PARTIAL DIFFERANTIAL EQUATIONS ELECTIVE

1	Course Title:	PARTIAL DIFFERANTIAL EQUATIONS ELECTIVE
2	Course Code:	MAT3017
3	Type of Course:	Compulsory
4	Level of Course:	First Cycle
5	Year of Study:	3
6	Semester:	5
7	ECTS Credits Allocated:	6.00
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. MEHMET ÇAĞLIYAN
15	Course Lecturers:	Yrd.Doç.Dr. Sezayi HIZLIYEL
16	Contact information of the Course Coordinator:	caglayan@uludag.edu.tr, 0-224-2941752 Uludağ Ünv. Fen Ed. Fakültesi Matematik Bölümü Görükle Yerleşkesi 16059 Nilüfer/Bursa
17	Website:	
18	Objective of the Course:	The aim of the course is to give systematically partial diffrential equations that arise in many areas of science and engineering
19	Contribution of the Course to Professional Development:	
20	Learning Outcomes:	
	1	Understands the importance of partial differential equations occurring in science and engineering.
	2	Classification to partial differential equations
	3	Solves the first-order partial differential equations
	4	To obtain a exact integral of a first-order partial differential equation
	5	solves the second and higher order homogeneous linear partial differential equations with constant coefficients
	6	Classifies second-order equations
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21	Course Content:	

Course Content:

Week	Theoretical	Practice
1	Region, surfaces and curves in three-dimensional space	Normal to a surface, the intersection of the curves of the two surfaces
2	First order and first degree systems with three-variable	Obtain the solutions

3	Curves formed by the integral curves of a given surface	Example solutions
4	Pfaff differential equation with two and three variable	The geometrical meaning of Integrability
5	Pfaff differential equation in three variables to obtain solutions	Specific methods for obtaining solutions
6	The clasification of first-order partial differential equations and the concept of solution	Formation of first-order partial differential equations
7	Characteristic curves and the Cauchy problem	General solution
8	Repeating courses and midterm exam	
9	The general equation of first order	exact integral
10	compatible systems	To obtain the exact integral (Charpit Method)
11	The second and higher order homogeneous linear partial differential equations with constant coefficients	Reducible and irreducible equations
12	The second and higher order non-homogeneous linear partial differential equations with constant coefficients	To obtain special solutions of inhomogeneous linear partial differential equations
13	Classification of second order equations (hyperbolic, parabolic and elliptic equations.)	Reducing to canonical form
14	The Cauchy problem and the characteristic curves	The necessity of classification
22	Textbooks, References and/or Other	Prof.Dr. Mehmet CAĞLIYAN, Okay Celebi Kısmi

Activites		Number	Duration (hour)	Total Work Load (hour)
Theoretical	**R**	14	2.00	28.00
Practicals/Labs		14	2.00	28.00
Quiz	0	0.00		
Self study and preperation		14	4.00	56.00
Homeworks		4	8.00	32.00
Final Exam	1	60.00		
Projects		0	0.00	0.00
Field Studies		0	0.00	0.00
Midterm exams		1	10.00	10.00
Others		1	16.00	16.00
Final Exams		1	10.00	10.00
Total Work Load				180.00
Measurement and Evaluation Techniques Used in the Course				6.00
ECTS Credit of the Course				6.00

24	**ECTS / WORK LOAD TABLE**

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	4	4	0	4	4	0	4	4	0	0	0	0	0	0	0	0
ÖK2	4	0	0	4	4	0	4	4	0	0	0	0	0	0	0	0
ÖK3	4	4	0	0	0	0	4	4	0	0	0	0	0	0	0	0
ÖK4	4	4	0	0	0	0	4	4	0	0	0	0	0	0	0	0

ÖK5	4	4	0	0	0	0	4	4	0	0	0	0	0	0	0	0
ÖK6	4	4	0	0	0	0	0	4	0	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**