

DEPARTMENT OF MATERIALS SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	Academic Year			Semester
MWT312	3			6
Title	T	A	L	ECTS
Composite 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 acquire detailed knowledge of the manufacture and use of composites. You will learn the classification and properties of composites as well as various process technologies. They develop the understanding of structure-property relationships for different composite classes.			
Content	Metal matrix composites, ceramic matrix composites, polymer matrix composites, fiber reinforced composites; directional, random, long and short fibers, particle reinforced composites, prepreg materials; Manufacturing, properties, applications			
Prerequisites				
Coordinator				
Lecturer(s)	Asist Prof.Dr. Çağla Söz			
Assistant(s)				
Work Placement	No			
Recommended or Required Reading				
Books / Lecture Notes	Autar K. Kaw, 2006, Mechanics Of Composite Materials, Second Edition, CRC Press.			
Other Sources	<ul style="list-style-type: none"> • Autar K. Kaw, 2006, Mechanics Of Composite Materials, Second Edition, CRC Press. • Jones, R.M., 1975, Mechanics Of Composite Materials, Edward Brothers, 1998 • Cristian Decolon, 2002, Analysis Of Composite Structures, Hermes Penton Ltd. • Daniel Gay, Suong V. Hoa, Stephen V. Tsai, 2003, Composite Material Design And Applications, CRC Press. • Laszlo P. Kollar, George S. Springer, 2003, Mechanics of Composite Structures, Cambridge University Press. 			
Additional Course Material				
Documents				
Assignments				
Exams				
Course Composition				

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Mathematics und Basic Sciences			%
Engineering			100%
Engineering Design			%
Social Sciences			%
Educational Sciences			%
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	15	2	30
Self-Study	10	10	100
Assignments			
Presentation / Seminar Preparation			
Midterm Exam	1	2	2
Recitations	15	1	15
Laboratory	15	2	30
Projects			
Final Exam	1	2	2
		Total Work Load	179
		ECTS Points (Total Work Load / Hours)	6
Learning Outcomes			
1	Students acquire detailed knowledge of the manufacture and use of composites.		
2			
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Weekly Content

1	Definition of composite material, Classification based on matrix and topology, Constituents of composites, Interfaces and Interphases, Nano-composites
2	Superconducting and Magnetic Applications, Nano-composite devices
3	Control of particle/fibre and porosity content, particle/fibre distribution, Interfacial Reaction of matrix-reinforcing component, Coating of reinforcing component, Strength analysis
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Contribution of Learning Outcomes to Program Objectives (1-5)

	P1	P2	P3	P4	P5	P6	P7
All							
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Contribution Level 1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High

Compiled by:

Date of Compilation: