ONLINE MODE FACULTY DEVELOPMENT PROGRAMME (FDP) ON

Computational Image Analysis using Machine Learning and Vision-Based Models for Next-Generation Signal and Imaging Systems

(05th October – 15th October 2026)

Organised by

Electronics & ICT Academy, NIT Warangal

In association with

Department of ECE, Ballari Institute of Technology and Management, Ballari

(Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

Preamble:

"Electronics & ICT Academy – Phase II" was set up at NIT Warangal with financial assistance from MeitY, GoI. This academy's role is to offer Faculty Development Programmes in standardized courses and emerging areas of Electronics, Information Communication Technologies, training & consultancy services for Industry, Curriculum development for Industry, CEP for working professionals, Advice and support for technical incubation and entrepreneurial activities.

About the FDP:

This Faculty Development Programme (FDP) is designed to provide participants with comprehensive knowledge of computational image analysis using modern machine learning and vision-based techniques for next-generation signal and imaging systems. The programme covers image acquisition, pre-processing, feature extraction, deep learning, computer vision, object detection, image segmentation, and transformer-based architectures for intelligent image analysis. Participants will gain practical exposure to advanced AI models and their applications in medical imaging, industrial inspection, remote sensing, autonomous systems, and healthcare. The FDP aims to bridge the gap between theoretical concepts and real-world implementation, enabling researchers and faculty to develop innovative AI-driven imaging solutions for emerging engineering and scientific applications.

Major Course Contents:

- Fundamentals of Digital Image Processing and Computational Image Analysis
- Image Enhancement, Restoration, Denoising, and Feature Extraction
- Machine Learning for Image Classification and Pattern Recognition
- Deep Learning Models for Computer Vision – CNNs, ResNet, DenseNet, and EfficientNet
- Transfer Learning and Fine-Tuning of Pre-trained Vision Models
- Vision Transformers (ViT), Swin Transformer, and Hybrid Vision Architectures
- Image Segmentation and Object Detection using U-Net, YOLOv8, and Mask R-CNN
- Medical Image Analysis and AI-based Diagnostic Systems
- Multimodal Signal and Image Fusion for Intelligent Applications
- Explainable AI (XAI), Foundation Models, and Generative AI in Imaging
- Self-Supervised, Few-Shot, and Multimodal Learning for Computer Vision
- Edge AI and Real-Time Vision Systems using NVIDIA Jetson and Embedded Platforms
- Model Optimization and Deployment using ONNX, TensorRT, CUDA, and Lightweight AI
- Hands-on Implementation using Python, OpenCV, TensorFlow, PyTorch, and Ultralytics YOLO
- AI-based Computer Vision Applications in Smart Agriculture, Healthcare, and Remote Sensing
- Real-Time Video Analytics, Object Tracking, and Intelligent Vision-Based Decision Systems

Faculty conducting this programme:

The programme will be conducted by the faculty members from NIT Warangal; Academicians in the concerned field from IITs/NITs/IIITs are invited to deliver lectures in the programme. Speakers from industries are also expected to deliver as part of the course.

Registration Fee Particulars:

Faculty and Research Scholars	**Rs.1000/-**
Industry Participants	**Rs.2250/-**

Participants need to pay the Registration Fee Online using the following details: -

Online Transfer Details
Account Name: **Electronics & ICT Academy NITW**
Account No: **62423775910**
IFSC: **SBIN0020149**
Bank and Branch: **State Bank of India, NIT (REC) Warangal**

How to apply:

Participants are required to fill the online registration form by clicking on the following link:

https://forms.gle/oAQV7ugLJJTpnJpQ7

Selection Criteria:

Selection will be done based on first-come-first-serve basis to a maximum number of 50 (fifty). Additionally, 10 participants from industry are allowed to participate. The list of selected participants will be intimated through e-mail. In case a candidate is not selected, the DD will be sent back. Candidates will be issued satisfactory certificates on successful completion of the course. Reservations are followed for selecting candidates as per GOI norms.

Important Dates:

Last date (Application & DD)	**03.10.2026**
Selection List by E- mail	**04.10.2026**
Duration	**05.10.2026 to 15.10.2026**
Timings	**10 AM to 12 Noon and 2 PM to 4 or 6 PM**

About NIT Warangal:

National Institute of Technology, Warangal is the first among 17 RECs setup as joint venture of the Government of India and the state government. Over the years, the college has established itself as a premier Institute imparting technical education of a very high standard leading to the B.Tech degrees in various branches of engineering, M.Tech. and Ph.D. programmes in various specializations. All B. Tech and M. Tech programmes of NIT Warangal are NBA accredited.

About BITM Ballari:

Ballari Institute of Technology and Management established in the year 1997 with an aim of imparting quality technical education to the students of this region. The institute's USP is its excellent student-teacher rapport and a student centric learning to give shape to the student's overall outlook. The campus, spread over 11 acres of greenery, with eco-friendly surroundings, has facilities that are class apart, combining aesthetics with modernity. Department of Electronics and Communication Engineering established in the year 1997, has well-qualified, committed faculty members and has steadily grown from its humble beginning to a full-fledged department. It has well-equipped laboratories, VTU recognized Research centre, and infrastructure. The department facilitates faculty to work as a team update their knowledge and develop skills to match the industrial and technological requirements.

Coordinators:

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