



LAKSHYA INSTITUTE OF TECHNOLOGY

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SWAGAT KUMAR BEHERA

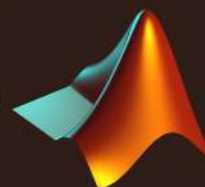
Ph - 9337070985

MATLAB COURSE CONTENT

Introduction to MATLAB	Brief Introduction
	Installation of MATLAB
	History
	Use of MATLAB
	Key features
MATLAB software	Introduction to MATLAB Software
	MATLAB window
	Command window
	Workspace
	Command history
	Setting directory
	Working with the MATLAB user interface
	Basic commands
	Assigning variables
	Operations with variables
Data files and Data types	Character and string
	Arrays and vectors
	Column vectors
	Row vectors
Basic Mathematics & Computation	BODMAS Rules
	Arithmetic operations
	Operators and special characters
	Mathematical and logical operators
	Solving arithmetic equations
Operations on matrix	Crating rows and columns Matrix
	Matrix operations
	Finding transpose, determinant and inverse
	Solving matrix
Other operations	Trigonometric functions
	Complex numbers
	fractions
	Real numbers
	Complex numbers
M files	Working with script tools
	Writing Script file
	Executing script files
	The MATLAB Editor



Course Name - MATLAB
Duration - 1 Month (2 hrs / day)
Course Fee - Rs. 6500/-





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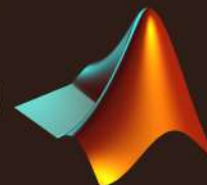
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	Saving m files
Plots	Plotting vector and matrix data
	Plot labelling, curve labelling and editing
2D plots	Basic Plotting Functions
	Creating a Plot
	Plotting Multiple Data Sets in One Graph
	Specifying Line Styles and Colors
	Graphing Imaginary and Complex Data
	Figure Windows
	Displaying Multiple Plots in One Figure
	Controlling the Axes
3D plots	Creating Mesh and Surface
	About Mesh and Surface Visualizing
	Subplots
GUI Design	Introduction Of Graphical User Interface
	GUI Function Property
	GUI Component Design
	GUI Container
	Writing the code of GUI Callback
	Dialog Box
	Menu Designing
	Applications
MATLAB Simulink	Introduction Of Simulink
	Simulink Environment & Interface
	Study of Library
	Circuit Oriented Design
	Equation Oriented Design
	Model
	Subsystem Design
	Connect Call back to subsystem
	Application
MATLAB Programming	Automating commands with scripts
	Writing programs with logic and flow control
	Writing functions
	Control statement Programming
	Conditional Statement Programming
	Examples
Loops and Conditional Statements	Control Flow Conditional Control – if, else, switch
	Loop Control – for, while, continue, break
	Program Termination – return
Functions	Writing user defined functions
	Built in Function
	Function calling
	Return Value
	Types of Functions
	Global Variables



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Image Processing with MATLAB	Importing and Visualizing Images
	Importing and displaying images
	Converting between image types
	Exporting images
	Interactive Exploration of Images
	Obtaining pixel intensity values
	Extracting a region of interest
	Computing pixel statistics
	Measuring object sizes
	Creating a custom interactive tool
	Preprocessing Images
	Adjusting image contrast
	Reducing noise in an image
	Using sliding neighborhood operations
Using block processing operations	
Symbolic Math in MATLAB	Calculus: Numerical Integration
	Linear Algebra
	Roots of Polynomials
	Algebraic equations
	Differential Equations (1st&2nd order)
	Transforms (Fourier, Laplace, etc)
	Ordinary Differential equations
Examples of few ODEs	



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