SPECIAL FUNCTIONS ON MATHEMATICS

1	Course Title:	SPECIAL FUNCTIONS ON MATHEMATICS	
2	Course Code:	MAT3043	
3	Type of Course:	Optional	
4	Level of Course:	First Cycle	
5	Year of Study:	3	
6	Semester:	5	
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. SİBEL YALÇIN	
15	Course Lecturers:	Dr. Öğr. Üyesi Hacer ÖZDEN AYNA	
16	Contact information of the Course Coordinator:	syalcin@uludag.edu.tr 2941758 Fen Edebiyat Fakültesi Matematik Bölümü	
17	Website:		
18	Objective of the Course:	The aim of the course is to make the students gain the basic subjects of special function, properties and relations between them.	
19	Contribution of the Course to Professional Development:		
20	Learning Outcomes:		
		1	To learn generating functions
		2	To learn Bernoulli, Euler numbers and polynomials
		3	To learn the relation between Riemann zeta function and generating functions
		4	
		5	
		6	
		7	
		8	
		9	
		10	
21	Course Content:		

Course Content:

Week	Theoretical	Practice
1	Generating functions	
2	Bernoulli numbers and polynomials	
3	Bernoulli numbers and polynomials	
4	Bernoulli functions and Hurwitz zeta function	
5	Euler numbers and recurrence formula	

6	Euler polinomları	
7	Riemann zeta function, Mellin transformation and Bernouuli numbers	
8	Midterm examination and general review	
9	Euler-Maclaurin formula	
10	Relation between Genocchi numbers and Bernoulli polynomials	
11	Gamma function	
12	Gauss Formula for Gamma function and its properties	
13	Ultrametric function	
14	Chebyshev polynomials	

22	Textbooks, References and/or Other Materials:	Z X Wang, D R Guo, Special Functions, World Scientific 1989.
23	Assesment	

TERM LEARNING ACTIVITIES	**NUMBER**	**WEIGHT**
Midterm Exam	1	40.00
Quiz	0	0.00
Home work-project	0	0.00
Final Exam	1	60.00
Total	2	100.00

Activites	Number	Duration (hour)	Total Work Load (hour)
Theoretical	14	3.00	42.00
Practicals/Labs	0	0.00	0.00
Self study and preperation	14	4.00	56.00
Homeworks	0	0.00	0.00
Projects	0	0.00	0.00
Field Studies	0	0.00	0.00
Midterm exams	1	22.00	22.00
Others	0	0.00	0.00
Final Exams	1	24.00	24.00
Total Work Load			144.00
Total work load/ 30 hr			4.80
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	0	4	0	4	0	0	0	4	4	0	0	0	0	0	0	0
ÖK2	0	4	0	4	0	0	0	4	4	0	0	0	0	0	0	0
ÖK3	0	4	0	4	0	0	0	4	4	0	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