VEER NARMAD SOUTH GUJARAT UNIVERSITY

B.E. - II (TEXTILE PROCESSING) Semester - IV

TT - 401, COMPUTATIONAL METHODS USING "C"

Teaching Scheme (No. Of Contact hr.)			Theory Exam		Practical/Quiz/Viva Exam		Grand Total
			Duration (hr.)	Marks	Sem. End Exam	Cont. Int. Evaluation	
Theory	Tut.	Pract.					
3	-	2	3	100	30	20	150

Theory

Error Analysis And Solution Of Non Linear Equations : Error accuracy and stability, Bisection method, Method of false position, Newton Raphson method, Secant method, Roots of polynomials.

Interpolation And Extrapolation : Newton-gregory formula, Lagrange interpolation formula, Interpolation through central differences, Formulation of polynomials, Cubic spline interpolation, Interpolation in two or more dimensions.

Numerical Integration And Differentiation : Classical integration formula for equally spaced abscissa, Trapezoidal formula for a single interval, Solution of linear systems, Numerical derivatives.

Matrices : Gauss jordan elimination, Row Vs. Column elimination strategies, LU decomposition, Matrix inversion, Determination of matrix, Complex system of equations, Singular value decomposition, Vander mode matrices and toeplitz matrices, Eigenvalue and eigenvectors, Applications in problem of Electrical Network Theory.

Numerical Solution Of Ordinary And Partial Differential Equation :

Taylor's series, Picards method, Range-kuTPa method for ordinary differential equations, Initial, value and boundary value problems, Gauss-Seedily and Jacobi's method for partial differential equations.

Random Numbers : Uniform deviates, Transformation method, Exponential and normal deviates, Rejection method, Gamma, Poisson and binomial derivatives, Generation of random bits, Quasi random sequences.

Practical

This shall be based on prescribed syllabii.

Term work

This shall consist of records of practical work done during practical & recorded in the journal.

References :-

1.	Introductory Methods Of Numerical Analysis, Prentice-Hall India, Edition 1994	S. Sastry
2.	Programming With "C", Tata McGraw-Hill, Edition 1991	GoTPfried
3.	Numerical Recipes In "C", The Art Of Scientific Computing Cambridge University Press First Indian Edition 1993	Press. Teukolsky Vellerling and Flannery