ARSD College, University of Delhi

Model Course Handout/Lesson Plan

Course Name : B.Sc.(Prog.) Electronics						
Semester	**Course Code**	**Course Title**	**Lecture (L)**	**Tutorial (T)**	**Practical (P)**	**Credit (C)**
VI		**Numerical Method (Practical)**	**0**	**0**	**4**	**2**
Teacher/Instructor(s)		**Kapil Kumar & Agam Dwivedi**				
Session		2020-21				

Course Objective: The goal of this paper is to acquaint students for the study of certain algorithms that uses numerical approximation for the problems of mathematical analysis. Also, the use of Computer Algebra Systems (CAS) by which the intractable problems can be solved both numerically and analytically.

Teaching Plan:

Practical /Lab work to be performed in the Computer Lab with the help of Computer Algebra System (CAS) ***Maxima*** for developing the following Numerical Programs:

S.No.	**Topic to be covered**	**Teaching Hours**
1	Bisection Method	6
2	Secant Method and Regula−Falsi Method	6
3	Newton−Raphson Method	6
4	Gaussian elimination method	4
5	Gauss−Jordan method	8
6	Jacobi Method and Gauss−Seidel Method	4
7	Lagrange interpolation	4
8	Newton interpolation	6
9	Trapezoidal and Simpson's rule.	6
10	Euler methods for solving first order initial value problems of ODE's	6
	Total	56

Suggested Books		
S. No.	**Title/Author**	**Publisher/Edition/Year**
1	**Practical Mathematics (using maxima software) by Dr. Gurpreet Singh Tuteja**	**Book Age Publication/2012**
2	**Introduction to Maxima by Dr. Gurpreet Singh Tuteja**	**Book Age Publication/2020**
3	**A Student's Guide to the Study, Practice, and Tools of Modern Mathematics by Bindner, Donald & Erickson, Martin.**	**CRC Press/ 2011**

Evaluation Scheme:

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