



ONLINE FACULTY DEVELOPMENT PROGRAMME (FDP)

ON Deep Learning and Machine Learning In Biomedical Signal Processing

(23rd August 2021 – 3rd September 2021)

Organized by E & ICT Academy, National Institute of Technology, Warangal.

In association with Department of Electronics and Communication Engineering, G. Narayanamma Institute of Technology and Science (for Women) (AUTONOMOUS) Shaikpet, Hyderabad and G. Pulla Reddy Engineering College (AUTONOMOUS), Kurnool (Sponsored by Ministry of Electronics and Information Technology (MeitY), GOI)

Dr. B Venkateshulu, PGT & HOD, ECE Dept.

B.Tech, M.Tech, Ph.D., MCSI, MITE, MISTE,

G. Narayanamma Institute of Technology and Science Shaikpet, Hyderabad, Telangana State - 500008

Preamble:

"Electronics & ICT Academy" was set up at NIT Warangal with financial assistance from MeitY, Govt. The jurisdiction of this academy is Telangana, Andhra Pradesh, Karnataka, Goa, Puducherry and Andaman & Nicobar Islands. This academy aims 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 Workshop:

Healthcare occupies an indispensable part in human lives. The healthcare industry contains large amount of psychiatric data hence machine learning models were used to provide conclusion effectively in the disease prediction. Clinical data from electronic medical records, registries or trials provide a large source of information to apply machine learning methods in order to foster precision medicine. Even though there is a growing interest in the application of machine learning (ML) techniques to address clinical problems, the use of deep-learning in healthcare have just gained attention recently.

Major Course Contents:

- The prediction of spread of COVID-19 using Regression Models
Breast cancer analysis using logic regression
Data Clustering Algorithms: k-means and K nearest Neighbor Algorithms
SVM Algorithms in predicting the outbreak of cardiovascular diseases in patients on dialysis
Blood Diseases Detection using Classical Machine Learning Algorithms
Introduction to Deep Learning, Deep Neural Networks
Foundations of Convolutional Neural Networks Object Detection
Recurrent Neural Networks
Deep neural network medical image segmentation
Linear Algorithms and Optimizations
Deep Convolutional Models

Faculty conducting this programme:

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

Eligibility:

The programme is open to faculty of Engineering Colleges, MCA Colleges and other allied disciplines in India. Industry personnel working in the concerned field can also attend.

Registration Fee Particulars:

- Faculty & Research scholars: Rs. 750/-
Industry Participants: Rs. 2250/-

The fee shall be paid by online transfer using the following details: Please write "DLMLBM" in remarks or purpose while doing online payment transaction

Bank details for Online Transfer:

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

PRINCIPAL, G. Narayanamma Institute of Technology & Science (for Women) (AUTONOMOUS), Shaikpet, Hyderabad - 500 008

How to apply:

A filled in form of application in the prescribed format (refer to page 2 of this brochure for format and the printout of the same can be used to fill), duly signed and sponsored by appropriate authorities should reach the coordinator by email since the confirmation of selection will be intimated only through mail.

Coordinator Mail ID: DLMLGNITS2021@GMAIL.COM

Selection Criteria:

Selection will be done based on first-come-first-serve basis to a maximum number of 100. 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 registration fee amount will be refunded. Short listed Candidates will be issued certificates on successful completion of the course. Reservations are followed for selecting candidates as per GOI norms.

Important dates:

Table with 2 columns: Event, Date. Last date (Registration and fee payment): 20th August, 2021. Selection List by E-mail: 21st August, 2021. Duration: 23rd August - 3rd September, 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.

About GNITS:

G. Narayanamma Institute of Technology & Science, a leading Engineering college in Hyderabad for Women, was founded by late Sri. G. Pulla Reddy garu in 1997, with an objective of providing excellent learning facilities for Women to pursue education in Engineering since two decades. The aim is to promote Technical Education among Women to enhance and build up a new generation of thinkers, innovators and planners in the realms of Science and Technology. GNITS received UGC autonomous status for 10 years from 2018 and is affiliated to JNTUH. It is approved by AICTE, accredited by NAAC & NBA (AICTE) and ISO 9001:2015 certified institution.

