



Dharampeth M. P. Deo Memorial Science College, Nagpur
Syllabus wise You Tube Links

B. Sc. SEM VI (Mathematics)

M-13: Numerical Methods (Optional)

Unit I

Solution of Algebraic and Transcendental Equations: The Bisection Method, The method of False position, The iteration method, Newton-Raphson method, Ramanujan's method, The Secant method, Muller's method, Solution to systems of non-linear equations.

<https://www.youtube.com/watch?v=rAaUA7WTdSM&list=PLU6SqdYcYsfJpMcFZRWxqiyPqz9zMhlaS>

Unit II

Interpolation: Finite differences, Differences of a polynomial, Newton's formulae for interpolation, Central difference interpolation formulae, Interpolation with unevenly spaced points, Divide differences and their properties, Inverse interpolation.

<https://www.youtube.com/watch?v=rAaUA7WTdSM&list=PLU6SqdYcYsfJpMcFZRWxqiyPqz9zMhlaS>

Unit-III

Numerical Differentiation and Integration: Numerical differentiation, Maximum and minimum values of a tabulated function, Numerical integration, Euler-Maclaurin formula.

<https://www.youtube.com/watch?v=rAaUA7WTdSM&list=PLU6SqdYcYsfJpMcFZRWxqiyPqz9zMhlaS>

Unit IV

Numerical Solution of Ordinary Differential Equation: Solution by Taylor's series, Picard's method of successive approximation, Euler's method, Runge-Kutta method, Predictor-Corrector method, The cubic spline method, Simultaneous and higher order equations.

<https://www.youtube.com/watch?v=rAaUA7WTdSM&list=PLU6SqdYcYsfJpMcFZRWxqiyPqz9zMhlaS>