Semester I

VSC (2 Credits)

(For Maths Major subject)

Course Title: Finite Differences and Interpolation

Calculus of finite differences: Introduction, basic properties,difference operators delta and E**,** relations between delta and E operators and their properties, higher order differences, construction of difference table,Factorial polynomials, representation of polynomials in the factorial notation. Interpolation: Interpolation with equal and unequal intervals.

References :

1. S. S. Sastri, Introductory methods of Numerical Analysis, EEE
2. B.S.Goel and S.K. Mittal, Numerical Analysis, Pragati Prakashan, Meerut.
3. Bhupendra Singh,Numerical Analysis, Pragati Prakashan, Meerut.

List of Practical:

1) Determination of differences of functions.
2) Representations of any polynomial in factorial notation
3) Determination of missing terms.
4) Interpolation of function for equal interval
5) Interpolation of the function for unequal interval.
6) Extrapolating the function for equal interval of arguments.

Semester II
VSC (2 Credits)
(For Maths Major subject)
Course Title: Numerical Techniques

Solution of Algebraic and Transcendental equations: Newton-Raphson method, Regula- falsi method.

Solution of system of linear equations: Gauss-elimination method,Gauss-seidel method.

Solution of ordinary differential equations: Picard method, Eulers method, Runge-Kutta method.

References :

1. S. S. Sastri, Introductory methods of Numerical Analysis, EEE
2. H. K. Dass, Advanced Engineering Mathematics, S. Chand, New Delhi.
3. B.S.Goel and S.K. Mittal, Numerical Analysis, Pragati Prakashan, Meerut.
4. Bhupendra Singh,Numerical Analysis, Pragati Prakashan, Meerut.

List of Practicals:

1) Determination of solution of algebraic and transcendental equation usingNewton-Raphson method
2) Determination of solution of algebraic and transcendental equation using Regula- falsi method
3) Determination of solution of system of linear equations usingGauss-elimination method
4) Determination of solution of system of linear equations usingGauss-seidel method
5) Determination of solution ofordinary differential equationsusing Picard method
6) Determination of solution of ordinary differential equationsusing Eulers method
7) Determination of solution of ordinary differential equationsusingRunge-Kutta method.