



FACULTY DEVELOPMENT PROGRAMME (FDP) ON MACHINE LEARNING AND DEEP LEARNING WITH PYTHON (21st–30th June 2021)

Organized by

E & ICT Academy, NIT Warangal

(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 FDP is devoted to address the need to enhance the knowledge about the latest development pertaining to **data science applications** is being conducted at **National Institute of Technology, Warangal**. The whole course is handled by academicians and industry experts.

Major Course Contents:

- Introduction to machine learning and deep learning
- Python Essentials
Installation, Python Editors & IDE's (Anaconda, Spyder, Jupyter), Primitive Data types, lists, tuples, dictionaries, strings, Data manipulation tools (Operators, Functions, Packages, Loops, arrays, etc.), Importing Data from various sources (CSV, txt, etc.) , Exporting Data to various formats.
- Regression
Univariate linear regression, Multivariate linear regression, Polynomial Regression, Applications.
- Classification
Logistic regression, SVM, Multi-class SVM, Decision trees, K-NN, Applications.
- Ensemble Approaches
Bagging, Random Forests, Boosting: Adaboost, Gradient boosting, Applications.
- Optimization: Gradient descent, Stochastic gradient descent, Batch gradient descent.
- Introduction to Deep Learning, Neural Networks Basics.
- Feed forward neural networks.
- Convolutional Neural Networks (CNNs): Foundational Concepts, Models, Case Studies, and Applications.
- Recurrent Neural Networks (RNNs): Foundational Concepts, Models, Case Studies, and Applications.
- Encoder-decoder architectures: Foundational Concepts, Models, Case Studies, and Applications.
- Auto encoder: Foundational Concepts, Models, Case Studies, and Applications.
- Generative Adversarial networks: Foundational Concepts, Models, Case Studies, and Applications.
- Deep Reinforcement learning: Foundational Concepts, Models, Case Studies, and Applications.
- Improving Deep Neural Networks: Hyper-parameter tuning, Regularization and Optimization.
- Hands-on to the majority of the topics using Python, Take-home project.

Faculty conducting this programme:

The programme will be conducted by the faculty members from

NIT Warangal; Academicians in the concerned field from IITs/NITs/IITs/Abroad are invited to deliver lectures in the programme. Speakers 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:

Faculty and Research Scholars	Rs.750/-
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

How to apply:

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

<https://forms.gle/h4XQ6M9X4Jpj2HuP7>

Selection Criteria:

Selection will be done based on first-come-first-serve basis to a maximum number of 100 (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:

Last date to apply	19/06/2021 (11:59 PM)
Selection List by E- mail	20/06/2021 (11:59 PM)
Duration	21/06/2021 to 30/06/2021

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. programs in various specializations. All B. Tech and M. Tech programmes of NIT Warangal are NBA accredited.

The Department of **Computer Science and Engineering (CSE)** offers B.Tech course in CSE, M.Tech courses in CSE, Computer Science and Information Security (CSIS) and Master of Computer Applications (MCA). The Department has experienced faculty with good publications and well-established laboratories. The Department has liaison with reputed industries and R&D organizations and tie up with IISc in certain areas. Department conducts various sponsored programmes throughout the year.