

About Moradabad

Moradabad is a city in Uttar Pradesh state of India. It was established in 1600 by Murad, the son of the Mughal Emperor Shahjahan; as a result the city came to known as Moradabad. It is the administrative headquarters of Moradabad District. Moradabad is situated at a distance of 167 km (104 miles) from the national capital, New Delhi, at the bank of River Ram Ganga (a tributary to the great Ganges). The city is famous for its huge export of brass handicrafts to North America and Europe, and is also thus called 'Brass City' or Peetal Nagri (in the local language). It has close to four million citizens of various ethnicities and religions. Moradabad is renowned for brass work and has carved a niche for itself in the handicraft industry throughout the world. The modern, attractive, and artistic brass ware, jewelry and trophies made by skilled artisans are the main crafts. The attractive brass ware are exported to countries like USA, Britain, Canada, Germany and Middle East Asia.

About Faculty of Engineering

Faculty of Engineering is AICTE approved institute of academic excellence in Engineering, Technology and Sciences. Its student centric approach focuses on hands-on training along with imparting sound theoretical knowledge to cater to the current needs of industries. The learning process is supported by unique skill enhancement programmes; value added courses and extensive practical lab work in line with the market trends. Our strong linkages with industries help the students to get professionally trained by getting exposed to latest industrial trends later to become competent engineers suitable for the industries. The faculty of engineering has nine academic departments with around hundred full time faculty members. It offers programmes at Bachelor, Post-Graduate and Doctoral level, covering major branches of engineering and sciences.

About the Electrical Engineering Department FOE

Electrical Engineering is established in 2009 to cater training and knowledge in the field of electrical technology to impart services to today's need. The well-equipped electrical labs provide an excellent

opportunity to the students for developing in depth skills in electrical engineering. These laboratories help students of engineering to assimilate adequate fundamentals of electrical engineering with regard to transmission, distribution and generation. Practical training is imparted to students in leading areas. Additionally, every student is guided to design the projects of electrical engineering having latest technology to make them experts in their field. In addition to regular academics, the students are also imparted knowledge about the modern technologies by means of technical visits. The Department offers 4-year B. Tech & Ph.D. with various electives leading to sub-specialization in Electrical.

Patron

Prof. (Dr) R. K. Dwivedi, Director, FoE

Convener

Dr. Garima Goswami, HOD EED

Course Coordinators

Dr. Diwaker Pathak EED

Dr Shubhendra Pratap Singh EED

Mr Umesh Singh, EED

Mr Shashank Mishra EED

Mr Mayur Agarwal EED

Mr Pradeep Kumar Verma EED

Important Dates

Last date of Registration: June 30, 2022

Notification about Selection: July 02, 2022

Registration form should be sent to:

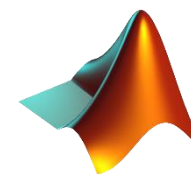
Department of Electrical Engineering
Faculty of Engineering,
Teerthanker Mahaveer University Moradabad

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M: 917073006426, 8527064683

Room No.: - 3141, FOE-TMU

Four Weeks Short Term Course On MODELLING & SIMULATION ON MATLAB



**(MSM-2022)
(July 04- August 02 2022)**



**Department of Electrical Engineering
Faculty of Engineering
Teerthanker Mahaveer University
Moradabad
www.tmu.ac.in**

Course Objectives

This short-term course “MATLAB Programming for Engineers” is very useful for engineers. MATLAB is a special purpose computer program optimized to perform engineering and scientific calculations. The MATLAB program implements the MATLAB language and provides an extensive library of predefined functions to make technical programming task easier and more efficient. This STC will provide MATLAB as a technical programming language showing engineers how to write clean, efficient and documented programs. This STC will also provide the engineers how to use MATLAB as computer language and how to locate any desired function with MATLAB's extensive online help facilities.

Duration

40 Hours

Prerequisites

Basic Knowledge of arithmetic and Matrix operation. Electrical Circuits.

Course Contents

Week-1

An Introduction to Course & All Resources, Introduction to MATLAB Software, Introduction to Mathematics in MATLAB, Working with Variables in MATLAB environment, Trigonometric Functions in MATLAB, Complex Numbers in MATLAB, Working with Vectors, Matrix in MATLAB, Introduction to Calculus and Engineering Functions and Graphs and Plotting in MATLAB.

Week-2

Loops, Conditions, and Intro to Programming in MATLAB, Import Data from Excel to MATLAB, Bonus Materials for the Course, Intermediate & Advanced Topics in MATLAB, Working with Files in MATLAB Environment, Matrices in MATLAB (Intermediate Topics), Scripts, Functions & M-Files in MATLAB, Advanced Plotting Techniques in MATLAB.

