KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS
Department of Mathematical
SYLLABUS (Semester II, 2001-2002)

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Course homepage:	http://users.kfupm.edu.sa/math/homidan/math471.htm	
Title	Numerical Analysis I	Course # Math 471
Prerequisite	MATH 280, MATH 321 or SE 301	
Textbook	Numerical Analysis by Burden and Faires, 7th edition (2001)	

Objectives

This course is designed to introduce the students to the numerical Linear algebra problems. Catalogue Description Floating point, round-off analysis. Solution of linear algebraic systems: Gaussian elimination and LU-decomposition, condition of a linear system, error analysis of Gaussian elimination, iterative improvement. Least squares and singular value decomposition. Matrix eigenvalue problems.

Grading Policy:

First and Second Exam 40%.
Final 35%.
Assignments 10%
Programming Assignments 15%

Week #	Sections	Topics
1	1.2	Introduction, Roundoff Errors
2	1.3 6.1	Algorithms and Convergence Review of some topics Gaussian Elimination
3	6.2	Pivoting
4	6.3 6.4	Linear Algebra Determinants
5	6.5	LU Factorization
6	6.6	LDL Factorization
7	6.6 6.7	Choleskis Factorization Programming
8	7.1 7.2	Norms Eigenvalues
9	7.3	Jacobi and Gauss-seidle methods, SOR
10	7.4	Errors
11	8.1	Approximation
12	8.2	Polynomials
13	9.1 9.2	Eigenvalues Power method
14	9.3	Householders method
15	9.4	QR method