About ECE department of GNITS:

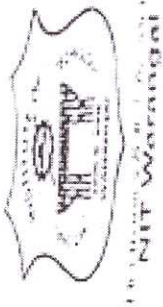
The department of ECE was started in the year 1997 with an intake of 50 students. The intake was increased to 180 students. The department also offers PG course in DECE with an intake of 18. The department has applied for 5 patents, published 4 books, R&D equipment costing 3.57 crores and received 43 lakhs funding from AICTE for carrying out the projects to its credit. It has 8 doctorates in diversified fields of electronics & 17 faculty Pursuing Ph.D from IITs/NITs with alumnae in IITs/Top class MNCs/Public sectors/Abroad universities.

About GPREC:

G. Pulla Reddy Engineering College is the branch of Late Sri G. Pulla Reddy garu, the renowned philanthropist, and a great humanist, established in 1984-85. It is one of the earliest private engineering colleges in Andhra Pradesh. The trust was instituted by late Sri G. Pulla Reddy Garu in the year 1977 with the motto of rendering service to the society. The College has been approved by AICTE and affiliated to JNTUA, Anantapuram and accredited with Autonomous Status by the UGC, New Delhi. Accredited by NAAC (Grade A+) of UGC & NBA of AICTE and Ranked 190 by NIRF-2020. Recognized as Mentor Institution by AICTE under Margdarshan Scheme.

About the ECE Department of GPREC:

The ECE Dept. was established in the Academic year 1984-85 with an intake of 40 and currently with 198 regular and 16 lateral entry students. The Department also offers PG Programme in VLSI and Embedded Systems with an intake of 18. The department has applied for 5 patents and received 43 lakhs funding from AICTE for carrying out the projects to its credit. It has 8 doctorates in diversified fields of electronics & 17 faculty Pursuing Ph.D from IITs/NITs with alumnae in IITs/Top class MNCs/Public sectors/Abroad universities.



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Warangal - 506 007 Andhra Pradesh, India

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(23rd August 2021 – 3rd September 2021)

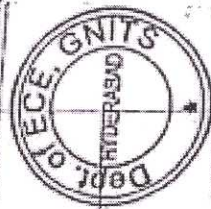
Organized by
E & ICT Academy, National Institute of Technology, Warangal,
in association with
Department of Electronics and Communication Engineering
G. Narayanamma Institute of Technology and Science (for Women)
(AUTONOMOUS) Shaikpet, Hyderabad

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

Schedule with Resource Persons

Day	10.15-11AM	Session 1 11-1 PM	Lunch Break	Session 2 2-4 PM
23-08-2021 day1	Inauguration	Introduction to Machine Learning and Bio- Medical Signal Processing Dr. J Ravi Kumar, NITW		FECG Extraction using LMS and RLS Dr. J Ravi Kumar, NITW
24-08-2021 Day2	Introduction to Linear Regression using Least Square and Gradient Descent methods Dr. J Ravi Kumar, NITW			Introduction to Python Programming NIT Warangal Mr.M Vijay Kumar NIT Warangal
25-08-2021 Day3	Introduction to Python Programming Mr.A.B.Ahadit NIT Warangal			Predicting COVID-19 cases using Simple regression Mr.A.B.Ahadit NIT Warangal
26-08-2021 Day4	Pre Processing of EEG data Dr.V.Santhosh Kumar, Assoc.Prof,ECE,BVBIT Hyderabad for women	PRINCIPAL G. Narayanamma Institute of Technology & Science (for women) (AUTONOMOUS) Shaikpet, Hyderabad - 500 104		Predicting COVID-19 cases using Multiple and Polynomial regression Dr. B. Venkateshulab Mr. M. Vijaya Kumar FND, ACSU, METE, MSTE, NIT Warangal Institute of Technology and Science, Shaikpet, Warangal, Telangana-506008

