



# NATIONAL INSTITUTE OF TECHNOLOGY-WARANGAL

## FACULTY DEVELOPMENT PROGRAMME (FDP)

On

### Applications of Digital Signal Processing Techniques for Power Electronic Systems

Organized by:

**Electronics & ICT Academy and Department of Electrical Engineering**

**Sponsored by Ministry of Electronics and Information Technology (MeitY), Government of INDIA  
(13<sup>th</sup>-18<sup>th</sup> May 2019)**



#### Preamble:

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

This course is suitable for practicing engineers, researchers in academia and industry as well. The purpose of conducting this 6-day workshop is to provide the participant with precise theoretical and practical up to date exposition of Digital Signal Processing Techniques and Power Electronics Systems. This training enhances the instrumental capabilities of a faculty for teaching under graduate students, post graduate students which is supported by hands on.

This Faculty Development Programme (FDP) is devoted to cover certain specific applications of DSP where there is increasing demand for improved converter topologies, control techniques, energy management etc. In the past few years, power electronics field has grown considerably. It is due to development of solar energy, wind energy, switching devices, magnetic components, advanced control techniques, computational methods, DSP/FPGA controllers, etc. Applications of digital signal processors can be found in several areas like industry, transportation, medical, telecommunication, residential, energy systems, etc. Certain low and high power switching specialized converters are developed with the use of advanced controllers such as TMS320F2407, TMS320F2812 and TMS320F28335 for grid connected and stand alone systems.

For example, hybrid energy storage systems have several applications like micro grid, smart grid, nano grid, electric traction, electric vehicles, etc. It requires accepting change in source & load variations with high efficiency. LED lighting is an emerging lighting system. DSP based controllers are required for powering and controlling LED lighting systems need to be developed. Renewable energy sources and their grid integration have several issues. Information exchange and communication plays vital role in these aspects. Operation, control and modelling of DSP based Drives and power converters are used in these applications will be discussed. Demonstration of certain experimental setup will be done. Also, this workshop aims at giving scope for research.

#### Major course contents:

##### Part-I: Signal Processing Techniques

- 🔧 FFT for spectrum analysis
- 🔧 FIR & IIR filter design
- 🔧 Adaptive Filter design
- 🔧 Kalman filter
- 🔧 Architecture of TMS320F2812/TMS320F28335

##### Part-II: Power Electronic Systems:

- 🔧 LED Lighting Systems
- 🔧 Solar & Wind energy
- 🔧 Smart grid Technology
- 🔧 Energy Storage Systems
- 🔧 Electric Vehicles
- 🔧 Laboratory based experiments

#### Registration Fee particulars:

Faculty and Research Scholars from Telangana, Andhra Pradesh, Karnataka, Puducherry, Andaman and Nicobar Islands, Goa	Rs. 2500/-
Faculty of SC/ST Category from Telangana, Andhra Pradesh, Karnataka, Puducherry, Andaman and Nicobar Islands, Goa	Rs. 1875/- (SC/ST participants should submit the copy of their caste certificate to claim the concession along with application form)
Persons from Industry	Rs.7500/-

**SC/ST concession is only for faculty of mentioned states. Research Scholars are not eligible for SC/ST concession.**

The entire registration fee is to be collected in the form of DDs/online transfer using the following details:

DD Details	Online Transfer Details
Demand Draft in favor of "E & ICT Academy, NIT Warangal" payable at any bank in Warangal	Account Name: Electronics & ICT Academy NITW Account No: 62423775910 IFSC: SBIN0020149

#### 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.

#### Accommodation:

All the selected participants will be provided FREE boarding & lodging in the institute guest house. No TA/DA will be paid for the participants.

#### How to apply:

A filled in form of application in the prescribed format duly signed and sponsored by appropriate authorities (along with demand draft) should reach to the coordinator by speed-post. It is also mandatory to send scanned copy application form and demand draft/online transfer receipt through email to [ub@nitw.ac.in](mailto:ub@nitw.ac.in) as selection will be intimated only through mail.

