DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details				
Code		**Academic Year**		**Semester**
MAT112		1		2
Title	**T**	**A**	**L**	**ECTS**
Analysis II and Linear Algebra	3	2	-	6

Language	German					
Level	**Undergraduate**	**X**	**Graduate**		**Postgraduate**	
Department / Program	Material Science and Technology					
Forms of Teaching and Learning	Face-to-face					
Course Type	**Compulsory**	**X**	**Elective**			
Objectives	Being able to apply integral calculus and matrix algebra to problem in different areas of science.					
Content	Integral calculus, infinite series, complex numbers, matrix algebra					
Prerequisites	-					
Coordinator	-					
Lecturer(s)	Assist. Prof. Dr. Neşe Aral					
Assistant(s)	RA Muhammed Cihat Mercan					
Work Placement	-					

Recommended or Required Reading	
Books / Lecture Notes	Papula Lothar, Mathematik für Ingenieure und Naturwissenschaftler, Band 1+2
Other Sources	-

Additional Course Material	
Documents	-
Assignments	-
Exams	-

Course Composition		
Mathematics und Basic Sciences	100	%
Engineering		%
Engineering Design		%
Social Sciences		%
Educational Sciences		%
Natural Sciences		%

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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	5	75
Self-Study	15	2	30
Assignments	-	-	-
Presentation / Seminar Preparation	-	-	-
Midterm Exam	1	2	2
Recitations	10	3	30
Laboratory	-	-	-
Projects	-	-	-
Final Exam	1	2	2
		Total Work Load	**139**
		ECTS Points (Total Work Load / Hours)	**6**

Learning Outcomes

1	Being able to apply integral calculus and matrix algebra to problem in different areas of science.

Weekly Content

1	Area calculation
2	Volume calculation
3	Curve length calculation
4	Calculation of surface areas of rotational bodies
5	Calculation of center of mass
6	Applications of integral calculus in biology
7	Infinite series, Taylor expansion

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8	Complex numbers and functions
9	Vectors and real matrices
10	Vector spaces
11	Determinants
12	Inverse and orthogonal matrices
13	Systems of linear equations
14	Complex matrices
15	Eigenvalues and eigenvectors

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

	P1	P2	P3	P4	P5	P6	P7	P8
1	5	4	5	4	5	5	5	4

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
OBS LINK: https://obs.tau.edu.tr/oibs/bologna/index.aspx?lang=en&curOp=showPac&curUnit=01&curSunit=207	
Compiled by:	Assist. Prof. Dr. Neşe Aral
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