
<b>Assistant(s)</b>	M.Sc. Eyüp Metin				
<b>Work Placement</b>	None				
Recommended or Required Reading					
<b>Books / Lecture Notes</b>	Polymer-Werkstoffe, G. W. Ehrenstein, Hanser Verlag (2011)				
<b>Other Sources</b>	Google-Classroom page of the lecture				
Additional Course Material					
<b>Documents</b>	Google-Classroom page of the lecture				
<b>Assignments</b>	Google-Classroom page of the lecture				
<b>Exams</b>					
Course Composition					
<b>Mathematics und Basic Sciences</b>				%	
<b>Engineering</b>	50			%	
<b>Engineering Design</b>				%	

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Social Sciences			%
Educational Sciences			%
Natural Sciences	30		%
Health Sciences			%
Expert Knowledge	20		%
<b>Assessment</b>			
<b>Activity</b>	<b>Count</b>		<b>Percentage (%)</b>
Midterm Exam	1		20
Quiz			
Assignments	2		20
Attendance			
Recitations	2		20
Projects			
Final Exam	1		40
		<b>Total</b>	<b>100</b>
<b>ECTS Points and Work Load</b>			
<b>Activity</b>	<b>Count</b>	<b>Duration</b>	<b>Work Load (Hours)</b>
Lectures	14	2	28
Self-Study	14	6	84
Assignments	2	10	20
Presentation / Seminar Preparation	0	0	0
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory	2	10	20
Projects	0	0	0
Final Exam	1	2	2
		<b>Total Work Load</b>	<b>170</b>
		<b>ECTS Points (Total Work Load / Hours)</b>	<b>6</b>
<b>Learning Outcomes</b>			
<b>1</b>	Use essential descriptions about polymer chemistry.		
<b>2</b>	Evaluate the structure of polymers.		
<b>3</b>	Solve the problems about polymer chemistry.		
<b>Weekly Content</b>			
<b>1</b>	Introduction to Polymer Science		
<b>2</b>	Polymer Morphology and physical properties - I		

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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	Mechanical Properties of Polymers – I						
9	Mechanical Properties of Polymers – II						
10	Thermal and spectroscopic properties - I						
11	Thermal and spectroscopic properties - II						
12	Processing and production of polymers - I						
13	Processing and production of polymers - II						
14	Processing and production of polymers - III						
<b>Contribution of Learning Outcomes to Program Objectives (1-5)</b>							
	<b>P1</b>	<b>P2</b>	<b>P3</b>	<b>P4</b>	<b>P5</b>	<b>P6</b>	<b>P7</b>
<b>1</b>	5	5	5	5	3	5	3
<b>2</b>	5	5	5	5	3	5	3
<b>3</b>	5	5	5	5	3	5	3
<b>Contribution Level</b>	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High						
<a href="https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=en&amp;curSunit=207">https://obs.tau.edu.tr/oibs/bologna/progLearnOutcomes.aspx?lang=en&amp;curSunit=207</a>							
<b>Compiled by:</b>	Asst. Prof. Dr. Duygu Ekinci						
<b>Date of Compilation:</b>	27.04.2022						