Week-3

Creating Functions and Workflows in MATLAB, Logical Statements & Operations in MATLAB,

Additional MATLAB Projects (intermediate - Advanced Levels), Next Steps and Additional Resources, Fundamentals of AC and DC voltages, resistive circuits, ohms law normally open and normally closed, series and parallel circuits,

Week-4

Introduction to Simulation, Single phase and three phase-controlled rectifiers. DC-DC Converters, Single phase inverters at different load conditions, Harmonics analysis in AC systems, Design and application of Solar PV in grid connected mode.

Who should attend

Faculty members / research scholars / PG students from academic institutes approved by the AICTE /UGC /MHRD and Scientists / Engineers working in private / Public/ Govt. organizations / industries etc. can attend the course.

Course Fee

TMU Students	2000 ₹
NON TMU Student	2500 ₹

Participants will be selected on first-come-first-served basis.

Certification

After completion of successful short-term course, participants will receive a certificate by Teerthanker Mahaveer University Moradabad.

Course Content

MATLAB Programming is one of the most important technical programming languages and skills today. In this course, we will start learning MATLAB from a beginner level and slowly ease our way into more advanced topics and programs. This course is a general MATLAB Programming training, and it means that regardless of your major and field of study; you can benefit from this course, so much so that Google's former svp/product management Jonathan Rosenberg recognized it as

the only skill you need on your resume to be able to work at Google.

MATLAB Programming is an easy and understandable programming language and is an excellent choice for those who want to learn to program for the first time. Engineering companies often use MATLAB to prototype and validate their ideas before committing to building it with other programs like Java, Python, C, and C++. Knowing MATLAB will give you a competitive advantage in your career. This course is being updated continuously and new materials are added to the library every week. Below is a short summary of what the course contents are but there are many more examples and downloadable materials also provided in these lectures.

The Summary of Course Content is :

Week-1

- L1: An Introduction to Course & All Resources
- L2: An Introduction to MATLAB Software
- L3: Introduction to Mathematics in MATLAB
- L4: Working with Variables in MATLAB environment
- L5: Trigonometric Functions in MATLAB
- L6: Complex Numbers in MATLAB
- L7: Working with Vectors in MATLAB
- L8: Working with Matrices in MATLAB
- L9: Introduction to Calculus and Engineering Functions in MATLAB
- L10: Graphs and Plotting in MATLAB

Week-2

- L11: Loops, Conditions, and Intro to Programming in MATLAB
- L12: Projects (Updates Weekly with new programming drills)
- L13: Import Data from Excel to MATLAB
- L14: Bonus Materials for the Course

L15: Intermediate & Advanced Topics in MATLAB
L16: Data Types and Data Structures in MATLAB
L17: Working with Files in MATLAB Environment
L18: Matrices in MATLAB (Intermediate Topics)
L19: Scripts, Functions & M-Files in MATLAB
L20: Advanced Plotting Techniques in MATLAB

Week-3

L21: Creating Functions and Workflows in MATLAB
L22: Logical Statements & Operations in MATLAB
L23: Additional MATLAB Projects (intermediate - Advanced Levels)
L24: Next Steps and Additional Resources, Certifications and Benefits
L25: fundamentals of AC and DC voltages
L26: resistive circuits, ohms law
L27: normally open and normally closed, series and parallel circuits
L28: supply transformers (star & delta), faults to earth
L29: Electrical components: Control panels
L30: isolating switches, circuit breakers, fuses, contactors

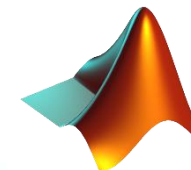
Week-4

L31: Single phase and three phase-controlled rectifiers.
L33: Three phase-controlled rectifiers.
L34: DC-DC Buck Converters
L35: DC-DC Boost Converters
L36: DC-DC Buck Boost Converters
L37: Single phase inverters at R & RL load conditions.
L38: Single phase inverters at RLC load conditions
L39: Harmonics analysis in AC systems,
L40: Design and application of Solar PV in grid connected mode.

[=buck%20boost%20converter&s_tid=srchtitle_buck%20boost%20converter_1](#)

2. Beginning MATLAB and Simulink by Sulaymon Eshkabilov
3. A Guide to MATLAB® by Brian R. Hunt, Ronald L. Lipsman, Jonathan M. Rosenberg
4. Physical Modeling in MATLAB by Allen Downey

REGISTRATION FORM Four Weeks Short Term Course On MODELLING & SIMULATION ON MATLAB



(MSM-2022)
(July 04- August 02 2022)

Name: _____

Date of Birth: _____

Designation: _____

Organization: _____

Address for correspondence: _____

Phone: _____

E-mail: _____

Qualifications: _____

Experience: _____ Years

(Signature of applicant)

References

1. <https://in.mathworks.com/help/physmod/sps/ref/buckboostconverter.html?searchHighlight>

Signature of Head of Department/School/Institute