



Syllabus for Numerical Methods

Department of CSE

Semester: Fall, 2020

Course Code : CSE235

Credit Hours: 03

Course Title : Numerical Methods

Course Teacher: Protima Dash

CSE235: Numerical Methods:

1. Solution to simultaneous linear equations:

tridiagonal systems and Thomas' method, Iteration method of Jacob and Gauss-Seidel;

2. Non-linear equations: Bisection method, Newton–Raphson method.

3. Matrices:

Norm, condition number with interpretation, LU decomposition, QR decomposition, SVD.

4. Interpolation: Newton's forward, backward and divided difference. Cubic spline method,

5. Curve fitting: Least square method for linear and non-linear case, Bezier curves and B-spline curves, Function-approximation by Chebyshev polynomial.

6. IVP: Range-Kutta method, Milne's method;

7. BVP: Finite difference method;

8. CVP: Power method, QR method.

9. Numerical Integration: Trapezoidal rule, Simpson's 1/3 rule, Weddle rule, use of cubic spline. [Prerequisite: MAT 121 > MAT 211].