



T.C.

ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ

FACULTY OF SCIENCES

MATHEMATICS AND COMPUTER SCIENCES DEPARTMENT

COURSE INFORMATION FORM

Course Name	Course Code
Integral Equations I	

Semester	Number of Course Hours per Week		Credit	ECTS
	Theory	Practice		
7	2	2	-	6

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	Giving the student the basic knowledge of the integral equations in applied mathematics in implementing other areas of interest
Short Course Content	First and Second Kind Linear Integral Equations, Volterra Integral Equations Fredholm Equations, Basic Functions and Associated Homogeneous Integral Equations

Learning Outcomes of the Course	Contributed PO(s)	Teaching Methods *	Measuring Methods **
1 Have sufficient knowledge in Integral Equations subjects.	1,2,10	1,2,5	A,C
2 Discovering areas of use by getting to know Basic Functions	1,2,10	1,2,5	A,C
3 Develops ability to analyze and solve problems encountered..	2,4,5	2,4,5,7	A,D
4 Analytical thinking skills develop and the ability to make individual and independent decisions develops	12,13	5,7,10	A,D
5 Develops the ability to analyze and interpret data, apply interpretation to other data, and apply this information in a computer environment	12,13	5,7,10	A,D
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	Integral Denklemler (Prof.Y. Aksoy) Integral Equations (M.Krasnov, A. Kiselev,G.Makeronko)
Supporting References	Integral Equations and Applications (C.Corduneanu) <i>Linear Integral Equations (W. V. Lovitt)</i>
Necessary Course Material	

Course Schedule	
1	Introduction to the theory of integral equations, linear integral equation of the first kind
2	Abel's problem
3	Linear integral equation of the second kind
4	Relation between linear diff. eqn. and Volterra's integral equation.
5	Relation between linear diff. eqn. and Volterra's integral equation.
6	Types of solutios, Volterra equation
7	Solution of Fredholm's equation
8	Mid-Term Exam
9	Fredholm's equation as limit of a finite system of linear equations
10	Fredholm's two fundamental relations
11	Fundamental functions
12	Associated Homogeneous Integral Equations
13	Applications of FredholmTheory
14	Applications of FredholmTheory
15	The differential equations of the problem
16,17	Final Exam

Calculation of Course Workload			
Activities	Number	Time (Hour)	Total Workload (Hour)
Course Time (number of course hours per week)	14	4	56
Classroom Studying Time (review, reinforcing, prestudy,...)	14	4	56
Homework	5	4	20
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		6

Evaluation	
Activity Type	%
Mid-term	30
Quiz	
Homework	20
Bir öge seçin.	
Bir öge seçin.	
Final Exam	50
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,	4
2	To have sufficient theoretical and practical knowledge of Mathematics at international level,	5
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,	5
5	Skills to analyze data, interpret and apply to other datum and using these data on computer,	4
6	The skill to use the modern techniques and computational tools needed for mathematical applications	4
7	The skill to make team work within the discipline and interdisciplinary,	3
8	The ability to improve oneself by following the developments on other modern, scientific and technological subjects as well as Mathematics and Computer Sciences	3
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,	4
10	The skill to have professional and ethical responsibility,	3
11	The skill to have consciousness for quality issues and scientific research,	3
12	The credence of necessity of life-long learning and ability to apply the formation long-life learning	3

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

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