

APPENDIX – IV

MATLAB

IV.1 WHAT IS MATLAB?

MATLAB® is a high-performance language for technical computing. It integrates computation, visualization, and programming in an easy-to-use environment where problems and solutions are expressed in familiar mathematical notation.

Typical Uses Include

- Math and computation

- Algorithm development

- Modeling, simulation, and prototyping

- Data analysis, exploration, and visualization

- Scientific and engineering graphics

- Application development, including graphical user interface building

In other words MATLAB is an interactive, matrix – based system for scientific and engineering numeric computation and visualization.

MATLAB is an interactive system whose basic data element is an array that does not require dimensioning. This allows one to solve many technical computing problems, especially those with matrix and vector formulations, in a fraction of the time it would take to write a program in a scalar no interactive language such as C or Fortran.

The name MATLAB stands for matrix laboratory. MATLAB was originally written to provide easy access to matrix software developed by the LINPACK and EISPACK projects. Today, MATLAB uses software developed by the LAPACK and ARPACK projects, which together represent the state-of-the-art in software for matrix computation.

MATLAB has evolved over a period of years with input from many users. In university environments, it is the standard instructional tool for introductory and advanced courses in mathematics, engineering, and science. In industry,

MATLAB is the tool of choice for high-productivity research, development, and analysis.

MATLAB features a family of application-specific solutions called toolboxes. Very important to most users of MATLAB, toolboxes allow one to learn and apply specialized technology. Toolboxes are comprehensive collections of MATLAB functions (M-files) that extend the MATLAB environment to solve particular classes of problems. Areas in which toolboxes are available include signal processing, control systems, neural networks, fuzzy logic, wavelets, simulation, and many others.

IV.2 DEVELOPMENT ENVIRONMENT

This chapter provides a brief introduction to starting and quitting MATLAB, and the tools and functions that help you to work with MATLAB variables and files. For more information about the topics covered here, see the corresponding topics under

Development Environment in the MATLAB documentation, which is available online as well as in print.

One can view the help file related to the optimization toolbox, for getting into detail the knowledge of solving the linear programming problem, etc.

IV.3 STARTING AND QUITTING MATLAB

Starting MATLAB

On a Microsoft Windows platform, to start MATLAB, double-click the MATLAB shortcut icon on your Windows desktop.

On a UNIX platform, to start MATLAB, type matlab at the operating system prompt.

After starting MATLAB, the MATLAB desktop opens - see MATLAB Desktop.

One can change the directory in which MATLAB starts, define startup options including running a script upon startup, and reduce startup time in some situations.

Quitting MATLAB

To end your MATLAB session, select Exit MATLAB from the File menu in the desktop, or type quit in the Command Window. To execute specified functions each time MATLAB quits, such as saving the workspace, you can create and run a finish. M script.

IV.4 HOW TO RUN A PROGRAM IN MATLAB?

Create a m-file in MATLAB editor.

Save it.

Run and go to MATLAB prompt.

Type the name of file saved (m-file) and the result is given as the output displayed.

To close type quit or exit at the MATLAB prompt.