Maulana Abul Kalam Azad University of Technology, West Bengal
Syllabus for B. Tech in Electronics & Communication Engineering
(Applicable from the academic session 2018-2019)

BS-M401	Numerical Methods (BS)	2L:0T:0P	2 credits

Module I   **10L**

Approximation in numerical computation: Truncation and rounding errors, Fixed and floating-point arithmetic, Propagation of errors.

Interpolation: Newton forward/backward interpolation, Lagrange's and Newton's divided difference Interpolation.
Numerical integration: Trapezoidal rule, Simpson's 1/3 rule, Expression for corresponding error terms.

Module II   **8L**

Numerical solution of a system of linear equations:
Gauss elimination method, Matrix inversion, LU Factorization method, Gauss-Seidel iterative method.

Numerical solution of Algebraic equation: Bisection method, Regula-Falsi method, Newton-Raphson method.

Module III   **4L**

Numerical solution of ordinary differential equation: Euler's method, Runge-Kutta methods, Predictor-Corrector methods and Finite Difference
method.   (6)

Text Books:
1. C.Xavier: C Language and Numerical Methods.
2. R.S. Salaria, Computer Oriented Numerical Methods, Khanna Publishing House.
3. Dutta & Jana: Introductory Numerical Analysis.
4. J.B.Scarborough: Numerical Mathematical Analysis.
5. Jain, Iyengar , & Jain: Numerical Methods (Problems and Solution).

References:
1. Balagurusamy: Numerical Methods, Scitech.
2. Baburam: Numerical Methods, Pearson Education.
3. N. Dutta: Computer Programming & Numerical Analysis, Universities Press.
4. Soumen Guha & Rajesh Srivastava: Numerical Methods, OUP.
5. Srimanta Pal: Numerical Methods, OUP.