

Course Description

This course provides an aggressively gentle introduction to MATLAB®. It is designed to give students fluency in MATLAB, including popular toolboxes. The course consists of interactive lectures with students doing sample MATLAB problems in real time. Problem-based MATLAB assignments are given which require significant time on MATLAB.

Course Overview

The course covers basic topics such as performing simple calculations, plotting graphs and visually exploring your data. The course is designed for beginner through to intermediate MATLAB users. Students do not need any prior experience in programming because getting Matlab to do the work for you is so simple and natural.

Course Highlights

- Getting Started with MATLAB
- The desktop and online help
- Command line calculations
- Operating with matrices and vectors
- Plotting data and functions
- Programming with functions and scripts
- Basic data analysis and curve fitting

The Introduction to MATLAB training course is ideal for any person beginning to use MATLAB and/or would like to learn about the finer points of the MATLAB environment. The course would be particularly beneficial for individuals working in a team with other MATLAB-based designers who are required to get “up to speed” quickly. The training course also provides an opportunity to evaluate the MATLAB product for future or more extensive use in your organization. Many of our clients have already saved time and learned to work more efficiently with MATLAB from attending previous courses.

Benefits of using MATLAB

MATLAB is a software development environment that offers high-performance numerical computation, data analysis, visualization capabilities and application development tools. You can write statements in MATLAB and have them calculate immediately so they are tested as you go. MATLAB provides immediate access to thousands of fundamental and specialty functions written by experts, in addition to those written by yourself or your colleagues. MATLAB’s built-in graphing tools and GUI builder ensure that you customize your data and models to help you interpret your data more easily for quicker decision making.

Course Layout

Lecture 1

Variables, Scripts and Operations

- Variables, Scripts and Operations
- Visualization and Programming
- Solving Equations, Fitting
- Images, Animations, Advanced Methods
- Optional: Symbolic Math, Simulink

Outline

- (1) Getting Started
- (2) Scripts
- (3) Making Variables
- (4) Manipulating Variables
- (5) Basic Plotting

Lecture 2

Visualization and Programming

Outline

- (1) Functions
- (2) Flow Control
- (3) Line Plots
- (4) Image/Surface Plots
- (5) Vectorization

Lecture 3

Solving Equations and Curve Fitting

Outline

- (1) Linear Algebra
- (2) Polynomials
- (3) Optimization

- (4) Differentiation/Integration
- (5) Differential Equations

Lecture 4

Advanced Methods

Outline

- (1) Probability and Statistics
- (2) Data Structures
- (3) Images and Animation
- (4) Debugging
- (5) Online Resources

Lecture 5

Symbolics, Simulink, File I/O, Building GUIs

Outline

- (1) Symbolic Math
- (2) Simulink
- (3) File I/O
- (4) Graphical User Interfaces