



**100,000+ Students  
have been Trained**

since  
1997

# MATLAB

## Training Program

### Who can do?

- Fresh University Graduates and like to pursue a career in MATLAB Tool specifically related to Engineering & Sciences Technology.
- Already work in the same field and like to excel in terms of better position and compensation in the organization.
- Interested to be a MATLAB designer related to tool object, and features.

**Program is  
offered by**

**3D EDUCATORS  
INTL**  
22 Years of  
Excellence in  
Training &  
Development

**Invest in  
People the  
only Asset  
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### **About the Program Designer & Instructor**

The “MATLAB” Program has been designed and will be conducted the Senior Engineers who has more than Ten years’ experience in the field of Development and Engineering Management.

The Person are Certified where he has been providing his services in industry for last 12 years and conducting so many different session with the MATLAB and work or develop the real time applications for here and abroad.

At present, faculty is working in the same technology and working as a senior position in the renowned organization, further he is also involved in training and development for last fifteen years.

### **Inauguration**

The Training Program will be inaugurated by a senior member of 3DEducators.

### **Program Structure**

No of classes per week	<b>01 Class</b>
Duration of each class	<b>02 – Hour</b>

### **Other Learning Activities**

Classroom Assignments	<b>02</b>
Presentations by Trainees	<b>01</b>
Total Labs	<b>08</b>
Final Project	<b>01</b>

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### The MATLAB User Interface

Objective: This section introduces the main features of the MATLAB integrated design environment and its user interfaces. Many themes for the course are established in this section, to be explored in detail in later sections.

- Interactively read data
- Interactively plot data
- Use expressions to compute new variables
- Generate a script to reproduce graphics with new data
- Export graphics

### Working with MATLAB Variables

Objective: This section introduces MATLAB variables as data containers. Two essential operations are emphasized: creating variables and accessing the data the variables contain. The section also introduces MATLAB operations for computing with data.

#### Creating variables

- Data import from external sources
- Data entry from the command line
- Matrix creation functions

#### Accessing vector and matrix data

- Row-column indexing
- Linear indexing
- Logical indexing

#### Vector and matrix arithmetic

- Matrix and array operations
- Solving systems of linear equations
- Mathematical and statistical operations



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### Data Types

Objective: This section provides an overview of the different types of variables (data containers) you can create in MATLAB. Data types differ from one another in the kind of data they may contain and the way the data is organized. The section focuses on two basic operations associated with any data type: how to construct a new variable of that type and, once it is constructed, how to access and use the data it contains. The section also discusses methods for converting among data types.

- What is a data type?
- Data types in MATLAB
- Methods for constructing and accessing types
- No double arithmetic
- Converting types

### M-Files

Objective: M-files are the setting for MATLAB programming. This section gives an overview of how to write, edit, run, and debug M-Files. The distinction between script and function M-files is highlighted, and basic programming structures and best practices are introduced.

- The MATLAB Editor
- Script M-files
- The MATLAB path
- Cells and cell mode
- Function M-files
- Debugging
- Solution and analysis



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### **Plotting and Visualization**

Objective: This section introduces the visual side of MATLAB by showing you how to create plots of both vector and matrix data. Visualizations complement the numerical capabilities of MATLAB, and should play an equal role in any thorough data analysis.

#### **Creating variables**

- Plane and space curves
- Annotating graphics & working with axes
- Data interpolation
- Plot types

#### **Matrix Data**

- Images, contours, and surfaces
- Multidimensional data interpolation
- Volume visualization
- Plot types

### **Data Input and Output**

Objective: Before you can do any kind of data analysis in MATLAB, you have to be able to import your data into the MATLAB environment. Likewise, when you have completed your analyses, you may want to export the results for purposes of recording and reporting. This section focuses on techniques for moving data back and forth between external files and data containers (variables) in the MATLAB workspace.

- File types and formats
- The Import Wizard
- Programmatic I/O
- Graphical I/O
- Low-level I/O
- Large files and irregular formats



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### **Basic Statistics and Data Analysis**

Objective: This section highlights the data processing capabilities of MATLAB by looking at a few of the most common tools used in statistical analysis. MATLAB and the Statistics Toolbox have an extensive library of statistical functions and visualization methods that go well beyond the topics covered in this section. The goal of this section is to become familiar with the basic set-up for carrying out common statistical tasks

- Data in MATLAB
- Descriptive statistics
- Basic fitting tool
- Data analysis tool

### **Programming**

Objective: MATLAB is a language. You speak the language through programs. Whether you type in a single line of code at the command prompt or assemble multiple M-files into a sophisticated application, you are programming in the M language. This section reviews basic programming techniques and best practices, and then introduces some of the more advanced programming techniques that you can use to make your MATLAB programs robust, efficient, and user-friendly.

- Keywords and constructions
- Program structure
- Handling user input
- Improving code performance
- Function handles
- Graphics programming



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### **Introduction to Building Graphical User Interfaces**

Objective: This section shows you how to put a “friendly face” on your MATLAB programs in the form of a graphical user interface (GUI). GUIs allow users to interact with your programs without having to understand, or even see, the code that does the work in the background. GUIs also allow you to focus user attention on specific input/output behaviors of a program, while deemphasizing the intermediate mechanisms. GUIs offer many usability advantages over simple M-file programs.

- What is a GUI?
- Handle Graphics
- GUI design
- Using GUIDE
- Writing callbacks
- Modifying GUIs

Students who are unable to appear for the final exam are required to submit a written application stating the reason for not appearing for the exam. 3D Educators reserves the right to approve or deny such applications. If approved, the student will be allowed to sit for the exam within one month. Failure to do so, the student will be resubmit the examination fee and sit the future schedule exam. Without passing of the exams no certification will be awarded.



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### **ONLINE LIVE CLASSES FACILITY AVAILABLE**

- Instructor Led Training
- Real Time Presentations
- Interactive Classes
- Complete Notes and Other Stuff shall be provided through our Secure Student Login Member's Area
- For Online Live Classes, you may please download the Admission Form through our website <http://www.3deducators.com>. Fill it properly and attached the required document along with Picture and send back to [info@3deducators.com](mailto:info@3deducators.com) with scanned fee submitted voucher in the bank.
- For Pakistan you may submit the fee at any MCB Branch with the title of "3D EDUCATORS-TRAINERS & CONSULTANTS".
- If you are outside Pakistan then you may transfer via Bank to Bank or any western union, Fast Track, Money Gram or else International Transfer Body.
- After Admission, if you don't have GMAIL Account then you are requested to kindly make one GMAIL Account and shared it [info@3deducators.com](mailto:info@3deducators.com). Then further correspondence shall be made by our institute official.
- Extra Bandwidth Charges shall be incurred.

### **DISTANCE NOT MATTER**

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### PRECAUTIONARY MEASURES

- During Classes, you are requested to make sure that you are in isolated room, where no noise should be there except your voice.
- Kindly Switch Off your Cell Phone during the class, because it will disturb the quorum of class.
- If you have taken the admission in the course online lonely, then ethically it is recommended and suggested that you alone in the class.
- Recording of Lectures are not allowed at your end.

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