Course code: Course Title	Course Structure			Pre-Requisite
	L	T	P	
MC106: MATLAB Programming	0	0	4	NIL

Course Objective: The objective of the course is to introduce fundamentals of MATLAB programming and perform mathematical operations in MATLAB.

S. No	Course Outcomes (CO)
CO1	Explain the basics and built in functions of MATLAB.
CO2	Describe mathematical operations on arrays in MATLAB.

CO3	Explain the working of relational / logical operators, conditional statements and loops in MATLAB.
CO4	Analyze different types of two-dimensional plots in MATLAB.
CO5	Solve Polynomial and Algebraic Equations in MATLAB.

S. No	Contents
UNIT 1	Introduction to MATLAB: Starting MATLAB, Working in the Command Window, Arithmetic Operations with Scalars, Elementary Math Built-in Functions, Defining Scalar Variables, Commands for Managing Variables.
UNIT 2	Arrays: One-Dimensional and Two-Dimensional Arrays, Array Addressing, Adding and Deleting Elements, Built-in Functions for Handling Arrays, Strings, Mathematical Operations with Arrays: Addition, Subtraction, Multiplication, and Division, Generation of Random Numbers.
UNIT 3	Relational and Logical Operators, Conditional Statements, Switch Case, Loops, Break and Continue commands. 2-D Plots: The plot command, fplot command, plotting multiple graphs in same plot, histograms.
UNIT 4	Polynomials and Symbolic Math: Polynomials, Curve Fitting, Solving Algebraic Equations, Differentiation, Integration.

List of Experiments	
S.No.	**Title**
1	WAP for basic arithmetic operations with scalars in MATLAB.
2	WAP to demonstrate mathematical built-in functions in MATLAB.
3	WAP to create 1-D and 2-D arrays in MATLAB. Further, add and delete elements in the arrays.
4	WAP to perform mathematical operations (addition, subtraction, array multiplication, array division) on arrays in MATLAB.
5	WAP to demonstrate conditional statements and switch case in MATLAB.
6	WAP to demonstrate loops in MATLAB.

7	WAP to construct plots using the plot/fplot command in MATLAB.
8	WAP to construct histograms in MATLAB.
9	WAP to solve polynomials and algebraic equations in MATLAB.
10	WAP to explain file handling in Python.
11	WAP to demonstrate differentiation and integration in MATLAB.

REFERENCES

S.No.	Name of Books/Authors/Publishers	Year of Publication / Reprint
1	MATLAB: A Practical Introduction to Programming and Problem Solving; D. Attaway, Butterworth-Heinemann, 6th edition.	2022
2	Beginning MATLAB and Simulink: From Beginner to Pro; S. Eshkabilov, Apress, 2nd edition.	2022
3	MATLAB: An Introduction with Applications; A. Gilat, John Wiley & Sons Inc., 6th edition.	2017

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