

MATLAB Course for Beginners

by Pravin Barmashe(BE, M.Tech, PhD.*)

Trainer's Experience

I am providing training on MATLAB for 12 years to research scholars of ME/MTech and PhDs. I have worked on various research domains like wireless signal processing, wireless network designing, sensor network designs, face recognition, character recognition, handwriting recognition using AI, Artificial Neural Network, Machine Learning etc. on MATLAB platform. After completion of the course you will be able to write program for solving numerical problems and processing signals and images.

Course Syllabus

About the course

This course teaches you MATLAB tool to those who have little to no prior experience of programming. In this course the programming system and language called MATLAB will be covered because it is easy to learn, versatile and very useful for engineering students, masters students and research scholars and other professionals. MATLAB is a numerical computing language that used to solve any kind numerical problems or design of such numerical systems so to simulate and solve complicated problems in easier way.

It is very powerful yet easy to understand language with a features to visualize data in various graphical formats. MATLAB visualizes graphics from relatively complex data in few lines of code. MATLAB is a loosely typed language which make it user friendly to anyone who don't have any prior knowledge.

MATLAB is used for solving problems of variety of domains from engineering to financial data analysis to ecommerce and user behaviors and many more. So having knowledge and skills of MATLAB can open various doors in today's job market.

At the end this course not a tutorial it will gives you general concepts of MATLAB and familiarity with the tool with programming fundamental concepts. After this you can feel confident to implement numerical solution of mathematical problems.

1. MATLAB Environment

- 1.1. Introduction
- 1.2. How to Run MATLAB
- 1.3. MATLAB User Interface
- 1.4. Command Window

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- 1.5. Editor Window
- 1.6. Command History Window
- 1.7. Workspace
- 1.8. Variable Editor
- 1.9. Basic commands- help, clc, clear all, close all, warning off.
- 1.10. RUN scripts
- 1.11. comments, line terminator
- 1.12. file types .m, .mat, .fig etc.

2. Operators and Matrices

- 2.1. Introduction of Variables
- 2.2. Create and Manupulate Variables
- 2.3. Operators and order of operations
- 2.4. Basic calculations in MATLAB
- 2.5. pi and exponential
- 2.6. Matrices
- 2.7. Fetching Parts of Matrix
- 2.8. Matrix Operations
- 2.9. Scalar and Vector Product

3. Basic Functions of MATLAB

- 3.1. Introduction of Functions
- 3.2. Input and Outputs of Functions
- 3.3. Pros of Function
- 3.4. Main Trigonometric Functions
- 3.5. logarithmic function

4. Toolboxes

- 4.1. Introduction of Toolboxes
- 4.2. How to Use Toolsboxes
- 4.3. Different Applications

5. GRaphs and Plots

- 5.1. Introduction of Figure
- 5.2. Types of Figures
- 5.3. Graphs and Its Types
- 5.4. Plotting of Graphs
- 5.5. Create Rich Plots/Graphs

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6. Statements

- 6.1. If-Statement
- 6.2. If-else Statement
- 6.3. else if Statements
- 6.4. Relational and logical operators
- 6.5. Nested If Statements
- 6.6. For Loop
- 6.7. While Loop
- 6.8. Break Statement
- 6.9. Error Handling/ Debugging

7. Functions and Its Arguments

- 7.1. Declaration of Functions
- 7.2. Arguments
- 7.3. Input and Output variables
- 7.4. Data Types
- 7.5. Character Arrays
- 7.6. Structs
- 7.7. Cells