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	Molecular Biotechnology
Forms of Teaching and Learning	Face-to-face
Course Type	Compulsory **X** Elective
Objectives	Ability to work with functions with one or more variables. Comprehension of differential and integral calculus for functions of real variables.
Content	Functions, Differential and Integral Calculus
Prerequisites	-
Coordinator	-
Lecturer(s)	Asst. Prof. Dr. Neşe Aral Sözener
Assistant(s)	RA Rumeysa Fayetörbay
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	14	5	70
Self-Study	14	4	56
Assignments	-	-	-
Presentation / Seminar Preparation	-	-	-
Midterm Exam	1	2	2
Recitations	-	-	-
Laboratory	-	-	-
Projects	-	-	-
Final Exam	1	2	2
Total Work Load			**130**
ECTS Points (Total Work Load / Hour)			**6**

Learning Outcomes	
1	Ability to work with functions of one or more variables

Weekly Content	
1	Theory of sets, special number sets
2	Equalities, binomial distribution
3	Inequalities
4	Vector operations, linear independence, vector form of lines and surfaces
5	General properties of functions, coordinate systems, coordinate transformations
6	Limit and continuity of a function, polynomial functions, trigonometric functions

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7	Differentiability, rules of differentiation, extreme points, mean value theorem
8	Practical examples for differentiation
9	Graphical representation of functions
10	Definite and indefinite integrals, fundamental theorem of calculus
11	Antiderivative, methods of integration
12	Functions of several variables, partial differentiation
13	Vector functions, gradient, divergence, curl
14	Practice problems

Contribution of Learning Outcomes to Program Objectives (1-5)								
	P1	P2	P3	P4	P5	P6	P7	P8
1	4	5	4	5	3	5	1	-

Contribution Level	1: Low 2: Low-intermediate 3: Intermediate 4: High 5: Very High
OBS LINK:	
Compiled by:	Asst. Prof. Dr. Neşe Aral Sözener
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