| Lesson plan of Mathematics (2020-21)  **B.Sc/B.A- 5th sem (Numerical Analysis)** |  |
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| **WEEKS** |  **CHAPTER** |  |
| 1. | Finite Differences operators and their relations. Finding the missing terms and effect of error in a difference tabular values |  |
| 2 | Interpolation with equal intervals: Newton’s forward and Newton’s backward interpolation formulae. Interpolation with unequal intervals:  |  |
| 3 |  Newton’s divided difference, Lagrange’s Interpolation formulae, Hermite Formula. |  |
| 4 | Gauss forward and Gauss’s backward interpolation formulae, Sterling, Bessel Formula. |  |
| 5 | Probability distribution of random variables, Binomial distribution, Poisson’s distribution |  |
| 6 | Normal distribution: Mean, Variance and Fitting. |  |
| 7 | Numerical Differentiation: Derivative of a function using interpolation formulae as studied in Sections –I & II. |  |
| 8 | Eigen Value Problems: Power method, Jacobi’s method, Given’s method, |  |
| 9 | House-Holder’s method, QR method, Lanczos method. |  |
| 10 | Numerical Integration: Newton-Cote’s Quadrature formula, Trapezoidal rule, Simpson’s onethird and three-eighth rule, Chebychev formula, Gauss Quadrature formula. |  |
| 11 | Numerical solution of ordinary differential equations: Single step methods-Picard’s method. Taylor’s series method, Euler’s method, Runge-Kutta Methods. |  |
| 12 | Multiple step methods; Predictor-corrector method, Modified Euler’s method, Milne-Simpson’s method. |  |