DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

Course Details				
Code	**Academic Year**			**Semester**
MAT103	1			1
Title	**T**	**A**	**L**	**ECTS**
Analysis I	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	Ability to work with functions of one and more variables. Being able to handle differential and integral calculus for functions of real valued variables.					
Content	Functions, differential and integral calculus					
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		%

DEPARTMENT OF MOLECULAR BIOTECHNOLOGY
COURSE SYLLABUS

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	5	70
Self-Study	14	2	28
Assignments	-	-	-
Presentation / Seminar Preparation	-	-	-
Midterm Exam	1	2	2
Recitations	14	3	42
Laboratory	-	-	-
Projects	-	-	-
Final Exam	1	2	2
		Total Work Load	**144**
		ECTS Points (Total Work Load / Hours)	**6**

Learning Outcomes

1	Being able to work with functions of one or more variables.

Weekly Content

1	Theory of sets, special sets of numbers
2	Equalities, binomial theorem
3	Inequalities
4	Vector operations, linear independence, equations of line and plane in vector form
5	Basic properties of functions, coordinate systems, coordinate transformations
6	Limit and continuity of a function, polynomial and trigonometric functions
7	Conic sections

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8	Differentiability, differentiation rules, extreme values, mean value theorem
9	Applications of differential calculus
10	Curve sketching
11	Definite and indefinite integrals, fundamental theorem of differential and integral calculus
12	Antiderivative, integration methods
13	Multivariable calculus, partial differentiation
14	Vector functions, gradient, divergence, curl

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

	P1	P2	P3	P4	P5	P6	P7	P8
1	5	3	5	4	4	5	5	3

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
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