Online Faculty Development Programme (FDP)
On
Federated Machine Learning for Computer vision and NLP
(16th July to 29th July 2025)
Organized by
E & ICT Academy, NIT Warangal
in association with
Department of Computer Engineering, NIT Kurukshetra
Sponsored by
(Ministry of Electronics and Information Technology (MeitY), GoI)

Preamble:

"**Electronics & ICT Academy**" was set up at NIT Warangal with financial assistance from MeitY, GoI. The jurisdiction of this academy is Telangana, Andhra Pradesh, Karnataka, Goa, Puducherry and Andaman & Nicobar Islands. This academy role is to offer faculty development programmes (FDPs) in standardized courses and emerging areas of electronics, information communication technologies, training and consultancy services for Industry, curriculum development for Industry, CEP for working professionals, advice and support for technical incubation and entrepreneurial activities.

This Online FDP is devoted to address the need to enhance the knowledge about the latest developments pertaining to development of **federated decentralized machine learning technique that involves multiple people sharing data to train a single AI model**. The FDP is being conducted at the **Department of Computer Engineering, NIT Kurukshetra**.

Major Course Contents:: Introduction to Federated Learning

Introduction to Distributed & Federated Learning: Centralized vs. Decentralized ML, FL Architectures (Cross-Device vs. Cross-Silo), Key Challenges: Communication, Privacy, and Security, Overview of Federated Learning in CV & NLP , Federated Learning for Edge AI & Mobile AI, Applications in Computer Vision & NLP

Federated Learning System Design: FL Communication Protocols & Optimization, Secure Aggregation & Model Compression, Data Heterogeneity in Federated Learning, IID vs. Non-IID Data, Strategies to Handle Data Imbalance.

Federated Learning for Computer Vision: FL for Image Classification & Object Detection, Case Studies in Medical Imaging, Smart Surveillance, Challenges in FL for CV: Model Drift, Data Privacy, and Real-Time Processing

Federated Learning for Natural Language Processing: FL for NLP: Personalized Language Models, Applications: Smart Keyboards, Chatbots, Healthcare, Privacy Challenges in Federated NLP: Differential Privacy, Homomorphic Encryption, Secure Aggregation

Faculty conducting this programme:

The FDP will be conducted by the faculty members from NIT Kurukshetra; Academicians in the concerned field from IITs/NITs/IIITs/Abroad are invited to deliver lectures and hands on session. Experts from industries are also expected to deliver as part of the course.

Eligibility:

The program is open to the faculty of engineering colleges, MCA colleges and other allied disciplines in India. Industry personnel working in the concerned/allied discipline can also attend.

Registration Fee Particulars:

Research Scholars/Faculty	Rs. 500/-
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: <Registration Link >

Selection Criteria:

Selection will be done based on first-come-first-serve basis to a maximum number of 50 (hundred). The list of selected participants will be intimated through e-mail. In case a candidate is not selected, the DD/online payment 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 (Tentative):

Last date of application	15.07.2025 (5:00 PM)
Selection List by E- mail	15.07.2025 (8:00 PM)
Duration	July 16- July 29, 2025

About NIT Kurukshetra:

National Institute of Technology, Kurukshetra, one of the 31 NITs in the country, is a premier center of learning and research in various disciplines of Engineering and Management. It trains & develops high caliber professionals to serve not only the country but also the world at large. Established in 1963 as an REC, the college was elevated to a National Institute with Deemed University status in June 2002. The Institute has B.Tech, M.Tech, MBA and MCA Courses in various disciplines. Institute also offers excellent facilities for advanced research in the emerging areas of Science and Technology leading to Ph.D. degree.

Coordinator(s):

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