Course Title:	Numerical Methods
Course Code:	**MTL 6245**
Course Coordinator	**Dr. A. K. Das**
Credits	**4**

Evaluation Scheme   Total 100 Marks

Quiz (Total 20 Marks)				Assignment/Project (Total 20 marks) (Minimum Two Assignments or one Project)		Mid-Term	Major Examination	Total
Quiz I (5 marks	Quiz II (5 marks)	Quiz III (5 marks)	Quiz IV (5 marks)	10	10	20 marks) (1 ½ Hour Duration)	(40 marks) (3 Hour Duration)	100 Marks

WEEKS	TOPICS TO BE COVERED
Week 1	Numerical solutions of algebraic and transcendental equations: Bisection Method.
Week 2	Iterative Method, Method of false-position
Week 3	Newton-Raphson method, Secant method
Week 4	Curve fitting: fitting of a straight line, Fitting of 2nd degree plolynomial.
Week 5	Solution of linear systems of equations: Direct method, Elimination method
Week 6	Solution of linear systems of equations: Gauss-seidel method, Jacobi method.
Week 7	Differences: Error in interpolation, Detection of error by use of difference tables.
Week 8	Differences of a Polynomial, Newton's formula for Forward and Backward interpolation
Week 9	Gauss Central difference Interpolation formula, Striling's formula, Bessel's formula.
Week 10	Interpolation with unequal intervals; Lagrange's formula.
Week 11 (17th -21st March, 2025)	**Mid-Term**
2nd May, 2025	**Showing of Mid-Term Answer Sheets**
Week 13	Divided differences and their properties, Newton's general Interpolation formula, Inverse interpolation. Numerical

	Differentiation: Maximum and minimum value of a tabulted function.
Week 14	Numerical Integration: Trapezoidal Rule. Simpon's 1/3 and 3/8 Rule. Newton-cotes integration formula. Gaussian quardrature formula.
Week 15	Numerical solution of ordinary differential equations: Solution by Taylor's series. Euler's method, Picard's method.
Week 16	Runge Kutta method. Predictor Corrector Method: Miline's method and Adams-Moulton's method.
Week 17 (5th -9th May, 2025)	**Revision Week**
Week 18 (13th – 22nd May, 2025)	**Major Examinations**
29th May, 2025	**Showing of Major Exams Answer Sheets**

Recommended Books:

1. S.S. Sastry, Introductory Methods of Numerical Analysis, Prentice-Hall of India.
2. Gerald, C.F, and Wheatley, P.O, Applied Numerical Analysis, Sixth Edition, Pearson Education Asia, New Delhi, 2002.
3. E. Balagurusamy, Numerical Methods, Tata McGraw-Hill Pub.Co.Ltd, New Delhi, 1999.
4. M. K. Jain S. R. K. Iyengar and R. K. Jain, Numerical Methods for Scientific and Engineering Computation.

Calendar of Quizzes/Assignment etc. to be provided as per below details and exact dates to be fixed in consultation with other course coordinators to avoid overlap of Quizzes of different courses.

Component	Date
Quiz-I	**27th -31st, January 2025**
Quiz-II	**24th -28th February, 2025**
Assignment-I	**10th -12th February, 2025**
Mid-Term	**17-21st March, 2025**
Assignment-II/ **Project Submission**	**21st – 24th April, 2025**
Quiz-III	**7th – 11th April, 2025**
Quiz-IV	**28th April-2nd, May, 2025**
Major Exam	**13th – 22nd May, 2025**