Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF325	Numerical Analysis	6	3	0	0	3	4

Prerequisites	ING207
Admission Requirements	ING207

Language of Instruction			
Course Type	Compulsory		
Course Level	Bachelor Degree		
Objective	This is an obligatory course which offers an introduction to numerical analysis to Computer Engineeri students. The goal is to present to solution techniques used numerical analysis problems. The studer who accomplish this course, will have a basis understanding of numerical algorithms and skill to implement algorithms. Hence, students who take this course will be able to develop numerical solution approaches for various problems. In summary the objective of this course are as follows:		
	To describe the numerical analysis problems.		
	To understand the context and difficulty of the numerical analysis problems.		
	To have knowledge about solution procedures used in numerical analysis.		
	To have the ability to implement algorithms for solving complex numerical analysis problems.		
Content	W 1 : Introduction to analysis		
	W 2 : Introduction to programming with MATLAB		
	W 3 : Solution of nonlinear equations W 4 : Newton and Bisection Methods		
	W 5 : Solution of the linear equation systems		
	W 6 : LU factorization		
	W 7 : Jacobi & Gauss-Seidel Iterative Approaches		
	W 8 : Curve fitting and interpolation		
	W 9 : Least square method		
	W 10 : Midterm		
	W 11 : Numerical Derivation		
	W 12 : Taylor series expansion		
	W 13 : Numerical integration		
	W 14 : Trapezoidal & Simpson Methods		
References	Gilat, A. and Subramaniam, V., 2008, Numerical Methods for Engineers and Scientists: An introduction with applications using MATLAB		

Theory Topics

Week	Weekly Contents	
1	Introduction to analysis	
2	Introduction to programming with MATLAB	
3	Solution of nonlinear equations	
4	Newton and Bisection Methods	
5	Solution of the linear equation systems	
6	LU factorization	
7	Jacobi & Gauss-Seidel Iterative Approaches	
8	Curve fitting and interpolation	
9	Least square method	
10	Midterm	
11	Numerical Derivation	
12	Taylor series expansion	
13	Numerical integration	
14	Trapezoidal & Simpson Methods	