

3/4 B.Tech. SIXTH SEMESTER

EE6T6FE1 MATLAB Programming and Applications (Free elective) Credits: 3
Lecture: 3 periods/week Internal assessment: 30 marks
Tutorial: 1 period /week Semester end examination: 70 marks

Course Objective:

In this course students will be introduced to programming using MATLAB. This course covers the MATLAB environment, assignment, conditionals, scripts, functions, iterations, arrays and graphics.

Course Outcomes:

After completing the course, student will be able to

1. Have knowledge of writing MATLAB programs for engineering problems
2. Handle graphics and draw plots
3. Interpolate the data and curve fitting
4. Work with arrays, matrices and character strings

UNIT I

Basics of MATLAB – windows, input, output file types, platform dependence commands, general commands, special variables and constants, simple arithmetic calculation, arrays, numbers, printing simple plots, creating, saving and executing script files, function files.

UNIT II

Matrices, vectors, matrix and array operations, arithmetic operations, relational operations, logical operations, matrix functions, specialized matrices, character strings, character string functions.

UNIT III

Built in function – saving and loading data, plotting simple graphs, script files, function files, language specific features, if-end structure, if-else-end structure, if-else if-else-end structure, switch-case statement, for-end loop, while-end loop, break, continue, and return commands, advanced data objects.

UNIT IV

Solving problems in linear algebra, curve fitting and interpolation, data analysis and statistics, integration, ordinary differential equations.

UNIT V

Graphics: Basic 2-D Plots, style options, labels, title, legend, and other text objects, modifying plots with the plot editor, over lay plots, specialized 2-D plots, subplots.

3-D Plots, mesh and surface plots.

Handling graphics: The object hierarchy, object handles, object properties, modifying an existing plot.

Learning Resources

Text Books:

1. Getting started with MATLAB by Rudrapratap, oxford university press, 2009.
2. MATLAB programming for engineers by Stephen J.Chapman, Thomson Learning.

Reference Books:

1. MATALB: An introduction with applications by Amos Gilad, Wiley student edition.
2. MATLAB programming by Y.Kirani Singh, B.B.Chaudhuri, PHI Private limited, New Delhi 2008