



J.S. University, Shikohabad  
Faculty of Mechanical engineering

Value Added Course

AY: 2022-23

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## **Value Added Courses**

### **Faculty of Mechanical Engineering**



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AY: 2020-2021

## Introduction of MATLAB

### Learning Objective:

This Course will provide knowledge of MATLAB

1. To learn features of MATLAB as a programming tool.
2. To promote new teaching model that will help to develop programming skills and technique to solve mathematical problems.
3. To understand MATLAB graphic feature and its applications.
4. To use MATLAB as a simulation tool.

### Syllabus

**Duration:** 30 Hours. (Theory and Practical)

#### Module 1

##### Introduction to MATLAB

The MATLAB Environment, MATLAB Basics – Variables, Numbers, Operators, Expressions, Input and output, Vectors, Arrays – Matrices

#### Module 2

##### MATLAB Functions

Built-in Functions, User defined Functions

#### Module 3

##### Graphics with MATLAB

Files and File Management – Import/Export, Basic 2D, 3D plots, Graphic handling

#### Module 4

##### Programming with MATLAB

Conditional Statements, Loops, MATLAB Programs – Programming and Debugging. Applications of MATLAB Programming.

#### Module 5

##### Mathematical Computing with MATLAB

Algebraic equations, Basic Symbolic Calculus and Differential equations, Numerical Techniques and Transforms

## References

1. "A Guide to MATLAB - for Beginners and Experienced Users", 2nd Ed., Brian R. Hunt, Ronald L. Lipsman, Jonathan M. Rosenberg, Cambridge University Press, (2006).
2. "Essentials of MATLAB Programming", 2nd Ed., Stephen J. Chapman, Cengage Learning, (2009).
3. "MATLAB Demystified", David McMahon, The McGraw-Hill Companies, (2007).
4. "MATLAB® for Engineers", 3rd Ed., Holly Moore, Pearson Education, Inc., (2012).
5. "Engineering computation with MATLAB", 2nd Ed., David M. Smith, Pearson Education, Inc., (2010)

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