AYDIN ADNAN MENDERES UNIVERSITY
COURSE INFORMATION FORM

Course Title	Physical Chemistry of Polymers						
Course Code	KİM641		Couse Level	Third Cycle (Doctorate Degree)			
ECTS Credit	10	Workload	250 *(Hours)*	Theory	3	Practice	0	Laboratory	0
Objectives of the Course	This lecture is designed to provide a solid background for students who intend to go on to the graduate study and a thorough background in the fundamentals of physical chemistry of Polymers						
Course Content	Structure of polymers and monomers, nomenclature, classification and basic identification of polymers, chain and step wise polymerization, degradation and crosslinking, structural analysis methods of polymers, melting and crystallinity of polymers, phase diagrams at polymers, polymer mixtures and basic properties, thermodynamics of polymer phase transactions, colligative properties of polymers, thermal properties of polymers, determination of glass transition of polymers						
Work Placement	N/A						
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion			
Name of Lecturer(s)							

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	20
Final Examination	1	60
Assignment	4	20

Recommended or Required Reading

1	Physical Chemistry of Polymers, A. TAGER
2	Physical Chemistry of Macromolecules, S. F. SUN
3	Hydrogels for Medical and Related Applications,ACS Symposium series Ed.; R. F. Gould
4	Introduction to Physical Polymer Science, L. H. SPERLING

Week	Weekly Detailed Course Contents	
1	Theoretical	Structure of Polymers and monomers
2	Theoretical	Nomenclature, classification and basic identification of polymers
3	Theoretical	Chain and step wise polymerization
4	Theoretical	Degradation and crosslinking
5	Theoretical	Structural analysis methods of polymers
6	Theoretical	Melting and crystallinity of polymers
7	Theoretical	Polymer solutions
8	Intermediate Exam	Midterm exam
9	Theoretical	Phase diagrams at polymers
10	Theoretical	Polymer mixtures and basic properties
11	Theoretical	Thermodynamics of polymer phase transactions
12	Theoretical	Colligative properties of polymers
13	Theoretical	Thermal properties of polymers
14	Theoretical	Spectroscopic properties of polymers
15	Theoretical	Glassy state, glass transition of polymers, related methods
16	Final Exam	FINAL EXAM

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	6	0	9	54
Reading	1	0	97	97
Quiz	4	2	4	24
Midterm Examination	1	12	2	14

Final Examination	1	16	3	19
			Total Workload (Hours)	250
			[Total Workload (Hours) / 25*] = **ECTS**	10

*25 hour workload is accepted as 1 ECTS

Learning Outcomes

1	Structure of polymers and monomers
2	Nomenclature, classification and basic identification of polymers
3	Chain and step wise polymerization
4	Degradation and crosslinking
5	Structural analysis methods of polymers, melting and crystallinity of polymers
6	Polymer solutions, Phase diagrams at polymers
7	Thermodynamics of polymer phase transactions
8	Colligative properties of polymers
9	Thermal properties of polymers
10	Determination of glass transition of polymers

Programme Outcomes *(Chemistry Doctorate)*

1	Depending on the master degree competences, develops, insights and innovates current and advanced knowledge and/or research in proficiency level.
2	Gains high skill levels in using research methods in the field of his/her study.
3	Comprehends the interaction between disciplines related to his/her field. Reaches to original results using his/her expertise in order to analyze, synthesize and evaluate new and complicated ideas.
4	Enlarges the boundaries of his/her field of knowledge by publishing at least one research paper in national and/or international peer-reviewed journals.
5	Defends his/her original opinions related to his/her field before authority and communicates effectively illustrating his/her competence.
6	May communicate and debate written, orally and visually in European Language Portfolio level C1.
7	Follows the developments in computer software and information and communication technologies developed for his/her research area and uses these in order to solve research problems.
8	Collaborates for scientific research with national and international research teams.
9	Contributes to the course of creation and maintenance of knowledge based society and by introducing the scientific, social and cultural developments to the society he/she is living in.

Contribution of Learning Outcomes to Programme Outcomes *1:Very Low, 2:Low, 3:Medium, 4:High, 5:Very High*

	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
P1	5	5	5	5	5	5	5	5	5	5
P2	5	4	5		3	3	3	3	4	4
P3	5	4	5		3	3	3	3	3	
P4	5	4	4		3	3	3	3		
P5	5	3	5		3	3	3	3		
P6	5	3								
P8				4						
P9	4	4								