	NUM	ERIC	AL ANALYSIS					
1	Course Title:	NUMERICAL ANALYSIS						
2	Course Code:	EEM220	4					
3	Type of Course:	Compuls	sory					
4	Level of Course:	First Cyc	le					
5	Year of Study:	2						
6	Semester:	4						
7	ECTS Credits Allocated:	4.00						
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 f	face					
14	Course Coordinator:	Doç. Dr.	ESİN KARPAT					
15	Course Lecturers:							
16	Contact information of the Course Coordinator:	Doç. Dr. Esin KARPAT Mühendislik Fakültesi Elektrik-Elektronik Mühendisliği Bölümü Ofis:321 0.224.294 20 20						
17	Website:							
18	Objective of the Course:	This course is designed to introduce engineering students to the numerical solutions of mathematical problems occurring in engineering and to improve their computer skills.						
19	Contribution of the Course to Professional Development:	Students gain the ability to solve complex engineering problems that cannot be solved analytically, via numerical methods.						
20	Learning Outcomes:							
		1	Have an understanding of importance and fundamentals of numerical methods and their most important mathematical properties.					
		2	Develop an understanding of the computer implementation of these numerical methods to solve fundamental and practical engineering problems and develop programming skills					
		3	Have the ability of the efficient use of existing software packages developed for engineering analyses					
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21	Course Content:	-						
		Co	ourse Content:					
Week	Theoretical		Practice					

1	Overview of numerical methods, their potential and limitations, computers a problem formulation. Approximations errors.	r and and							
2	Solution of the systems of linear equa Direct methods: Gaussian eliminatior Jordan elimination, and LU. Applicati exercises	ations, n, Gauss ons and							
3	Iterative methods for linear systems, iteration, Gauss-Seidel , relaxation.	simple							
4	Linear Independence, system condit conditioned equations, matrix inversion Roots of Equations, linear interpolation Applications and exercises	ion, ill- on, on.							
5	Newton-Raphson and Secant method Systems of nonlinear equations, New method	ds . wton							
6	Finite differences and Interpolating polynomials								
7	Lagrange interpolation. Applications a exercises.	and							
8	Basic statistics, Curve fitting. Least-s and linear regression. Nonlinear and variable regression.	quares multi							
9	Numerical differentiation. Application exercises.	s and							
<b>10</b> Activit	Numerical differentiation. Application	s and	Number	Duration (hour)	Total Work Load (hour)				
Theore	di∰erential equations. Initial and bour	ndary for	14	3.00	42.00				
Practica	als/Labs		0	0.00	0.00				
Self stu	expansion method,		14	4 00	56 00				
Homew	vorks		0	0.00	0.00				
Project	ordinary differential equations.		0	0.00	0.00				
Field St	tudies		0	0.00	0.00				
Midtern	প্রাঞ্জিক্টাal equation systems.		1	10.00	10.00				
Others			0	0.00	0.00				
Final E	Pexabooks, References and/or Other		1	12.00	12.00				
Total W	/ork Load		nı an Naragoz, vipaş ya	., 2001	120.00				
Total w	ork load/ 30 hr		2. Numerical Methods for	r Engineers	4.00				
ECTS	Credit of the Course				4.00				
			Hoffman; McGraw-Hill,1	993					
23	Assesment								
TERM L	EARNING ACTIVITIES	NUMBE R	WEIGHT						
Midtern	n Exam	1	40.00						
Quiz		0	0.00						
Home v	vork-project	0	0.00						
Final E	xam	1	60.00						
Total		2	100.00						
Contrib Succes	ution of Term (Year) Learning Activitie s Grade	es to	40.00						

Contribution of Final Exam to Success Grade	60.00
Total	100.00
Measurement and Evaluation Techniques Used in the Course	Measurement and evaluation is carried out according to the priciples of Bursa uludag University Associate and Undergraduate Education Regulation.

## 24 ECTS / WORK LOAD TABLE

25	CONTRIBUTION OF LEARNING OUTCOMES TO PROGRAMME QUALIFICATIONS															
	PQ1	PQ2	PQ3	PQ4	PQ5	PQ6	PQ7	PQ8	PQ9	PQ1 0	PQ11	PQ12	PQ1 3	PQ14	PQ15	PQ16
ÖK1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK2	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ÖK3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0
LO: Learning Objectives PQ: Program Qualifications																
Contrib ution Level:	b 1 very low			2 low		3 Medium		4 High		5 Very High						