SARDAR PATEL UNIVERSITY
Programme & Subject: B.Sc (Mathematics)
Semester: III
Syllabus with Effect from: June-2012

Paper Code: US03CMTH02	**Total Credit: 3**
Title Of Paper: Numerical Analysis	

Unit	Description in detail	Weighting (%)
I	Solutions of algebraic and transcendental equations : BisectionMethod, Iteration method, Aitken's ¢2 process, method of false Position.	
II	Newton-Raphson method , Interpolation : Forward , central and backward deference , Symbolic relations of operators , Detection of errorsby use of deference Tables .	
III	Differences of a polynomial , Newton's forward and backwardformulae , Gauss forward and backward formulae , Bessel's ,Stirling's and Everett's formulae.	
IV	Interpolation with unequally spaced points , Lagrange's formula(Without proof) , Divided deference and their properties , Newton's Generalformula , Inverse interpolation , Method of successive Approximations .	
V	Numerical differentiation : Newton's forward and Backward ,Gauss's Method , Maximum and minimum values of a tabulated function ,Numerical integration : Trapezoidal rule , Simpson's (1/3)rd and (3/8)th rules .	
VI	Romberg Integration , Solution of ordinary di®erential equation byTaylor's series , picard's method , Euler's method , Modi¯ed Euler's method Range-kutta method upto second order.	

Basic Text & Reference Books:-

- S.S.Sastry, Introductory methods of Numerical analysis, Prentice hall of India, 1990.
- G. Sankar rao , Numerical analysis.
- B.S.Grawal , Numerical analysis.