

FOURIER SERIES AND INTEGRALS

1	Course Title:	FOURIER SERIES AND INTEGRALS	
2	Course Code:	MAT3054	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	3	
6	Semester:	6	
7	ECTS Credits Allocated:	5.00	
8	Theoretical (hour/week):	3.00	
9	Practice (hour/week):	0.00	
10	Laboratory (hour/week):	0	
11	Prerequisites:	none	
12	Language:	Turkish	
13	Mode of Delivery:	Face to face	
14	Course Coordinator:	Prof. Dr. MEHMET ÇAĞLIYAN	
15	Course Lecturers:	Analiz ve Fonksiyonlar Teorisi bilim dalı öğretim üyeleri	
16	Contact information of the Course Coordinator:	ometin@uludag.edu.tr, 0 (224) 2941760 U.Ü. Fen-Ed. Fak. Matematik Bölümü, Görükle/BURSA	
17	Website:		
18	Objective of the Course:	To comprehend series of periodic functions, Fourier integral and transforms at the undergraduate level.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	He/she understands orthogonal and orthonormal systems .
		2	He/she knows the periodic functions.
		3	He/she understands the Fourier series.
		4	He/she obtains Fourier series expansions of functions
		5	He/she applies Gibbs phenomenon and Parseval's identity.
		6	He/she understands the Fourier and inverse Fourier transforms.
		7	He/she learns differential and integral of Fourier series,
		8	He/she applies Fourier series to differential equations.
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		10	
21	Course Content:		
		Course Content:	
Week	Theoretical	Practice	
1	Inner product spaces, orthogonal and orthonormal systems		
2	Definition of Fourier series, Dirichlet's conditions, Fourier series of odd and even functions		
3	Cosine and sine series		

4	Complex Fourier series, uniform convergence.	
5	Differential and integral of Fourier series.	
6	Persaval identity and Gibbs phenomenon.	
7	Application of partial differential equations.	
8	Repeating courses and midterm exam	
9	Fourier integral.	
10	Equivalent forms of the Fourier integral theorem.	
11	Definition and properties of Fourier transformations.	
12	Persaval identity for Fourier integrals.	
13	Convilüsyon theorems for Fourier transformations.	
14	Fourier transformations and integrals.	

22	Textbooks, References and/or Other Materials:	1) Allan Pinkus and Samy Zafrany. Fourier Series and Integral Transforms. Cambridge University Press. 2) Robert T Seeley. An Introduction to Fourier Series and Integrals.
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23	Assesment
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TERM LEARNING ACTIVITIES	NUMBE R	WEIGHT		
Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical	1	50.00	3.00	42.00
Final Exam				
Practicals/Labs		0	0.00	0.00
Self study and preparation		50.00	5.00	70.00
Contribution of Term (Year) Learning Activities to				
Homeworks		1	24.00	24.00
Projects		50.00	0.00	0.00
Contribution of Final Exam to Success Grade				
Field Studies		0	0.00	0.00
Midterm exams		1	4.00	4.00
Measurement and Evaluation Techniques Used in the				
Others		0	0.00	0.00
Final Exams		1	8.00	8.00
24 ECTS / WORK LOAD TABLE				
Total Work Load				148.00
Total work load/ 30 hr				4.93
ECTS Credit of the Course				5.00

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	1	2	1	2	4	2	3	2	2	1	0	0	0	0	0	0
ÖK2	2	2	3	1	3	2	1	3	2	1	0	0	0	0	0	0
ÖK3	1	2	2	3	2	3	2	1	3	2	0	0	0	0	0	0
ÖK4	3	3	1	2	2	1	2	2	1	1	0	0	0	0	0	0

ÖK5	1	2	2	3	2	2	1	1	3	2	0	0	0	0	0	0
ÖK6	1	3	2	1	3	1	2	2	1	2	0	0	0	0	0	0
ÖK7	1	2	3	3	4	2	3	3	2	1	0	0	0	0	0	0
ÖK8	2	1	2	3	2	3	1	2	3	2	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
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