INTRODUCTION TO SOLID STATE PHYSICS										
1	Course Title:	INTRODUCTION TO SOLID STATE PHYSICS								
2	Course Code:	FZK400	5							
3	Type of Course:	Compuls	sory							
4	Level of Course:	First Cyc	le							
5	Year of Study:	4								
6	Semester:	7								
7	ECTS Credits Allocated:	7.00								
8	Theoretical (hour/week):	4.00								
9	Practice (hour/week):	0.00								
10	Laboratory (hour/week):	0								
11	Prerequisites:	Fundamental Physics, Chemistry, Electricity and Magnetism and Quantum Mechanics								
12	Language:	Turkish								
13	Mode of Delivery:	Face to f	ace							
14	Course Coordinator:	Prof. Dr.	Mürsel Alper							
15	Course Lecturers:	Yrd. Doç	. Dr. Mürşide ŞAFAK HACIİSMAİLOĞLU							
16	Contact information of the Course Coordinator:	malper@uludag.edu.tr, (0224) 29 41 697, UÜ Fen Edebiyat Fakültesi, Fizik Bölümü 16059 Görükle Kampüsü Bursa								
17	Website:									
18	Objective of the Course:	To study the structural, thermal, electrical and magnetic properties of solids. To understand the basics of crystallography and the importance of periodicity. To teach the relationship between the structural and electrical, magnetic properties. To teach the application their knowledge of Quantum physics to the real physical systems such as metals and semiconductors								
19	Contribution of the Course to Professional Development:									
20	Learning Outcomes:									
		1	Learning crystal and noncrystal structures							
		2	Studying some crystal structures such as cubic, hexagonal and diomand							
		3	Learning and studying crystal structures in direct and reciprocal lattice space.							
		4	Learning x-ray diffraction in crystal structures and calculation structural factor							
		5	Studying defects in crystal structures and their effects on the properties of crystal structures							
		6	Studying atomic oscilations and obtaining the oscialtion frequencies, and learning the models that is developed to explain the heat capacity							
		7	Learning electrical conduction in solids and studying the conduction phenomenia in the presence of electrical and magnetic fields							
		8	Learning how the energy bands are formed in solids. Explaining the electrical conduction in solids according to the energy bands							
		9	Learning the solution of the Schrödinger Equation for the periodic potentials in the solids							
		10	Learning the plot of the energy bands in solids and how the electrons move in these bands.							

21	Course Content:																	
	Course Content:																	
Week	Theoretical									actice								
1	Soli	d Ma	terials	and C	Chemi	cal Bo	nds											
2	Cry: Dim	stal S iensic	structu onal C	ires: , rystals	One a	ind Tw	0											
3	Cry: Cry:	stal S stals,	tructu Geoi	ires: T metric	hree [al Pro	Dimens perties	sional s of Cr	ystal										
4	Diff	ractio	n in C	rystals	s and	Diffrac	tion N	lethods	5									
5	Rec	ciproc	al Lat	tices a	nd its	Prope	rties											
6	Def	ects i	n Crys	stals														
7	Stat Mid	tistica term	l Distr Exam	ributio 1	n Fun	ctions												
8	Lattices Vibrations																	
9	The Hea	rmal ats	Prope	erties c	of Soli	ds, Lat	tice S	pesific	Γ									
10	Metals and Conduction Processes																	
11	Classical and Quantum Free Electron Theories																	
12	Electrons in Magnetic Field Midterm Exam 2,																	
Activites							1	Numb	er		Dura	ition (hour)	Total Work Load (hour)				
Theoreticatbooks, References and/or Other								11 M. ALPER, Katihal Fizidi Ders Notlari										
Practica	[Māterials: Practicals/Labs									0 0.00						<u>Ceviri), Gûven</u> 0.00		
Self stu	Self study and preparation										sai, ivi.		, <u>vi.</u> Alt	unbaş Verm				
Homeworks									<u> Ka</u>	14 4.00					56.00			
Pr 2 Pr	Ass	esme	ent						C)			0.00		-	0.00		
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Others	hers									14					42.00			
Einal E	Final Exams									0			2.00		2.00			
Total Work Load														216.00				
Total work load/ 30 hr							10	0 00						7.20				
ECTS Credit of the Course								0100						7.00				
Success Grade																		
Contribution of Final Exam to Success Grade								50.	50.00									
Total							100	0.00										
Measurement and Evaluation Techniques Used in the Course																		
24 ECTS / WORK LOAD TABLE																		
25				CON	TRIB	UTIO	N OI	F LEA Q	RN	ing Lific		COME NS	S TO I	PROC	GRAM	ME		
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ÖK3	5	5	4	3	2	5	3	0	3	3	0	2	0	0	0	0	
ÖK4	5	5	5	3	2	5	3	0	3	4	0	2	0	0	0	0	
ÖK5	4	5	5	3	2	5	3	0	3	4	0	2	0	0	0	0	
ÖK6	5	5	5	4	2	4	0	3	2	0	0	3	0	0	0	0	
ÖK7	5	5	5	3	2	3	3	0	2	3	0	3	0	0	0	0	
ÖK8	4	4	4	3	2	2	3	0	2	3	0	0	0	0	0	0	
ÖK9	4	3	4	3	2	3	3	2	2	4	0	0	0	0	0	0	
ÖK10	4	4	4	3	2	4	3	0	0	3	0	0	0	0	0	0	
LO: Learning Objectives PQ: Program Qualifications																	
Contrib ution Level:	ontrib 1 very low ition .evel:			2 low			3	3 Medium			4 High			5 Very High			