



# ONLINE FACULTY DEVELOPMENT PROGRAMME (FDP) ON AI/ML Techniques for Medical Image and Signal Analysis: A Research Approach

(18<sup>th</sup> June – 28<sup>th</sup> June 2025)

Organised by

**Electronics & ICT Academy, NIT Warangal**

In association with

**School of Electronics Sciences, Odisha University of Technology and Research  
Bhubaneswar, Odisha-751003**

**(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 Program (FDP) on Artificial Intelligence (AI) for, Medical Imaging and signal processing Applications will help educators and researchers learn about AI basics and how it applies to Medical Imaging and signal processing technologies with multiple security Applications. Participants will explore machine learning and deep learning concepts, focusing on using AI for medical imaging and signal processing techniques which aids in diagnostics, health care, agriculture, retail and surveillance systems. AI plays a pivotal role in image/signal processing by enabling accurate and efficient authentication methods based on facial recognition, iris recognition, fingerprint analysis, and voice recognition. Through hands-on activities and real-world examples, attendees will gain practical skills to use AI effectively with different algorithms in teaching and research. By the end of the program, participants will be ready to integrate AI tools into their work, improving their ability to teach and solve security challenges with modern technology. This will benefit participants by enhancing their expertise and teaching capabilities in these critical areas.

## Major Course Contents:

- Introduction to Image processing, computer vision, biomedical signal processing, classification of biomedical signals, signal processing techniques and medical image analysis applications.
- Machine Learning Basics, Working with data pre-processing and data visualization. Supervised and unsupervised learning methods, neural networks and applications.
- Introduction to Deep learning methods, and DL based other Architectures and its applications.
- CNN Architectures for biomedical signal processing, computer vision, speech processing and medical imaging implementation.
- AI for health care, Brain computer interface, medical diagnostic, biometrics, emotion recognition, activity recognition.
- AI/ML for Biomedical imaging, CT Scan/MRI based image analysis, Fundus and medical images classifications.
- AI/ML for signal processing applications, EEG/ECG Signal processing, analysis of ECG, EEG and PPG signals, anomaly detection.
- AI/ML for Medical signal/Image data classification, various Medical Image analysis and Applications.
- Basics of Tensor Flow/Keras/PyTorch/Jupyter and Colab.
- Working with data pre-processing and data visualization using Python/MATLAB.
- Case studies, Hands-on session using Python/MATLAB.

## Faculty conducting this programme:

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

## Registration Fee Particulars:

|                                      |                  |
|--------------------------------------|------------------|
| <b>Faculty and Research Scholars</b> | <b>Rs.500/-</b>  |
| <b>Industry Participants</b>         | <b>Rs.2250/-</b> |

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

| Online Transfer Details |                                                |
|-------------------------|------------------------------------------------|
| Account Name:           | <b>Electronics &amp; ICT Academy NITW</b>      |
| Account No:             | <b>62423775910</b>                             |
| IFSC:                   | <b>SBIN0020149</b>                             |
| Bank and Branch:        | <b>State Bank of India, NIT (REC) Warangal</b> |

## How to apply:

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

<https://forms.gle/RFeYx4b9QWTwYRBh6>

## Selection Criteria:

Selection will be done based on first-come-first-serve basis to a maximum number of 60 (sixty). Additionally, 10 participants from industry are allowed to participate. The list of selected participants will be intimated through e-mail. Candidates will be issued satisfactory certificates on successful completion of the course. Reservations are followed for selecting candidates as per GOI norms.

## Important Dates:

|                                         |                                            |
|-----------------------------------------|--------------------------------------------|
| <b>Last date (Application &amp; DD)</b> | <b>16.06.2025</b>                          |
| <b>Selection List by E- mail</b>        | <b>17.06.2025</b>                          |
| <b>Duration</b>                         | <b>18.06.2025 to 26.06.2025</b>            |
| <b>Timings</b>                          | <b>10 AM to 12 Noon and 2 PM to 4/6 PM</b> |

## 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 OTR Bhubaneswar:

Odisha University of Technology and Research (OUTR), formerly known as the College of Engineering and Technology (CET), Bhubaneswar, is a premier public technical university located in the capital city of Odisha. Established in 1981 as a constituent college of the Odisha University of Agriculture and Technology (OUAT), it was elevated to a unitary university in 2021 under the Odisha University of Technology and Research Act, 2021. The university is accredited by the National Board of Accreditation (NBA) and the National Assessment and Accreditation Council (NAAC), and it admits students through national and state-level entrance examinations such as JEE (Main), GATE, and OJEE. OTR offers a wide spectrum of academic programs, including undergraduate (B. Tech in 14 disciplines), postgraduate (M. Tech in 14 disciplines, M.Sc., and MBA), and doctoral (Ph.D.) degrees across engineering, science, and management fields. Located on a 100-acre green campus at Kalinga Nagar, OTR provides a technologically enriched environment with 24x7 Wi-Fi, state-of-the-art laboratories, and modern infrastructure.

## Coordinators

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| <b>Dr. Md. Farukh Hashmi,</b><br>Assistant Professor Grade-I<br>Department of ECE<br>National Institute of Technology<br>Warangal – 506 004 (T.S.)<br><b>Email:</b> <a href="mailto:mdfarukh@nitw.ac.in">mdfarukh@nitw.ac.in</a><br><b>Mobile No.:</b> 6303817285 | <b>Prof. Sushanta Kumar Sahu</b><br>Assistant Professor (Grade II)<br>School of Electronics Sciences,<br>Odisha University of Technology and<br>Research Bhubaneswar,<br>Odisha-751003<br><b>Email:</b> <a href="mailto:sksahu@outr.ac.in">sksahu@outr.ac.in</a><br><b>Mobile No.:</b> 8249274300 |
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