FMCE407	Math-IV	3-0-0	3

MODULE-I(14 Hours)

Errors ,Algorithims and Convergence,Transcendental and polynomial equations: Introduction, Bisection method, Regula-falsi method, Secant method, Fixed Point iteration, Newton-Raphson method, Rate of convergence .Error Analysis for iterative methods,
System of Linear Algebraic Equations:Pivoting Strategies, Matrix inversion, LU-Decomposition , Gauss Jacobi, Gauss –Seidel Method , Relaxation Techniques.

MODULE-II(14 Hours)

Interpolation and Approximations: Introduction ,Langrages and Newton Interpolation, Least Square Approximation, Uniform Approximation.Differentiation .

MODULE-III(12 Hours)

Numerical Integration : Newton Cotes Algorithm, Trapezoidal rule, Simpson's rule, Gauss – Legendre Integration Method, Ordinary Differential Equations: Euler's Method ,Euler Modified Method, Runge -kutta Method.

Essential readings:

1. Numerical Mathematics and Computing : by W. Cheney, David Kincaid, Cengage.
2. Numerical Methods by B.P. Acharya & R.N. Das.
3. Numerical Methods for Scientific and Engineering Computation; M.K. Jain,S.R.K. Iyengar, R.K. Jain.
4. A Introduction to Numerical Analysisby K.Aitkinson ,Wiley