

DEPARTMENT OF MATERIALS SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	Academic Year			Semester
MWT406	3			6
Title	T	A	L	ECTS
Functional Properties of Solid-State Materials	2	1	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 learn magnetic and superconducting behavior of materials and solid state of dielectrics			
Content	Dielectric and ferroelectric properties, optical properties, magnetism, superconductivity			
Prerequisites				
Coordinator				
Lecturer(s)	Asist. Prof.Dr. Çağatay Elibol			
Assistant(s)				
Work Placement	No			
Recommended or Required Reading				
Books / Lecture Notes	C.Kittel: „Einführung in die Festkörperphysik“, Oldenbourg-Verlag (2006); C. Kittel, “Introduction to Solid State Physics“, Wiley, New York (2005)			
Other Sources				
Additional Course Material				
Documents				
Assignments				
Exams				
Course Composition				
Mathematics und Basic Sciences				20%
Engineering				40%
Engineering Design				20%
Social Sciences				%
Educational Sciences				%
Natural Sciences				%

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Health Sciences			%
Expert Knowledge			20%
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	15	2	30
Self-Study	10	8	80
Assignments	2	6	12
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	15	1	1
Laboratory	15	2	30
Projects			
Final Exam	1	2	2
	Total Work Load		171
	ECTS Points (Total Work Load / Hours)		6
Learning Outcomes			
1	Ensure that students have knowledge of bioreactor design, bioreactor flow processes and biotechnological methods		
2			
3			
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9			

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10	
11	
12	

Weekly Content

1	Dielectric and Ferroelectric Properties: Phenomenology; Polarizability of Atoms and solids, temperature and frequency dependence; ferroelectric Phase transition, ferroelectric properties
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15	

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

	P1	P2	P3	P4	P5	P6	P7
All	3	3	3	3	1		
1							
2							
3							
4							
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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:	