#### Selection Criteria:

Selection will be done based on first-cum-first-serve basis and the confirmed candidates will be notified immediately. The maximum number of participants will be 50 (fifty). Additionally 10 participants from industry are allowed to participate. The list of selected participants will be notified in the institute web site [www.nitw.ac.in](http://www.nitw.ac.in) and also will be sent to their personal e-mail ids. In case a candidate is not selected, the demand draft will be sent back. A test will be conducted at the end of the course. Candidates will be issued certificates on successful completion of the course. Reservations are followed for selecting candidates as per GOI norms.

#### Important Dates:

Last date for submission of application: **01-05-2019**

Selection list intimation/display before: **04-05-2019**

**Duration of program: 13<sup>th</sup> May 2019 – 18<sup>th</sup> May 2019**

#### About the Institute and department:

National Institute of Technology (formerly known as Regional Engineering College), 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 Institution imparting technical education of a very high standard leading to the B.Tech degrees in various branches of engineering and M.Tech. and Ph.D. programs in various specializations. All B.Tech. and M.Tech. programmes of NIT Warangal are NBA accredited. Warangal is known for its rich historical and cultural heritage. It is situated at a distance of 140km from Hyderabad. Warangal is well connected by rail and road to various places in the country. NIT campus is 3km away from Kazipet railway station and 15 km away from the Warangal railway station. Participants are advised to alight either at Kazipet or Warangal depending on their train of travel. The local weather during May is hot. The average temperature is about 30-38°C during day and about 20°C during night.

The Department of Electrical Engineering offers an undergraduate program in Electrical & Electronics Engineering, two post-graduate programs in the specializations of Power Systems and Power Electronics & Drives and also offers Ph.D. program. The Department has well qualified, experienced all doctoral faculty and good laboratory facilities with state-of-the-art equipment. The Department has very strong interaction with several reputed industries and R&D organizations like DRDO, MNRE, etc., The Department has been executed several consultancy and R & D projects. Department conducts various sponsored programmes throughout the year.



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**ON**  
**APPLICATIONS OF DIGITAL SIGNAL PROCESSING**  
**TECHNIQUES FOR POWER ELECTRONIC SYSTEMS**

(13<sup>th</sup> – 18<sup>th</sup> May, 2019)

**Organized by**

**E & ICT Academy, NIT Warangal**

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

1. Name :

2. Designation :

3. Institution :

4. Email :

5. DD No:                      Bank:                      Date:

Amount:

6. Address for Correspondence:

7. Educational Qualification:

8. Subjects taught so far:

9. No. of refresher courses/workshops attended:

10. Experience (in years):

Teaching:                      Research:                      Industry:

11. Accommodation required:    YES /NO

12. Do you belong to SC/ST :    YES /NO

(If yes, please specify and attach a copy of caste certificate to claim the concession)

**Declaration**

The information provided is true to the best of my knowledge. If selected, I agree to abide by the rules and regulations of the FDP and shall attend the course for the entire duration. I also undertake the responsibility to inform the Coordinator in case, I am unable to attend the course.

Signature of the Applicant

**SPONSORSHIP CERTIFICATE**

Dr. /Mr. /Ms. .... is an employee of our Institute/Organization and is hereby sponsored to participate in the FDP on **“Applications of Digital Signal Processing Techniques for Power Electronic Systems”**, sponsored by Electronics & ICT Academy during 13<sup>th</sup> – 18<sup>th</sup> May, 2019 at NIT Warangal.

Signature of Head of Institution

(with seal)

**Address for correspondence**

*Post your application form with DD to*

**Dr. Udaya Bhasker Manthati,**  
Assistant Professor  
Department of Electrical Engineering,  
National Institute of Technology Warangal,  
WARANGAL - 506 004, Telangana State, India.

***E-mail the scanned copies of filled-in and duly signed application form along with DD to [ub@nitw.ac.in/manuday0109@gmail.com](mailto:ub@nitw.ac.in/manuday0109@gmail.com)***

*For more details about Electronics & ICT Academy, NIT, Warangal, please visit: <https://nitw.ac.in/eict>*

For more enquiries please contact:

Mobile: 9703264416

**Coordinators**

***Dr. Udaya Bhasker Manthati & Dr. Suresh Babu Perli***  
Department of Electrical Engineering,  
National Institute of Technology -Warangal,  
WARANGAL - 506 004, Telangana State, India.