SCHEME OF COURSE WORK

Course Details:

Course Title	**:Basic Computation Lab**
Course Code	**: 13ES11BC**
Program:	**: B.Tech.**
Specialization:	**: Electrical and Electronics Engineering**
Semester	**:IV**
Prerequisites	**: Mathematics**
Courses to which it is a prerequisite	**:-**

Course Outcomes (COs):

1	Perform matrix operations.
2	Plot two dimensional, three dimensional graphs and draw inferences.
3	Perform linear and non-linear regression analysis for the given data.
4	Determine steady state, unsteady state solutions of Ordinary differential equations.
5	Compute two and three dimensional integrals and solve unconstrained optimization problems.

Course Outcome Versus **Program Outcomes:**

COs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO-1	M		M	M	S	M		M			M	
CO-2	M		M	M	S	M		S	M	M	M	
CO-3	M		M	M	S	M		M			M	
CO-4	M	M	M	M	S	M	M	M	M	M	M	M
CO-5			M	M	S							

S - Strongly correlated, *M - Moderately* correlated, *Blank - No correlation*

Assessment Methods:	Assignment / Quiz / Seminar / Case Study / Mid-Test / End Exam

Teaching-Learning and Evaluation

Week	TOPIC / CONTENTS	Course Outcomes	Sample Viva –voce questions	TEACHING-LEARNING STRATEGY	Assessment Method & Schedule
1	Write up of experiments	CO-1	--	-	
2	Basic MATLAB commands like representing arrays, matrices, reading elements of a matrix, row and columns of matrices, random numbers.	CO-1	1. What is a matrix? 2. What is the difference between matrix and array. 3. What is random number	Practical	Observation, Record and Viva-voce
3	Floor, ceil, and fix commands.	CO-1	1. What is the difference between floor and ceil commands.	Practical	Observation, Record and Viva-voce
4	Eigen values and Eigen vectors of a matrix.	CO-1	1. Define eigen value 2. How do you calculate eigen vector manually?	Practical	Observation, Record and Viva-voce
5	Plotting tools for 2 dimensional and 3 dimensional plots, putting legends, texts, using subplot tool for multiple plots.	CO-2	1. How are two dimensional plots different from 3d plots. 2. Define legend. 3. What is the method for saving plots automatically.	Practical	Observation, Record and Viva-voce
6	Linear Regression, interpolation and polynomial regression.	CO-2	1. What is regression 2. What is polynomial regression.	Practical	Observation, Record and Viva-voce
7	Revision	CO-1,2	--	Practical	
8	**Test 1(Internal)**			Practical	
9	Non linear regression.	CO-3	1. What is nonlinear regression	Practical	Observation, Record and Viva-voce
10	Solving non linear algebraic equations.	CO-3	1. What are methods of solving equations	Practical	Observation, Record and Viva-voce

11	ODE IVP problems using Runge - Kutta method.	CO-3	1. What is Runge Kutte method	Practical	Observation, Record and Viva-voce
12	ODE BVP problems using shooting method.	CO-4	1. Elaborate on shooting method	Practical	Observation, Record and Viva-voce
13	Using quadrature to evaluate integrals (1, 2 and 3 dimensional cases).	CO-5	1. How to solve double integral and triple integral problems.	Practical	Observation, Record and Viva-voce
14	Finding the minimum of an unconstrained function.	CO-5	1. What is minimum of a function	Practical	Observation, Record and Viva-voce
15	Revision session	CO-3,4,5		Practical	
16	Revision session	CO-3,4,5		Practical	
17	Test 2	CO-3,4,5		Online	
18	Revision session				
19/20	**END EXAM**				