

DEPARTMENT OF MATERIALS SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	Academic Year			Semester
NWI405	4			7
Title	T	A	L	ECTS
Solid-State Physics	3	1		6
Language	German			
Level	Undergraduate	X	Graduate	Postgraduate
Department / Program	Materials Science and Technology			
Forms of Teaching and Learning	Face to face			
Course Type	Compulsory		Elective	X
Objectives	Students will have the conceptual and mathematical tools to read, analyse and explain current research papers in solid state physics and to understand the physical process underlying many solid state devices			
Content	Fundamentals of the solid state physics and current research in the field			
Prerequisites				
Coordinator				
Lecturer(s)	Asist Prof.Dr. Neşe Aral			
Assistant(s)				
Work Placement	No			
Recommended or Required Reading				
Books / Lecture Notes	Einführung in die Festkörperphysik, C. Kittel			
Other Sources				
Additional Course Material				
Documents				
Assignments				
Exams				
Course Composition				
Mathematics und Basic Sciences				%
Engineering				%
Engineering Design				%
Social Sciences				100%
Educational Sciences				%

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Natural Sciences			%
Health Sciences			%
Expert Knowledge			%
Assessment			
Activity	Count		Percentage (%)
Midterm Exam	1		40
Quiz			
Assignments			
Attendance			
Recitations			
Projects			
Final Exam	1		60
		Total	100
ECTS Points and Work Load			
Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	14	7	98
Assignments	2	6	12
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	14	1	14
Laboratory	14	1	14
Projects			
Final Exam	1	2	2
		Total Work Load	170
		ECTS Points (Total Work Load / Hours)	6
Learning Outcomes			
1	Read, analyze and explain current research papers in solid state physics and understand the physical process underlying many solid state devices		
2			
3			
4			
5			
6			
7			
8			

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9	
10	
11	
12	

Weekly Content

1	Structure of Solids and Crystal Theory
2	X-Ray and Neutron Crystallography
3	Lattice Vibrations
4	Free Electrons in Metals
5	Electron Dynamics in Crystals
6	Semiconductors
7	
8	
9	
10	
11	
12	
13	
14	
15	

Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
All				2	3		
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Contribution Level

1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High



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Compiled by:	
Date of Compilation:	