



AYDIN ADNAN MENDERES UNIVERSITY COURSE INFORMATION FORM

Course Title		Crystal Solids							
Course Code		KİM633		Couse Level		Third Cycle (Doctorate Degree)			
ECTS Credit	8	Workload	195 (<i>Hours</i>)	Theory	3	Practice	0	Laboratory	0
Objectives of the Course		The aim of this course is to study the structure and properties of crystal solids formed atoms, ions and molecules that are packed in geometrical arrangement.							
Course Content		Crystal Geometry: Crystal Lattices, Crystal Structure: Classification,Closest Packing, Packing Of Compounds,Determination Of Crystal Structure: Diffraction In Crystals (X-Ray, Electron And Neutron),Reuntgen Spectrometry,Crystal Chemistry:Crystal Lattice Defects,Structural Lattice Defects,Chemical Lattice Defects,Electrical Lattice Defects,The Effect Of Lattice Defects On Diffusion,The Effect Of Lattice Defects On Crystal Growth.							
Work Placement		N/A							
Planned Learning Activities and Teaching Methods				Explanation (Presentation), Discussion, Individual Study, Problem Solving					
Name of Lecturer(s)									

Assessment Methods and Criteria

Method	Quantity	Percentage (%)
Midterm Examination	1	40
Final Examination	1	60

Recommended or Required Reading

1	Miessler, G. L., Tarr, D. A. (Çeviri Editörleri: Karacan, N., Gürkan, P.). İnorganik Kimya. (2002). Palme Yayınları-Ankara
2	Shriver D.F., Atkins P. W., Langford C. H., (1991) Inorganic Chemistry, Oxford Chemistry,
3	Cotton, F. A. and Wilkinson, G. (1980) Advanced Inorganic Chemistry, John Wiley & Sons, New York, Fourth Edition
4	Huheey J.E., Keiter E.A., Keiter R.L., (1993) Inorganic Chemistry, 4th Ed., HarperCollins,

Week	Weekly Detailed Course Contents	
1	Theoretical	Crystal Geometry: Crystal Lattices
2	Theoretical	Crystal Structure: Classification
3	Theoretical	Closest Packing, Packing Of Compounds
4	Theoretical	Determination Of Crystal Structure: Diffraction In Crystals (X-Ray, Electron And Neutron)
5	Theoretical	Reuntgen Spectrometry
6	Theoretical	Crystal Chemistry
7	Theoretical	Crystal Lattice Defects
8	Intermediate Exam	Midterm Exam
9	Theoretical	Structural Lattice Defects
10	Theoretical	Chemical Lattice Defects
11	Theoretical	Electrical Lattice Defects
12	Theoretical	The Effect Of Lattice Defects On Diffusion
13	Theoretical	The Effect Of Lattice Defects On Crystal Growth
14	Theoretical	Student Presentations
15	Theoretical	Student Presentations
16	Final Exam	Final Exam

Workload Calculation

Activity	Quantity	Preparation	Duration	Total Workload
Lecture - Theory	14	0	3	42
Assignment	4	15	2	68
Reading	1	20	1	21
Midterm Examination	1	30	2	32



Final Examination	1	30	2	32
Total Workload (Hours)				195
[Total Workload (Hours) / 25*] = ECTS				8
*25 hour workload is accepted as 1 ECTS				

Learning Outcomes

1	Knows the basic concepts of crystal geometry
2	Learn the structure and classification of crystals
3	Learn the causes of crystal, structural, electrical and chemical mesh defects,
4	Learn the effects of mesh defects.
5	Examine articles on crystal solids

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
P1	4	4	4	4	4
P2	4	4	4	4	4
P3	4	4	4	4	4
P4	4	4	4	4	4
P5	4	4	4	4	4

