

DEPARTMENT OF MATERIALS SCIENCE AND TECHNOLOGY
COURSE SYLLABUS

Course Details					
Code				Academic Year	Semester
MAT112				1	1
Title	T	A	L	ECTS	
Analysis II and Linear Algebra	3	2	0	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	X	Elective		
Objectives	To make students use matrices, partial derivative and integral concepts in multivariable functions, to gain ability to use mathematics knowledge to solve scientific problems				
Content	Vectors, Real Matrices, Determinants, Linear Equation Systems, Gauss Algorithm, Linear Functions, Complex Matrices, Fourier Series, Multidimensional Derivatives and Integrals, Ordinary and Multidimensional Integrals, Laplace Transformation				
Prerequisites					
Coordinator	None				
Lecturer(s)	Asist Prof.Dr. Orkide Coşkuner Weber				
Assistant(s)	None				
Work Placement	No				
Recommended or Required Reading					
Books / Lecture Notes	- Şanal Ziya, Matematik für Ingenieure, Vieweg+Teubner, Wiesbaden 2009 - Papula Lothar, Mathematik für Ingenieure und Naturwissenschaftler, Band 1+2, Wiesbaden 2011 Yardımcı Kaynaklar: - Skriptum „Analysis I für Ingenieure“, Prof. Dr. Dirk Ferus - Skriptum „Analysis II für Ingenieure“, Prof. Dr. Dirk Ferus - http://ocw.mit.edu/courses/mathematics/18-01sc-single-variable-calculus-fall-2010/ - http://ocw.mit.edu/courses/mathematics/18-02sc-multivariable-calculus-fall-2010/				
Other Sources	References Şanal Ziya, Matematik für Ingenieure, Vieweg+Teubner, Wiesbaden 2009 Papula Lothar, Mathematik für Ingenieure und Naturwissenschaftler, Band 1+2, Wiesbaden 2011 Skriptum „Analysis I für Ingenieure“, Prof. Dr. Dirk Ferus - Skriptum „Analysis II für Ingenieure“, Prof. Dr. Dirk Ferus				
Additional Course Material					
Documents					
Assignments					
Exams					
Course Composition					

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Mathematics and Basic Sciences		100%
Engineering		%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%
Health Sciences		%
Expert Knowledge		%

Assessment

Activity	Count	Percentage (%)
Midterm Exam	1	30
Quiz		
Assignments		
Attendance		
Recitations		
Projects	1	10
Final Exam	1	60
Total		100

ECTS Points and Work Load

Activity	Count	Duration	Work Load (Hours)
Lectures	14	3	42
Self-Study	14	4	56
Assignments	14	3	42
Presentation / Seminar Preparation			
Midterm Exam	2	4	8
Recitations	14	2	28
Laboratory			
Projects			
Final Exam	1	2	2
Total Work Load			184
ECTS Points (Total Work Load / Hours)			6

Learning Outcomes

1	Solve the systems of linear equations. Provide arithmetic operations with matrices. Compute the inverse of matrix.
2	Determine the value of determinant of a matrix. Use Cramer rule to solve the systems.
3	Learn the importance of the concepts of vector space, basis and dimension.



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9								
10								
11								
12								
Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High							
Compiled by:								
Date of Compilation:								