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27-08-2021	Logistic Regression and Breast cancer Detection Dr. J Ravi Kumar NIT Warangal	Hands on Session on Logistic Regression and Breast Cancer Detection Mr.M Vijay Kumar ,Mr.A.B.Ahadit,NITW
28-08-2021	Introduction to Neural Networks and Back Propagation Dr. J Ravi Kumar NIT Warangal	Application of Artificial Neural Networks in Cardiovascular disease Prediction Mr.A.B.Ahadit NIT Warangal
31-08-2021	Introduction to Convolutional Neural Networks Dr. J Ravi Kumar, NITW	Implementation of CNN using Keras and Tensor flow Mr.A.B.Ahadit NIT Warangal
01-09-2021	Recurrent Neural Networks and applications Dr. Kadambari, CSE, NITW	Applications of Recurrent Neural Networks Dr. Kadambari, CSE, NITW
02-09-2021	From 2-5 PM Deep Generative Models Dr. Swagatam Das, ISI Kolkata	
03-09-2021	Introduction to Kmeans clustering Algorithms by Dr.J.Ravi Kumar,Assoc.Prof, ECE ,NITW	From 2 to 3PM Introduction to K means clustering Algorithms -Handson session by Mr.M.VijayKumar,NITW
		From 3 to 3.30PM Tests conduction, Feedback from Participants
		Valedictory From 3.30 to 4PM

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ELECTRONICS & ICT ACADEMY
NATIONAL INSTITUTE OF TECHNOLOGY WARANGAL, (T.S.), INDIA
 and

G.Narayanamma Institute of Technology and Science (for Women)(Autonomous),Hyderabad,T.S.,
 G. Pulla Reddy Engineering College(Autonomous), Kurnool,A.P.

Participation Certificate

JNTUH FDP ID
 FDP20212607154208

This is to certify that **B. TULASI-SOWJANYA**, Assistant Professor
 from **G NARAYANAMMA INSTITUTE OF TECHNOLOGY &SCIENCE(for Women) (AUTONOMOUS)**, Shaikpet,Hyderabad has
 participated in a 40-hour Online Faculty Development Programme on "Deep Learning and Machine
 Learning in Biomedical Signal Processing" Sponsored by Ministry of Electronics and Information
 Technology (MeitY) GoI, organised by E&ICT Academy, NIT Warangal and Department of Electronics and Communication
 Engineering, G.Narayanamma Institute of Technology and Science (for Women) (Autonomous), Hyderabad, T.S.,
 G. Pulla Reddy Engineering College (Autonomous)Kurnool, A.P. during 23rd August - 3rd September, 2021.

She / He has successfully completed all the requirements for the completion of the programme.

CAS
 Mrs. Sarada Aavula
 Coordinator
 GNITS, Hyderabad

Amjad
 Dr.G.Amjad Khan
 Coordinator
 GPREC, Kurnool

Santhosh
 Dr. Ravi Kumar Jatoth
 Coordinator
 NIT, Warangal

K.Ramesh
 Dr.K.Ramesh Reddy
 Principal
 GNITS, Hyderabad

Sreenivasa
 Dr.B.Sreenivasa Reddy
 Principal
 GPREC, Kurnool

R.B.V. Subramanyam
 Prof. R.B.V. Subramanyam
 Chief Investigator
 E&ICT Academy, NIT Warangal

N.V. Ramana Rao
 Prof. N.V. Ramana Rao
 Director
 NIT, Warangal

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(AUTONOMOUS)

Shaikpet, Hyderabad – 500104

Department: Electronics and Communication Engineering

2021-22

REPORT

FDP on “Deep learning and Machine learning in Biomedical signal processing”

Date of program: 23-08-2021-3-9-2021

Resource person: Dr.Ravi Kumar, Santosh Kumar

About the Program:

The FDP was inaugurated on 23rd Aug 2021 followed by first session by Dr.Ravi Kumar, Assoc.Prof, ECE Dept, NITW.

On the second day of the FDP, FN session was by Dr.Ravi Kumar, Assoc.Prof, ECE Dept, NITW on Introduction to linear regression followed by a hands on session in the afternoon.

Third day was a complete hands on session on regression models.

Fourth day of the FDP FN session was Preprocessing of EEG data by Santosh Kumar, Assoc.Prof, BVRIT.

Fifth was a session by Dr.RaviKumar on logistic regression followed by hands on session.

6th day was a session on Introduction to neural networks by Dr.Ravi Kumar followed by application of neural network in cardiac disease detection by B.Ahadit

7th and 8th days had sessions on recurrent neural networks followed by valedictory.

The overall experience of attending the workshop is quite helpful in a better understanding on Neural network, concept on machine learning and how to can be applied to Biomedical signal Processing.

Signature of the Faculty member

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