

COMPLEX FUNCTIONS THEORY I

1	Course Title:	COMPLEX FUNCTIONS THEORY I	
2	Course Code:	MAT3011	
3	Type of Course:	Compulsory	
4	Level of Course:	First Cycle	
5	Year of Study:	3	
6	Semester:	5	
7	ECTS Credits Allocated:	7.00	
8	Theoretical (hour/week):	2.00	
9	Practice (hour/week):	2.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	None	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. AHMET TEKCAN	
15	Course Lecturers:	Analiz ve Fonksiyonlar Teorisi Anabilim Dalı öğretim üyeleri	
16	Contact information of the Course Coordinator:	Bursa Uludağ Üniversitesi, Fen Edebiyat Fakültesi, Matematik Bölümü, Bursa 224 294 17 51 tekcan@uludag.edu.tr	
17	Website:		
18	Objective of the Course:	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. To teach the basic concepts of complex integrals.	
19	Contribution of the Course to Professional Development:	To help the learn informations on complex function theory 1.	
20	Learning Outcomes:		
		1	He/she distinguishes the relationship between the complex and real numbers.
		2	He/she interprets the topology of complex plane
		3	He/she expresses the complex sequences and series
		4	He/she applies the rules of limit, continuity and the complex differentiation
		5	He/she interprets the holomorphic functions
		6	He/she applies the complex functions properties
		7	He/she explains the complex numbers and their properties
		8	He/she interprets complex integral
		9	
		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Algebra and geometry of complex numbers.	The solution of problems related	
2	The logarithm of complex numbers and the complex power of complex numbers.	The solution of problems related	

3	Functions of complex variables	The solution of problems related
4	Introduction to topology of the complex plane	The solution of problems related
5	Limits and continuity, connectedness and compactness	The solution of problems related
6	Derivatives and analytic functions of complex	The solution of problems related
7	Cauchy-Riemann equations and results	The solution of problems related
8	Exponential functions	The solution of problems related
9	Trigonometric and inverse trigonometric functions	The solution of problems related
10	Curves in the complex plane	The solution of problems related
11	Line integrals and their properties	The solution of problems related
12	Cauchy teoremi integral ve ilkel fonksiyon	The solution of problems related
13	Index numbers and Cauchy's integral and the derivative formula	The solution of problems related
14	The results of Cauchy's integral formula: maximum Module and the fundamental theorem of algebra, Schwarz Lemma.	The solution of problems related
22	Textbooks, References and/or Other Materials:	<p>[1] T. BAŞKAN: Kompleks Fonksiyonlar Teorisi, Vipaş A.Ş. 2007.</p> <p>[2] B.P. PALKA: An Introduction to Complex Function Theory, Springer-Verlag,1991.</p> <p>[3] J. H. MATHEWS & R.W.HOWELL: Complex Analysis, Jones and Bartlett Pub. 1997.</p>
23	Assesment	
TERM LEARNING ACTIVITIES		NUMBE R
Midterm Exam		1
Quiz		0
Home work-project		0
Final Exam		1
Total		2
Contribution of Term (Year) Learning Activities to Success Grade		40.00
Contribution of Final Exam to Success Grade		60.00
Total		100.00
Measurement and Evaluation Techniques Used in the Course		The system of relative evaluation is applied.
24	ECTS / WORK LOAD TABLE	

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	2.00	28.00
Practicals/Labs	14	2.00	28.00
Self study and preperation	13	5.00	65.00
Homeworks	12	3.00	36.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	25.00	25.00
Others	0	0.00	0.00
Final Exams	1	28.00	28.00
Total Work Load			235.00
Total work load/ 30 hr			7.00
ECTS Credit of the Course			7.00

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ10	PQ11	PQ12	PQ13	PQ14	PQ15	PQ16
ÖK1	3	1	1	1	2	2	1	3	2	1	0	0	0	0	0	0
ÖK2	1	2	2	3	1	2	2	1	2	3	0	0	0	0	0	0
ÖK3	2	1	3	2	3	1	2	2	3	2	0	0	0	0	0	0
ÖK4	2	3	2	2	3	2	1	3	2	2	0	0	0	0	0	0
ÖK5	1	2	1	3	2	1	3	2	3	1	0	0	0	0	0	0
ÖK6	2	2	1	1	3	2	1	2	1	2	0	0	0	0	0	0
ÖK7	1	3	2	2	1	3	2	1	2	3	0	0	0	0	0	0
ÖK8	2	2	3	2	2	1	3	2	2	1	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contribution Level:	1 very low			2 low			3 Medium			4 High			5 Very High			