ARSD College, University of Delhi

Model Course Handout/Lesson Plan

Course Name :		GE-4 IInd year PRACTICAL				
Semester	**Course Code**	**Course Title**	**Lecture (L)**	**Tutorial (T)**	**Practical (P)**	**Credit (C)**
IV	32355402	Numerical Methods			4	6
Teacher/Instructor(s)		Rajpal Rajbhar, Kapil Kumar				
Session		2022-2023				

Course Objective: The goal of this paper is to acquaint students' various topics in Numerical Analysis such as solutions of nonlinear equations in one variable, interpolation and approximation, numerical differentiation and integration, direct methods for solving linear systems, numerical solution of ordinary differential equations using Computer Algebra System (CAS).

Course Learning Outcomes: After completion of this course, students will be able to: Find the consequences of finite precision and the inherent limits of numerical methods. Appropriate numerical methods to solve algebraic and transcendental equations. Solve first order initial value problems of ODE's numerically using Euler methods.

List of Experiments:

Details of the Lab Course		
Session	**Name of Experiment**	**Contact Hours**
1	Bisection method	4Hrs
2	Secant method and Regula–Falsi method	8Hrs
3	Newton–Raphson method	4Hrs
4	Gaussian elimination method and Gauss–Jordan method	8Hrs
5	Jacobi method and Gauss–Seidel method	8Hrs
6	Lagrange interpolation and Newton interpolation	8Hrs
7	Trapezoidal and Simpson's rule	8Hrs
8	Euler methods for solving first order initial value problems of ODE's	8Hrs
	Total	**56 hours**

Suggested Books:

Sl. No.	**Name of Authors/Books/Publishers**	**Year of Publication/Reprint**
1.	Chapra, Steven C. (2018). Applied 'numerical Methods with MATLAB for Engineers and Scientists (4th ed.). McGraw-Hill Education.	2018
2.	Fausett, Laurene V. (2009). Applied 'numerical Analysis Using MATLAB. Pearson. India.	2009

Evaluation Scheme:

No.	Component	Duration	Marks
1.	Internal Assessment		25
	• Quiz/Viva		
	• Observation & Record		
	• Attendance		
	• Model Exam		
2.	End Semester Examination	3 hr	50

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