

POLYMER CHEMISTRY

1	Course Title:	POLYMER CHEMISTRY
2	Course Code:	KIM4037
3	Type of Course:	Optional
4	Level of Course:	First Cycle
5	Year of Study:	4
6	Semester:	7
7	ECTS Credits Allocated:	5.00
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. NECATİ BEŞİRLİ
15	Course Lecturers:	
16	Contact information of the Course Coordinator:	nbesirli@uludag.edu.tr 0 224 29 41 721
17	Website:	
18	Objective of the Course:	The application of the basic principles about polymers, to understand the synthesis and characterization methods of the polymers and to learn the effect of the structure of the polymers on its properties.
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	Recognizing the polymers and becomes competent on the basic subjects about polymer chemistry
	2	Knowing the methods of polymerization and characterization
	3	Comprehending the kinetics of the polymerization reactions
	4	Knowing the structure-property relation in polymers
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21	Course Content:	
	Course Content:	
Week	Theoretical	Practice
1	General Issues about the Polymer Chemistry: Monomer, Polymer, Polymer Chains, Linear, Branched and Cross-linked Polymers, Polymer Synthesis, Polymer Stereochemistry, The Crystal Structure of the Polymers	

2	Step Polymerization, The Kinetics of the Step Polymerization Reactions	
3	Addition Polymerization , The Kinetics of the Addition polymerizations	
4	Empirical and Theoretical rates of polymerization, Kinetic Chain Length	
5	Degree of polymerization and molecular weight	
6	Gel Effect in Addition Reactions	
7	Depolymerization and Kinetics of polymerization reactions	
8	Chain Transfer Reactions and the Kinetics of Chain Transfer Reactions	
9	Repetition of previous lessons and MIDTERM	
10	Ionic polymerization, Anionic polymerization, Cationic polymerization	
11	The Kinetics of ionic polymerization reactions	
12	Copolymerization reactions and the kinetics of the copolymerization reactions	
13	Characterization of the polymers: Molecular weight in polymers and the methods of determining the molecular weight distribution, quantitative properties, end group analysis	
14	Light Scattering Method, Ultracentrifuge Method, Viscosity Method, Gel Permeation Chromatography	

Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical	3	12	2.00	28.00
Practicals/Labs	0		0.00	0.00
Self study and preparation	14		4.00	56.00
Homeworks	3		10.00	30.00
Projects	0		0.00	0.00
Field Studies	0		0.00	0.00
Midterm exams	0	0.00	15.00	15.00
Others	0		0.00	0.00
Final Exams	1	60.00	20.00	20.00
Total Work Load				149.00
Contribution of 730h (Year) Learning Activities to ECTS Credit of the Course		40.00		4.97
Contribution of Final Exam to Success Grade		60.00		
Total		100.00		
Measurement and Evaluation Techniques Used in the Course				

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	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	4	4	0	4	0	0	0	0	0	3	0	0	0	0	0

ÖK3	0	4	0	0	4	0	0	0	0	0	4	0	0	0	0	0
ÖK4	0	4	0	0	4	0	0	0	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							