



YOZGAT BOZOK UNIVERSITY FACULTY OF ARTS AND SCIENCES
CHEMISTRY DEPARTMENT COURSE PLAN

Course Code	Course Title	Semester	Course Type (C/E)	T+A+L (Time/Week)	Credit	ECTS	Course Language
KİM729	Polymer Kinetics	1-2	E	2+0+0	1-2	4	Turkish

COURSE INFORMATION

Course Catalog Description (Content)	Reaction rate, Rate law, Reaction rate constant, Reaction mechanism, Molecularity, Half-life, Determination of reaction degrees, Pseudo degrees, Effect of temperature on reaction rate, Activation Energy, Sequential reactions, Theoretical determination of reaction rate, Evaluation of kinetic data, Catalysis and adsorption, Preliminary concepts, synthesis of polymers, additional concepts, polymers and small molecule substances, Cascading polymerization kinetics, Radical addition polymerization kinetics, Ionic polymerization kinetics, Copolymerization kinetics, Conductive polymer kinetics, Inputs used in the production of polymers are taught through theoretical lectures, examples and applications.
The Aim of the Course	To provide basic information about the kinetic analysis methods of polymers.
Course Level	Bachelor degree
Course Language	Turkish
Teaching method	(X) Formal () Online () Mixed/Hybrid
Teaching Staff of the Course	Prof. Dr. Ramazan COŞKUN, Prof. Dr. Ali DELİBAŞ, Asst. Prof. Dr. Hatice ARI
Prerequisite Course(s) of the Course	-
Learning Outcomes from the Course	1- Calculates reaction rate, molecularity, half-life and activation energy. 2- Can determine the reaction degrees. 3- Calculate the kinetics of cascading, anionic, cationic, radical, etc. polymerizations. 4- Calculates copolymerization and conductive polymer kinetics. 5- Classifies the inputs used in the production of conductive polymers.

COURSE CONTENT

Week	Theory	Practice/Laboratory
1	Basic Kinetic Concepts	
2	Determination of reaction degrees, Pseudo degrees	
3	Effect of temperature on reaction rate, Activation Energy	
4	Stepped Polymerization	
5	Polyesterization Kinetics	
6	Dependence of Polymerization Degree on Polymerization Amplitude	
7	Radical Addition Polymerization	
8	Radical Addition Polymerization Kinetics	
9	Anionic Polymerization Kinetics	
10	Cationic Polymerization Kinetics	
11	Copolymerization Kinetics	

12	Conductive polymer kinetics	
13	Example Calculations	
14	An overview	
15	Final Exam	

Course Learning Resources

1. Polimer Kimyası: Mehmet Saçak, Gazi Kitabevi, 2004, Ankara, Türkiye.

ASSESSMENT CRITERIA

Work Activities During the Semester	Number	Contribution
Homework	1	30
Practice		
Forum/ Discussion Application		
Short Exam (Quiz)	2	70
Ratio Of Semester Studies To Semester Success (%)		%40
Ratio of Final to Success (%)	1	%60
Total		%100

COURSE WORKLOAD TABLE

Activity	Total Weeks	Duration (Weekly Hours)	Total Workload
Theory	14	2	28
Practice			
Forum/ Discussion Application			
Reading	14	2	28
Internet Scanning, Library Study			
Individual study	14	1	14
Brainstorming	14	1	14
Presentation Preparation			
Presentation			
Final Exam	1	1	1
Preparation for the Final Exam	3	5	15
Diğer (Belirtiniz: Homework)			
Total Workload			100
Total Workload / 25 (s)			100/25
ECTS Credits of the Course			≅4

Note: The workload of the course will be determined by the instructor on a per-course basis.

PROGRAM LEARNING OUTPUTS CONTRIBUTION LEVELS

No	Program Learning Outputs	1	2	3	4	5
1	Gains extensive knowledge about the basic chemical properties of matter and uses this knowledge in daily life, industrial scale, and practical chemistry and shares them with the society.				X	
2	Performs experiments, collects data, interprets, evaluates results, defines problems parallel to current technological developments, produces solutions against problems encountered in the laboratory.				X	
3	Calculates and processes chemical information and data.					X
4	Applies her/his knowledge and understanding of chemistry to the solution of unconventional qualitative and quantitative problems.					X

5	Defines and comprehends chemical concepts and theories in Inorganic Chemistry, Organic Chemistry, Physical Chemistry, Analytical Chemistry, Biochemistry.				X	
6	Can conduct research in the light of scientific data on any subject in the field of chemistry.					X
7	Writes, presents, discusses scientific material, and presents it orally to a knowledgeable audience.					X
8	Brings a chemical approach to the solution of environmental problems, makes environmental analyzes and reports.				X	
9	Knows a foreign language at a level to read and understand the basic terms and processes of the chemist profession.			X		
10	Can use computer software and information and communication technologies at the level required by the field.			X		
11	Adapts and transfers the knowledge gained in the field to secondary education.			X		
12	Apart from the field of chemistry, she/he gains knowledge in different branches of science that she feels close to.				X	
13	Carries out a study independently, makes group work and gains the awareness of taking responsibility.				X	
14	They can develop a positive attitude towards lifelong learning and constantly renew their professional knowledge and skills.					X
15	Have sufficient awareness of the universality of social rights, social justice, quality culture and protection of cultural values, environmental protection, occupational health and safety.			X		

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