VASAVI COLLEGE OF ENGINEERING (AUTONOMOUS)

9-5-81, Ibrahimbagh, Hyderabad-500031, Telangana State

DEPARTMENT OF MATHEMATICS

Numerical Methods

Open Elective – **B.E. VI - Semester** – CBCS

Name of the Faculty: Mr. M.Venkateswar Rao

Instruction:	1 hr Per week	**Semester End Exam Marks :**	50	**Subject Reference Code :**	OE640MA
Credits:	1	**Sessional Marks :**	30	**Duration of Semester End Exam :**	2 hours

Course Outcomes:

At the end of the course the students will be able to :

1. Apply numerical methods to solve Algebraic and Transcendental equations, and also to solve simultaneous algebraic equations.

Unit – I: (6 hrs)
Solution of Algebraic and Transcendental equations:

Errors in computation-Types of errors- Useful rules for estimating errors- Intermediate value property of equations-Solution of Algebraic and Transcendental equations: Bisection method, Newton-Raphson method Regula-Falsi method.

Unit – II: (6 hrs)
Solution of linear system of equations:

Direct methods- Gauss elimination method- Factorization method- Iterative methods: Jacobi's Iteration method- Gauss - Seidel Iteration method-Ill-conditioned system of equations.

Text Books:

1. Numerical methods in engineering and science by B.S.Grewal, Khanna publishers
2. Advanced Engineering Mathematics by R.K.Jain & S.R.K.Iyengar, Narosa publishing house.

Reference Books:

1. Numerical Analysis by S.S.Sastry, PHI Ltd.

Relevance

Usually used in computer science for algorithm analysis and for Electronics and Information Technology in Network Simulation and also for analysis of structures in civil engineering constructions, buildings and structural parts in automotive of Mechanical Engineering and also for calculation of electromagnetic fields in electrical machines of Electrical Engineering