BASIC COMPUTATIONS LAB

Course Code : 15CH1117

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Course Outcomes :

At the end of the course the student shall be able to (using MATLAB programming Language)

CO 1 Perform matrix operations.

CO 2 Plot two dimensional, three dimensional graphs and draw inferences.

CO 3 Perform linear and non-linear regression analysis for the given data.

CO 4 Determine steady state, unsteady state solutions of Ordinary differential equations.

CO 5 Compute two and three dimensional integrals and solve unconstrained optimization problems.

LIST OF EXERCISES:

1. Basic MATLAB commands like representing arrays, matrices, reading elements of a matrix, row and columns of matrices, random numbers.
2. Floor, ceil, and fix commands.
3. Eigen values and Eigen vectors of a matrix.
4. Plotting tools for 2 dimensional and 3 dimensional plots, putting legends, texts, using subplot tool for multiple plots.
5. Linear Regression, interpolation and polynomial regression.
6. Non linear regression.
7. Solving non linear algebraic equations.
8. ODE IVP problems using Runge - Kutta method.

9. ODE BVP problems using shooting method.
10. Using quadrature to evaluate integrals (1, 2 and 3 dimensional cases).
11. Symbolic manipulation to evaluate Laplace and Fourier transforms.
12. Finding the minimum of an unconstrained function.