

### **Brief profile of the Department of Physics:**

The Department of Physics is involved in teaching UG and PG students of Engineering and Science Programs. The department has highly qualified, motivated and experienced faculty, who guide Ph.D. Scholars. The department offers a three year M.Sc (Tech) Engineering Physics program with specializations in Photonics, Electronics, and Instrumentation. The department also received DST-FIST project for the development of the program. The department is actively engaged in research and having a number of sponsored R&D projects. The areas of research include Nanomaterials, Glasses and Biomaterials, Magnetic materials, Bio-Polymers, Photonics, Electronics, Biomedical instrumentation, transparent conducting oxides, liquid crystals, Microfluidics, organic LEDs and solar cells. The department has liaison with reputed industries and R&D organizations like BEL, CSIO, ELOIRA, etc.

### **About NIT Warangal:**

National Institute of Technology Warangal, formerly known as Regional Engineering College was established in 1959. Over the years it has developed into a premier institute of higher learning and is ranked among the top technical education institutions in India. There are 14 Departments offering eight undergraduate and 31 post-graduate programmes besides doctoral programmes. About 6000 students across the country and about 500 international students study on the campus. It is a fully residential campus sprawling over 250 acres with excellent infrastructure in the form of state of the art library, seminar halls, guest houses and research laboratories.

### **Teaching-Learning Centre of NIT Warangal:**

The Teaching Learning Centre (TLC) is established at NITW with grants from the MHRD, GOI under the scheme 'Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching' (PMMMNMTT). Many senior and young faculty across various departments of the Institute are associated with this center as members of the Core-Team.

One of the important objectives of the center is to conduct training programs for Aspiring, Newly Inducted and In-Service faculty in Science and Engineering disciplines. Other activities of the TLC include preparation of e-learning materials, offering courses on-line, carrying out research in pedagogy and integrating ICT into teaching-learning process.

### **About Warangal:**

Warangal is the second largest city of the new state of Telangana. It is situated at a distance of 140 km from the state capital Hyderabad (Nearest Airport). It is well connected by Rail (Kazipet Junction is two km away and Warangal Station is 12 km away) and by Road (NH 202). Warangal is renowned for its rich historical and cultural heritage. It was the seat of erstwhile Kakatiya dynasty. It is a seat of tourist attractions with a number of historical monuments like Thousand Pillars Temple, Warangal Fort, Bhadrakali Temple, Ramappa Temple and Laknavaram Lake located within a radius of 30 kms.

### **Patron:**

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

### **Chairman of the organizing committee:**

**Prof. K. Venugopal Reddy**  
Head, Dept. of Physics, NIT-Warangal

### **Organizing committee:**

Prof. L. Ramgopal Reddy	Prof. R.L.N. Sai Prasad
Prof. D. Dinakar	Dr. B. Sobha
Dr. T. Venkatappa Rao	Dr. P. Abdul Azeem
Dr. P. Syam Prasad	Dr. Sourabh Roy
Dr. D. Haranath	Dr. R. Rakesh Kumar
Dr. Vijay Kumar	Dr. K. Udaykumar
Dr. Surya K. Gosh	Dr. Hitesh Borkar
Dr. Aalu Boda	

**For any queries regarding this workshop, please contact any of the following coordinators.**

**Dr. V. Jayalakshmi**, Assistant Professor

**Dr. K. Thangaraju**, Associate Professor

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**PMMMNMTT  
Scheme**



**A One Week Workshop  
On**

**Teaching and Learning of  
Functional Materials and Devices  
through Hands-on Experience  
(TLFMD-2020)**

**9<sup>th</sup> – 14<sup>th</sup> March, 2020**

**Call for Registration and Participation**

### **Coordinators:**

**Dr. V. Jayalakshmi**

**Dr. K. Thangaraju**

**Dr. D. Paul Joseph**

**Dr. Kusum Kumari**

### **Organized by**

**Department of Physics**

*in association with*

**Teaching Learning Centre**

**National Institute of Technology**

Warangal, Telangana State - 506 004, India.



