इलेक्ट्रॉनिकी एवं सूचना प्रौद्योगिकी मंत्रालय
MINISTRY OF ELECTRONICS AND INFORMATION TECHNOLOGY
सत्यमेव जयते

EICTA Consortium
A joint initiative of MeitY and IITs, NITs and IIITs

Faculty Development Programme (FDP) on

Signal & Image Processing with AI

06 -15 February 2027 | Live Streaming Mode

Jointly organized by the Electronics and ICT Academies
Established by the Ministry of Electronics and Information Technology, Govt. of India

ELECTRONICS & ICT ACADEMY-PHASE II OBJECTIVE:

1. To conduct specialized FDPs for faculty/mentor training in line with the vision of MeitY by promoting emerging areas of technology and other high-priority areas that are pillars of both the "Make in India" and the "Digital India" programs.
2. To promote synergy and collaboration with industry, academia, universities and other institutions of learning, especially in emerging technology areas.
3. To support the National Policy on Electronics 2019 (NPE 2019) which envisions positioning India as a global hub for ESDM sector, including MeitY Schemes/policies such as Programme for Semiconductors and Display Fab Ecosystem; India AI; National Programme on AI, Production Linked Incentive Scheme for IT Hardware & Large-Scale Electronics Manufacturing; EMC; SPECS; Chips to System (C2S); etc.
4. To promote standardization of FDPs through Joint Faculty Development Programmes.
5. To support the vision of the National Education Policy (NEP 2020), which mandates that Indian educators go through at least 50 hours in professional development programmes per year.
6. To design, develop & deliver specialized FDPs on emerging technologies/ niche areas / specialized modules for specific research areas for Faculty in Higher Education Institutions (HEI), besides FDPs on multi-disciplinary areas connected with ICT tools and technologies and other digital hybrid domains, covering a wide spectrum of Engineering. and non-engineering colleges, polytechnics, ITIs, and PGT educators.

PROGRAMME OJECTIVE

The objective of this two-week Faculty Development Programme (FDP) is to provide participants with comprehensive knowledge of digital signal and image processing and their integration with Artificial Intelligence. The programme focuses on an Introduction to topics like machine learning, deep learning, Generative AI, and Explainable AI for intelligent signal and image analysis. Through theoretical discussions, hands-on practical sessions, and real-world case studies, the FDP seeks to enhance participants' technical expertise, computational skills, and research capabilities in signal and image processing and its applications.

The participants will gain insights into the fundamentals and advanced techniques of signal and image processing, wavelet theory, and multi-resolution analysis. They will develop practical skills in MATLAB and Python for data preprocessing, visualization, denoising, compression, segmentation, reconstruction, and feature extraction. The programme will also introduce machine learning, deep learning, classification, regression, and AI-based computer vision applications. Participants will explore real-world applications in advanced signal and image processing. Through hands-on sessions and case studies, they will enhance their technical, computational, problem-solving, and research capabilities.

PROGRAMME MODULES

- Fundamentals of Signal and Image Processing.
- Fundamentals of Wavelet Theory and Multi-Resolution Analysis.
- Design and Implementation of Advanced Signal Processing Techniques.
- Advanced Wavelet Transforms and Their Applications.
- Introduction to data pre-processing and data visualization using python/MATLAB.
- Machine Learning Basics, working with data pre-processing and data visualization.
- Supervised and unsupervised learning methods and techniques.
- Machine Learning Algorithms for Classification and Regression.
- Machine Learning for Feature Extraction & Classification.
- Fundamentals of Deep Learning and Artificial Neural Networks.
- Advanced Deep Learning Models and Their Applications in Computer Vision.
- Signal & Image Processing: Compression, Denoising, Segmentation, and Reconstruction.
- Signal processing applications, ECG/VCG Signal processing, analysis of ECG, and VCG.

HANDS-ON SESSIONS

Participants will receive extensive practical training through guided laboratory exercises using MATLAB Wavelet Toolbox and Python:

- Multilevel wavelet decomposition and analysis.
- Design and implementation of digital filters.
- Wavelet-based signal and image denoising.
- Advance signal processing and analysis.
- Machine learning algorithms for classification and feature extraction.
- Image processing, and enhancement.
- AI-based image classification, segmentation, and computer vision applications.

IMPORTANT DETAILS

Last Date of Registration: 03 Feb 2027
FDP Dates: 06 Feb- 15 Feb 2027
Mode: Online
Registration Link: https://forms.gle/nafr8YwWmc1cMv2WA

WHO CAN ATTEND?

Faculty members • Research scholars • Students • Industry professionals

Registration Fee:
Academic (Faculty/PhD Scholars): ₹ 885 /-
Professionals / Industry / Others: ₹ 1770/-
Participants from the rest of the world: US $ 70.8/-

PROGRAMME COORDINATOR

Dr. Anil Kumar, Principal Coordinator, PDPM IIITDM Jabalpur
Dr. B V Phani, Joint Principal Coordinator, IIT Kanpur
Dr. Hemant Kumar Meena, Joint Principal Coordinator, MNIT Jaipur

PROGRAMME FEATURES

- Expert lectures by academicians and industry professionals.
- Hands-on training using MATLAB and Python.
- Practical demonstrations of advanced signal and image processing techniques.
- Interactive sessions on machine learning, deep learning, and AI applications.
- Case studies on biomedical signal processing, including ECG and VCG analysis.
- AI-based computer vision and real-world application demonstrations.
- Interactive discussions on emerging research trends and interdisciplinary applications.
- Opportunities for research collaboration, knowledge sharing, and academic networking.

RESOURCE PERSONS

Speakers from IITs, NITs, and IIITs, together with practical perspectives from industrial leaders

1. Prof. Sumantra Dutta Roy, IIT Delhi.
2. Prof. Ram Bilas Pachori, IIT Indore.
3. Prof. Aparajita Ojha, PDPM IIITDM Jabalpur.
4. Prof. Narendra Londhe, NIT Raipur
5. Prof. Rajesh Kumar Pandey, IIT (BHU) Varanasi.
6. Dr. Anil Kumar, PDPM IIITDM Jabalpur.
7. Dr. Varun Bajaj, MANIT Bhopal.
8. Dr. Mitul Kumar Ahirwal, MANIT Bhopal.
9. Dr. Ashish Bhandari, NIT Patna.
10. Dr. Nikhil Agrawal, IIIT Nagpur.
11. Dr. Shyam Lal, NIT Surathkal
12. Dr Hemant Kumar Meena, MNIT Jaipur

REGISTER NOW

Registration: https://forms.gle/9Nz9ZfvUtMawoC4k8

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Beneficiary Name -PDPM IIITDM Jabalpur
Bank Name - INDIAN BANK
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IFSC Code - IDIB000M694
(Registration Fee is non-refundable)

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