Paper Code: PS04FIIT01	Total Credit: 4
Title Of Paper: Computer Based Numerical & Statistical Methods	

Unit	Description in detail	Weightage (%)
I	**Computer Arithmetic & Iterative Methods** Absolute, Relative and Percentage error The method of successive bisection, an algorithm of bisection method to find a root and examples The method of false position The method of iterative procedure Secant method, illustration and algorithm The method of successive approximations, illustrations and algorithm	25%
II	**Interpolation with Equal and Unequal Intervals** Interpolation with equal intervals-finite difference table The Gregory- Newton formula for forward and backward interpolation corresponding algorithms and examples Interpolation for unequal intervals using Newton's formula for divided differences Lagrange interpolation Central difference formulae Extrapolation and corresponding examples	25%
III	**Differentiation and Solution of Simultaneous Linear Equations** Definition and examples of differentiation Higher order derivative of standard functions up to second order The Matrix inversion method The Gauss-Seidel iterative method Comparison of direct and iterative methods	25%
IV	**Time Series and Forecasting** Utility of Time Series Analysis Components of Time Series - Secular trend, Seasonal variation, Cyclical variation and Irregular variation - Methods on measurement of components – The moving average method - merits and limitations Forecasting models and methods	25%

Basic Text & Reference Books:-

- Sastry S. S. : Introductory Methods of Numerical Analysis, Prentice Hall of India Pvt. Ltd., 1986(2)
- Salaria R S : Computer Oriented Numerical Methods, Khanna Book Publishing Co. Ltd., 2000(3)
- Fundamentals of statistics by S.C. Gupta, Himalaya Publishing House (6)

Other Reference Books :
- Rajaraman V. : Computer Oriented Numerical Methods, Prentice Hall of India Pvt. Ltd., 1983
- Murray R Spiegel : Theory and Problem of Statistics, McGraw-Hill Schaum's Outline Series,1981.
- A text book of Calculus with an introduction to differential Equation by Dr. Dinesh J. karia, Mahendra L. Patel, Roopal Prakhashan Vallabh Vidyanagar