



Prince Sultan University
Department of Mathematical Science
SYLLABUS
MATH 221 (Term102)

Course : MATH 221

Title: Introduction to Numerical Analysis

Textbook : Numerical Analysis; R. Burden and J. Faires. 8th Edition.

Week#	Date	Text Sections	Topic
1	February 12 – 16	1.1	Introduction Calculus Review
2	February 19--23	1.2 1.3	Round Off Errors and Computer Arithmetic Algorithms and Convergence
3	February 26--March 02	2.1 2.2	The Bisection Method Fixed-- Point Iteration
4	March 05 – 09	2.3 2.4	Newton's Method Error Analysis for Iterative Methods
	March 12		Exam I (1.1—2.4)
5	March 12 – 16	3.1	Interpolation and Lagrange Polynomial
6	March 19 – 23	3.1 3.2	Interpolation and Lagrange Polynomial Divided Difference
7	March 26 – 30	4.1	Numerical Differentiation
8	April 02 – 06	4.3 4.4	Elements of Numerical Integration Composite Numerical Integration
Midterm Vacation (April 09 --- April 13)			
	April 16		Exam II (3.1—4.4)
9	April 16 – 20	5.1	Elementary Theory of Initial Value Problem
10	April 23 – 27	5.1 5.2	Elementary Theory of Initial Value Problem Euler's Method
11	April 30 – May 04	5.3 5.4	Higher Order Taylor Methods Runge—Kutta Methods
12	May 07 – 11	5.4 6.1	Runge—Kutta Methods Linear Systems of Equations
13	May 14 – 18	6.2 6.3	Pivoting Strategies Linear Algebra and Matrix Inversion
	May 14		Exam III (5.1—6.3)
14	May 21 – 25	7.3	Iterative Techniques for Solving Linear Systems
15	May 28 – June 01	7.3 7.4	Iterative Techniques for Solving Linear Systems Error Bounds and Iterative Refinement
June 04 ---- June 14 Final Exams			

Grading Policy: Three exams 15 % each. Quizzes and Homework 15 %. Final Exam 40 %