## About Electronics & ICT Academy at


## PDPM IIITDM Jabalpur

The Ministry of Electronics and Information Technology (MeitY), Government of India has instituted Electronics and ICT Academies in the year 2015. In the second phase, the academy at PDPM IIITDM Jabalpur aims at scalable training programmes in niche areas of Electronics and ICT for the development of the required knowledge base, skills and tools to unleash the talent of the Indian population. The Academy is identified by the MeitY as a hub of activities for capacity building through training, internships, research, and consultancy programmes in fundamental and advanced topics in electronics, information and communication technologies, the Academy conducts customized academic programmes for students, corporate sectors and researchers.

## About NIT Hamirpur

The Department of Mathematics and Scientific Computing, NIT Hamirpur is dedicated to advancing education and research in mathematics and computational sciences. The department serves as a hub for capacity building through teaching, training, research, and consultancy in fundamental and applied areas of mathematics and scientific computing. It offers customized academic programmes for students, researchers, and professionals, fostering skills in mathematical modeling, numerical analysis, and computational techniques.

## Faculty Development Programme

On

## Unified Approaches to Solving Differential Equations: From Classical Methods to Neural Networks (UniSDE-2025)

This course aims to share and enhance knowledge on unified approaches for solving differential equations. This FDP programme covers wide range of topics, including finite difference and compact schemes, mesh-free methods, and deep learning-based solvers for ordinary and partial differential equations. Through expert lectures and hands-on sessions, it aims to provide participants with both theoretical understanding and practical experience, enabling them to apply these techniques to complex realworld problems in science and engineering.

**Who can attend**: Suitable for faculty from colleges, universities, and technical and professional institutes can attend. Students, fresh graduates, researchers, and industry personnel working in allied disciplines can also attend.

### Important Dates

**FDP Dates:** December 08-19, 2025
**Last Date of Online Registration:** 06/12/2025

### Coordinators

**Dr. Lokendra Kumar Balyan, IIITDM Jabalpur**
**Dr. Subit Kumar Jain, NIT Hamirpur**
**Dr. Om Prakash Yadav, NIT Hamirpur**

### Contact us

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Phone No: 8770958231
(Mr Ashvarya Agrawal)

## Faculty Development Programme

On

## Unified Approaches to Solving Differential Equations: From Classical Methods to Neural Networks (UniSDE-2025)

***December 08-19, 2025 (online mode)***

**Jointly Organized by**

**NIT Hamirpur**

**and**

**Electronics and ICT Academy**
**PDPM IIITDM Jabalpur**

***An Initiative of the Ministry of Electronics and Information Technology, Government of India***

Digital India
Power To Empower

# Faculty Development Programme

**On**

## Unified Approaches to Solving Differential Equations: From Classical Methods to Neural Networks (UniSDE-2025)

***December 08-19, 2025 (online mode)***

## Resource Persons

- Dr. Hari Vansh Rai Mittal, IIT Ropar
- Dr. Prakash Choudhary, Central University of Rajasthan
- Prof. Rajendra K Ray, IIT Mandi
- Prof. Ritesh Kumar Dubey, SRMIST Chennai
- Prof. Anirban Dhar, IIT Kharagpur
- Dr. S M Sivalingam, University of Paris Saclay
- Dr. Bivas Bhaumik, NIT Rourkela
- Dr. Neha Yadav, NIT Jalandhar
- Dr. Sangeeta Yadav, University of Delhi

Other eminent professionals from reputed institutions

## Coordinators

**Dr. Lokendra Kumar Balyan, IIITDM Jabalpur**
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## Course Contents

- Numerical methods for ODEs and PDEs
- Compact finite difference methods
- Generalized finite difference methods
- Artificial neural networks
- Deep learning architectures (CNNs, RNNs, etc.)
- Physics-Informed Neural Networks (PINNs)
- Applications of PINNs to classical PDEs
- Reaction–diffusion systems and scientific applications

## Hands-On Sessions

- Implementation of numerical schemes for ODEs and PDEs
- Building and training artificial neural networks
- Hands-on with deep learning frameworks (TensorFlow/PyTorch)
- Implementing PINNs using different software and libraries.
- Case studies on heat, wave, Burgers', and reaction–diffusion equations
- Visualization and analysis of PDE solutions
- Comparative evaluation with traditional numerical solvers

## Programme Features

- Rigorous training on theoretical and practical aspects of numerical methods and PINNs.
- Opportunities to connect with experts in the field.
- Exposure to state-of-the-art deep learning frameworks and tools
- Instructor-led rigorous hands-on sessions.
- Certificate on successful completion with full access to the course material.

## Registration Details

- **Registration link** – Please fill out registration form using the following link: https://forms.gle/aBAUUaa9BzudDQgz5
- **Registration fee:** INR 500/ for online participation
- **Last Date for Registration**: 06/12/2025

## Online Payment Details

- **Internet banking**

| | |
|---|---|
| Beneficiary Name | PDPM IIITDM Jabalpur |
| Bank Name | Indian Bank |
| A/C No. | 50018692852 |
| IFSC Code | IDIB000M694 |

- **UPI ID:** **iiitdmj@indianbk**
- **QR Code:**