



## MATLAB course content (2 months) (2 Hrs Practice session)

### 1. Introduction to MATLAB

- What is MATLAB?
- What is the scope of MATLAB?
- The advantages of MATLAB
- What is the requirement of MATLAB for students?

### 2. MATLAB ENVIRONMENT

- The command window
- The command history window
- The start button
- The document window
- Figure window
- Workspace browser
- Array editor window
- Current directory browser
- Help browser
- Path browser
- Profiler window

### 3. MATLAB array

- Multi-dimensional array
- Accessing multi-dimensional array
- Assigning scalar to array
- Command to change format
- MATLAB functions for array
- Common array and matrix operations
- Some common pre-defined MATLAB functions

### 4. Introduction to plotting

- MATLAB functions
- Simple two dimensional plot
- Multiple functions on the same plot
- Printing a plot
- Saving a plot using command
- Properties of plot
- Examples
- Exercises

### 5. Additional features in plotting

- Controlling axis of the plot
- Multiple plotting on the same axis
- Multiple figures
- Sub-plotting
- Plotting complex variable
- Logarithmic plot
- Polar plot
- Working with figure window
- Exercises

### 6. Some special two dimensional plots

- Stem plot
- Stair plot
- Bar plot
- Pie plot
- Compass plot
- Histograms
- Special plotting function
- Exercises

### 7. Three dimensional plotting

- Line plotting
- Surface plotting
- Mesh plotting
- Contour plotting

### 8. Types of files in MATLAB

- Script -file
- Function File

### 9. Branching statements and looping

- If construct
- If ....elseif .....else construct
- Nested if construct
- Switch construct
- Try/catch construct
- The while loop
- The for loop



- h. Break and continue statements
- i. Nested loop
- j. Exercises

**10. How to create function**

- a. What is function?
- b. Syntax of function in MATLAB
- c. Passing value in a user-defined function
- d. Optional arguments
- e. Exercises

**ADVANCED MATLAB PROGRAMMING**

**Image processing toolbox**  
**Image acquisition toolbox**  
**Simulink**

**ADDITIONAL TOOLBOXES (ON SPECIAL REQUEST)**

**Communication toolbox**  
**Fuzzy logic toolbox**  
**Control system toolbox**  
**Filter design toolbox**  
**Signal processing toolbox.**