COURSE IDENTIFICATION FORM

Course Code and Name: IMU5072 ADVANCED ENGINEERING MATHEMATICS				**Department of :** CIVIL ENGINEERING / MASTER PROGRAMME			
Semester	**Theoretic Hour**	**Practice Hour**	**Total Hour**	**Credits**	**ECTS**	**Education Language**	**Type: Compulsory Elective**
Atumn/Spring	3	0	3	3	5	Turkish	Optional
Prerequisite (s)							
Instructor						**Mail :** **Web :**	
Course Assistant						**Mail :** **Web :**	
Groups / Classes							
Course Aim	To provide the fundamentals of engineering mathematics and to teach analytical solution methods of engineering problems.						
Course Goals	To teach students basic knowledge and concepts of advanced engineering mathematics.						
Course Learning Outs and Proficiencies	Graduate students who successfully complete this course will gain knowledge, skills and competence in the following subjects; I. Basic knowledge and concepts of advanced engineering mathematics, II. In general, engineering problems are formulated as mathematical equation sets based on basic physical principles, III. Types of initial and boundary conditions and their mathematical definitions, IV. Solving initial, boundary value and initial boundary value problems with analytical methods,						
Course Basic and Auxiliary Contexts	• 1. Kreyszig, E. (1979). Advanced Engineering Mathematics, John • Wiley & Sons, Inc., New York (fourth edition). • 2. Strang, G. (1986). Introduction to Applied Mathematics, • Wellesley-Cambrige Press, Wellesly, Massachusetts. • 3. Haberman, R. (1987). Elementary Applied Partial Differential • Equations, Prentice-Hall, Inc., Englewood Cliffs, New Jersey • (second edition). • 4. Farlow, S. J. (1982). Partial Differential Equations for Scientist						

	• and Engineers, John Wiley & Sons, Inc., New York. • 5. Churchill R. V. (1972). Operational Mathematics, McGraw-Hill • Book Co., New York, (third edition).
Methods of Give a Lecture	Face to Face

		If Available, to Sign (x)	General Average Percentage (%) Rate
Assessment Criteria	**Midterm Exam**	**X**	**50**
	1. Quiz		
	2. Quiz		
	3. Quiz		
	4. Quiz		
	Oral Examination		
	Practice Examination (Laboratory, Project etc.)		
	Final Exam	**X**	**50**

Semester Course Plan

Week	Subjects
1	Review of ordinary differential equations
2	Review of ordinary differential equations
3	Series solutions of ordinary differential equations
4	Series solutions of ordinary differential equations
5	Introduction to Fourier analysis and boundary value problems
6	Boundary value problems in partial differential equations
7	Boundary value problems in partial differential equations
8	Boundary value problems in partial differential equations
9	Midterm
10	Laplace transform solution of boundary value problems
11	Laplace transform solution of boundary value problems
12	Fourier transform solution of boundary value problems
13	Fourier transform solution of boundary value problems
14	General Exam-Presentations