



# Kırıkkale University

FACULTY OF ARTS AND SCIENCES  
MATHEMATICS

MAT3001 Complex Analysis 1					
Semester	Course Unit Code	Course Unit Title	L+P	Credit	Number of ECTS Credits
5	MAT3001	Complex Analysis 1	4	4	6

**Mode of Delivery:**

Face to Face

**Language of Instruction:**

Türkisch

**Level of Course Unit:**

Bachelor's Degree

**Work Placement(s):**

No

**Department / Program:**

MATHEMATICS

**Type of Course Unit:**

Required

**Objectives of the Course:**

To introduce Complex numbers, their notations and properties and introduction of the complex functions theory. The conceptions of limit, continuity, complex differentiation and entire functions and theorems related with these and applications. Complex sequences and series. Fundamental functions and to analysis their properties.

**Teaching Methods and Techniques:**

Complex numbers, topology of the complex plane, Complex sequences and series, complex functions, limit, continuity and derivative of these functions, Cauchy-Riemann equations, Entire functions, Exponential, logarithmic, trigonometric and hyperbolic functions.

**Prerequisites and co-requisites:****Course Coordinator:****Name of Lecturers:**

Associate Prof.Dr. Didem AYDIN ARI

**Assistants:****Recommended or Required Reading****Resources**

Turgut BAŞKAN, Kompleks Fonksiyonlar Teorisi, Uludağ Üni. Yay., 1996 , Bursa  
Lecture, Question-Answer, Discussion, Drilland Practice, Simulation, Problem Solving

**Course Category**

Mathematics and Basic Sciences	:	Education	:
Engineering	:	Science	:
Engineering Design	:	Health	:
Social Sciences	:	Field	:

**Weekly Detailed Course Contents**

Week	Topics	Study Materials	Materials
1	Complex numbers and properties		
2	Topology of the complex plane		
3	Sequence of complex numbers		
4	Series of the complex numbers		
5	Complex valued functions		
6	Limit and Continuity		
7	Complex Differentiation		
8	Cauchy-Riemann equations and entire functions		
9	Mid-term exam		
10	Complex Exponential function		
11	Complex power functions		
12	Complex logarithmic function		
13	Complex trigonometric function		
14	Complex hyperbolic function		

**Course Learning Outcomes****No Learning Outcomes**

C01 Analitiklik kavramını yorumlar.

**Program Learning Outcomes****No Learning Outcome**

P09 Independently carries out research in the field of Mathematical Sciences.  
P08 Uses the ability of abstract thinking.  
P07 Solves numerical, algebraic, geometric and spatial expressions, equations, functions and problems.  
P12 Develops new ideas in the field of Mathematical Sciences.  
P11 Updates their current knowledge in the field of Mathematical Sciences.  
P10 Critically evaluates the knowledge and skills acquired in the field.  
P03 Advanced undergraduate subjects will have the qualifications to carry out the work independently in partnership.  
P02 The fundamental notions, theories and data, evaluating scientific methods, identify and analyze problems and issues encountered in discussions, makes recommendations based on research evidence.  
P01 Based on efficiencies gained by using materials related to mathematics in secondary education, is equipped with advanced knowledge.  
P06 Interprets abstract mathematical concepts, including rings and abstract algebra, and critical reasoning.  
P05 Interprets mathematical and statistical models such as formulas, functions, graphs, tables, and schematics.  
P04 Can express mathematical information numerically, symbolically, graphically, verbally, and visually.

Assessment Methods and Criteria		
In-Term Studies	Quantity	Percentage
Mid-terms	1	%40
Quizzes	0	%0
Assignment	0	%0
Attendance	0	%0
Practice	0	%0
Project	0	%0
Final examination	1	%60
<b>Total</b>		<b>%100</b>

ECTS Allocated Based on Student Workload			
Activities	Quantity	Duration	Total Work Load
Course Duration	16	4	64
Hours for off-the-c.r.stud	20	5	100
Assignments	10	3	30
Presentation	0	0	0
Mid-terms	1	8	8
Practice	0	0	0
Laboratory	0	0	0
Project	0	0	0
Final examination	1	8	8
<b>Total Work Load</b>			<b>210</b>
<b>ECTS Credit of the Course</b>			<b>7</b>

Contribution of Learning Outcomes to Programme Outcomes													
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	P01	P02	P03	P04	P05	P06	P07	P08	P09	P10	P11	P12
All	4	3	4	5	4	4	2	4	4	3	4	4
C01	4	3	4	5	4	4	2	4	4	3	4	4

Kırıkkale Üniversitesi