



T.C.

ESKİŞEHİR OSMANGAZI UNIVERSITY

FACULTY OF SCIENCES

MATHEMATICS AND COMPUTER SCIENCES DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
Partial Differential Equations	821615005

Semester	Number of Course Hours per Week		Credit	ECTS
	Theory	Practice		
5	3	0	-	5

Course Category (Credit)				
Basic Sciences	Engineering Sciences	Design	General Education	Social
x				

Course Language	Course Level	Course Type
Turkish	Undergraduate	Elective

Prerequisite(s) if any	
Objectives of the Course	The aim of the course is to use partial differential equations that appear in explaining and solving the problems in mathematical modelling of a lot of physical , chemical and biological formations.
Short Course Content	An Introduction to Partial Differential Equations(PDEs), Classification of PDEs, Getting PDEs. ,tangent plane, First order linear and quasi-linear PDEs, Langrange's method, Pfaff equations, Charpit's method, solvable systems, Second order PDEs and their classification.

Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1 To be able to recognize and classify partial differential equations .	1,2,3,7	1,2,5	A
2 To be able to solve partial differential equations of first order.	1,2	1,2,5	A
3 To be able to solve partial differential equations of higher order.	3,5,7	1,2,5	A
4 To be able to understand the relation between partial differential equations and other branches.	3,7,8,13	1,2,5	A
5 To be able to solve modellings of partial differential equations in applied sciences.	3,7,8,13	1,2,5	A
6			
7			
8			

*Teaching Methods 1:Expression, 2:Discussion, 3:Experiment, 4:Simulation, 5:Question-Answer, 6:Tutorial, 7:Observation, 8:Case Study, 9:Technical Visit, 10:Trouble/Problem Solving, 11:Individual Work, 12:Team/Group Work, 13:Brain Storm, 14:Project Design / Management, 15:Report Preparation and/or Presentation

**Measuring Methods A:Exam, B:Quiz, C:Oral Exam, D:Homework, E:Report, F:Article Examination, G:Presentation, I:Experimental Skill, J:Project Observation, K:Class Attendance; L:Jury Exam

Main Textbook	M.Çağlayan, O.Çelebi, Kısmi Diferensiyel Denklemler.
Supporting References	K.Koca , Kısmi Türevli Denklemler.
Necessary Course Material	

Course Schedule	
1	An Introduction to PDEs, Classification
2	Getting PDEs
3	Tangent plane
4	Three variables first order,systems
5	First order quasi-linear PDEs
6	First order semilinear PDEs, General Solution
7	First order general PDEs
8	Mid-Term Exam
9	Solvable equaitions
10	Exact integral
11	Getting second order PDEs,
12	Second order linear PDEs
13	Second order PDEs with variable coefficient
14	Second order quasi-linear PDEs, Classification
15	Applications of second order PDEs
16,17	Final Exam

Calculation of Course Workload			
Activities	Number	Time (Hour)	Total Workload (Hour)
Course Time (number of course hours per week)	14	3	42
Classroom Studying Time (review, reinforcing, prestudy,...)	14	3	42
Homework			
Quiz Exam			
Studying for Quiz Exam			
Oral exam			
Studying for Oral Exam			
Report (Preparation and presentation time included)			
Project (Preparation and presentation time included)			
Presentation (Preparation time included)			
Mid-Term Exam	1	2	2
Studying for Mid-Term Exam	1	20	20
Final Exam	1	2	2
Studying for Final Exam	1	30	30
	Total workload		
	Total workload / 30		
	Course ECTS Credit		5

Evaluation	
Activity Type	%
Mid-term	40
Quiz	
Homework	
Bir öge seçin.	
Bir öge seçin.	
Final Exam	60
Total	100

RELATIONSHIP BETWEEN THE COURSE LEARNING OUTCOMES AND THE PROGRAM OUTCOMES (PO) (5: Very high, 4: High, 3: Middle, 2: Low, 1: Very low)		
NO	PROGRAM OUTCOME	Contribution
1	The ability to apply knowledges of Mathematics and Computer Sciences,	5
2	To have sufficient theoretical and practical knowledge of Mathematics at international level,	4
3	The ability of describing, modelling and solving of mathematical problems at Mathematics and related subjects,	5
4	The skill to solve and design a problem process in accordance with a defined target,	4
5	Skills to analyze data, interpret and apply to other datum and using these data on computer,	3
6	The skill to use the modern techniques and computational tools needed for mathematical applications,	4
7	5	2
8	The ability to improve oneself by following the developments on other modern, scientific and technological subjects as well as Mathematics and Computer Sciences,	4
9	The skill to communicate orally and in written way, in a clear and concise manner by having individual work skills and ability to independently decide and analytical thinking,	3
10	The skill to have professional and ethical responsibility,	2
11	The skill to have consciousness for quality issues and scientific research,	4
12	The skill to be sensitive to environmental issues related with problems and development of living area and consistent in the social relations,	3
13	Ability to solve problems in the working life faced to find an appropriate algorithms via mathematical modeling and to write computer programs,	5
14	The skill to developed design of software systems at different complex levels,	2
15	The credence of necessity of life-long learning and ability to apply the formation long-life learning.	1

LECTUTER(S)				
Prepared by	Prof. Dr. Filiz Taşcan	Doç. Dr. Sait San		
Signature(s)				

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