



THAPAR INSTITUTE
OF ENGINEERING & TECHNOLOGY
(Deemed to be University)

Numerical and Machine Learning Techniques for Solving Real-World Differential Equations with MATLAB/Python

September 22-26, 2025

Organised by

Department of Mathematics, Thapar Institute of Engineering and Technology, Patiala, Punjab



About the Workshop

This workshop is designed to provide an in-depth exploration of advanced numerical techniques for solving ordinary differential equations (ODEs) and partial differential equations (PDEs), which frequently arise in a wide array of scientific and engineering disciplines such as wave propagation, acoustic and electromagnetic waves, fluid dynamics, and other physical phenomena governed by complex mathematical models.

This workshop aims to introduce participants to a variety of classical and modern numerical approaches for solving both linear and nonlinear ODEs and PDEs. A significant focus is placed on the discretization techniques that underpin these methods, such as: Finite Difference Methods (FDM), Finite Element Methods (FEM), Finite Volume method (FVM), Discontinuous Galerkin Methods (DGM). Recognizing the transformative impact of data-driven techniques in recent years, the workshop also introduces participants to Machine Learning, Deep Learning, and Physics-Informed Neural Networks (PINNs).

Topics

- Numerical Solutions to ODE and their Stability
- Machine Learning Models such as PINN, RNN etc.
- Finite Difference Method (FDM), Finite Element Method (FEM)
- Numerical Methods using MATLAB/Python

Keynote Speakers

- Prof. G. D. V Gowda, TIFR-CAM, Bangalore
- Prof. Jitendra Kumar, IIT Ropar
- Prof. S. K. Gupta, IIT Roorkee
- Prof. A. K. Gupta, IIT Ropar
- Prof. Manoj Thakur, IIT Mandi
- Prof. Arun Kumar, IIT Ropar
- Prof. Sanjeev Kumar, IIT Roorkee
- Prof. Rajesh Pandey, IIT-BHU
- Prof. Sumit Kumar, IIM Udaipur
- Prof. Devendra Kumar, BITS Pilani

Organising Committee

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Dr. Munish Kansal, Associate Professor, DOM, TIET

Dr. Mamta Gulati, Assistant Professor, DOM, TIET



Email: maths.workshop@thapar.edu

About TIET

The Thapar Institute of Engineering and Technology (TIET) is one of India's oldest and finest educational institutions, which provides a steady source of highly skilled talent to the nation as well as overseas. Founded in 1956 with a campus spread across sprawling 250 acres, Thapar Institute of Engineering & Technology, located in Patiala, has been a pioneer in engineering education, research and innovation. Rated amongst the top ranked innovation-driven private universities and technical institutes in the country, Thapar Institute of Engineering & Technology has been accredited with an 'A++' grade by the National Assessment and Accreditation Council (NAAC).

About Department of Mathematics

Department of Mathematics was established as an independent unit in 2015 and is a dedicated academic unit contributing to the mission and vision of TIET. Department offers a program at PG level, namely M.Sc. in Mathematics and Computing. Department offers Ph.D. program in various specializations of both pure and applied Mathematics. Department provides students with experiences that will assist them in achieving their career goal as leaders in Mathematics. The department has a total of 38 faculty members from various research backgrounds especially in applied, pure, and computational Mathematics. Several faculty members are working on sponsored research projects and guiding the Ph.D. students.

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Registration Details

Registration Fees:

(Inclusive of GST)

UG/PG Students: ₹ 2950/-

Ph.D. Scholars: ₹ 3540/-

Post-Docs/Faculties: ₹ 4720/-

To register, fill the following form:

[Registration Form](#)

For more details visit the [Website](#)

Bank Details:

A/c name: Thapar Institute of Engineering and Technology

A/c no. : 0267104000092579

IFSC: IBKL0000267 (IDBI Bank)

Address: Tripuri, Patiala, Punjab, 147001

OR Scan the QR



Registration Deadline: September 05, 2025

Note: Workshop is open to faculty/students from all institutes, colleges and universities of India. Industry personnel working in the concerned/allied disciplines may also apply.

Selected candidates will be informed through email. Based on the number of final registered candidates, waitlisted candidates may be informed for registration. Registration fees include workshop kit, meals and hostel accommodation (subject to availability).