## Overview of the workshop:

In the context of advancements made in technology related to functional materials, display units, magnetic materials, super-capacitors, solar energy devices, and OLEDs, newer topics are being introduced into the technical and science education curriculum. However, there is an inherent lag in teaching and learning of these concepts due to lack of exposure and opportunity to learn by hands-on experience. Limited teaching and learning methodologies have evolved in these topics to impart knowledge to students. Hence, it is important for teachers and research scholars aspiring to be in teaching profession to be abreast of these emerging trends in the curriculum so as to understand and deliver these topics effectively. Faculty need to update and reorient themselves to meet the rapidly changing professional and scientific needs of the stakeholders. The best way to address these issues is to learn the fundamentals and hands-on fabrication of these devices so as to gain first-hand knowledge in order to deliver it to the students. This workshop will enable participants to learn basic concepts of these advanced topics in a scaled down approach. Lectures, demonstrations and hands-on sessions by eminent experts will provide a stimulating and enriching experience to the participants so as to excel in understanding and teaching of these topics.

## Objectives of the Workshop:

- To impart effective teaching/learning methodologies of functional materials and device fabrication through hands-on experience.
- To enhance the experimental skills of the participants.
- To educate about simple and cost effective methodology to synthesize functional materials & device fabrication.
- To build confidence and motivate young minds to take up technical teaching as a profession.

## Topics in the Workshop:

- Aspects of technical teaching and learning
- XRD basics & Hands on Rietveld analysis
- Synthesis of ferro-fluids using facile technique
- Thin Film deposition by thermal evaporation
- Characterization techniques - Sheet resistance by four probe method and UV-Vis DRS methods
- Hands-on fabrication & demonstration of OLED, UV detector/DSSC, Super-capacitor, sensors and LCDs

**Note:** Experiments related to the above topics will be demonstrated and the participants will be given opportunity to perform experiments in a team.

## Lectures will be delivered by:

Faculty members from centrally funded Institutes/ Universities, NIT's, and Scientists from ARCI & DMRL will deliver the lectures and demonstrate the experiments and assist in device fabrication.

## Registration is open to:

- Faculty of higher education in both Science and Engineering institutions who work and teach in the related areas of thin films, optoelectronic devices, functional materials, energy and storage devices.
- Research scholars aspiring for technical teaching positions in the areas of thin films, optoelectronic devices, functional materials, energy & energy storage devices and related interdisciplinary areas.

## How to Apply:

Interested candidates can fill online registration form (Online only) available in the program website (under registration tab) on or before **20-02-2020**. ([Click here to apply](#)). Selected applicants will be intimated through E-mail on or before **23-02-2020**. Selected applicants shall pay the fees and send proof of registration fee payment (with transaction reference number) by Email to: [fmdevices2020@gmail.com](mailto:fmdevices2020@gmail.com) on or before **28-02-2020**.

## Accommodation:

Limited accommodation for outstation participants will be provided upon request at the Institute guest house/hostels/dormitories on shared basis only. For the availability of accommodation and tariff, the participants are requested to send an e-mail to [fmdevices2020@gmail.com](mailto:fmdevices2020@gmail.com) at the earliest possible.

## Registration Fee:

Category	Registration Fee (Includes working lunch)
Faculty / Research scholars	Rs. 750/-

Registration fee should be paid only through On-line / NEFT to the Bank Account given below on or before **28-02-2020**. Local participants may also pay the registration fee in cash to the coordinators in the Dept. of Physics.

Account Name	DIRECTOR, RESEARCH ACCOUNT
Account Number	62266262236
Bank	State Bank of India
Branch	SBI, NITW CAMPUS
IFSC code	SBIN0020149

## Confirmation of Participation:

Upon receipt of the online registration form along with proof of payment of registration fee, participants will be sent confirmation of their participation through e-mail by **28-02-2020**. As the programme is conducted in a workshop mode with hands-on sessions, the number of participants in the workshop is limited to **40**. *Candidates are advised to register early to avoid disappointment.*



Website: <https://bit.ly/2RYmIcZ>