

*A FIVE Day Online Short-Term Training  
Program on*

## **Recent Trends in Smart Energy Market (AI/ML, Blockchain applications)**

**3<sup>rd</sup> – 7<sup>th</sup> July 2023**

**Call for Registration and Participation**

### **Coordinators**

**Dr. Debasmita Panda  
Dr. Altaf Q H Badar  
Prof. M. Sailaja Kumari**



### **Organized by**

**Department of Electrical Engineering  
*in association with*  
Teaching Learning Centre  
National Institute of Technology  
Warangal – 506 004, Telangana state, India**



### **Background:**

Globally, there is a ramping demand for modernization of power system in multiple aspects including Smart Electric Grid (SEG) technology, integration of large Renewable Energy Sources (RES) in effort to reduce carbon emissions and encourage more sustainable life style. In view of this, there is an increasing penetration of electric vehicles (EVs) and unpredictable consumer behavior poses a range of challenges to the electric power system. Machine learning and blockchain are two of the technologies that addresses such challenges providing a reliable power supply.

SEG technology enables integration of multiple distributed energy resources such as PV, wind, fuel cells, micro-turbines, energy storage system, conventional diesel generators and advanced communication system. Because of distributed renewable integration uncertainties are getting introduced in the power system. Smart grids with machine learning for big data analysis and blockchain with decentralized trading platform benefits the power market development handling such uncertainties.

Dynamic nature of generation and demand patterns themselves propagate towards formation of multiple types of energy markets. The participation of these distributed sources along with conventional system leads to the creation of different power system and business models like, microgrid, VPP and transactive energy market.

### **Resource Persons:**

Eminent faculty of the Electrical Engineering department and Faculty from IITs, other NITs & Industry who have the expertise in these areas will be delivering lectures as core faculty for the workshop.

### **Topics of the Programme:**

- ✓ Fundamentals of Smart Grid Energy Market
- ✓ Concept of Prosumers and Peer-to-peer (P2P) market
- ✓ Smart grid market design – Trading, risk management
- ✓ Optimal power flow (OPF) in P2P trading process using GAMS Solver
- ✓ Blockchain technique and its industrial application in Energy trading
- ✓ Concept of Virtual Power Plant
- ✓ Smart grid data processing using AI & ML techniques & Python

### **Brief profile of the Department of Electrical Engineering:**

The Department of Electrical Engineering was established as one of the major departments of NITW (RECW), in the year 1959. The Department is actively engaged in teaching and research in diverse fields of Electrical Engineering. It offers B.Tech in Electrical & Electronics Engineering, M.Tech program in Power Electronics & Drives, Power Systems and Smart Electric Grid (From AY 2020-21) and Ph.D program. Broad areas of expertise of the department include Design and development of Smart Grid/ Microgrid systems, Control and integration of Renewable Energy Sources, State Estimation and Real Time Control of Power Systems, AI Applications in Power Systems, Power System Deregulation, Power System Transients, Power Quality, Application of Power Electronics to Power Quality Improvement and Industrial Drives, DSP controlled Drives, Simulation of Power Electronic Converters and Drives Systems and Control of Special Machines. The Department has strong Industry interaction and is involved in various Research & Consultancy projects in coordination with industry, Governments of India, Telangana & Andhra Pradesh. The department has an MOU with ABB (Hitachi), POSOCO, Central Power Research Institute (CPRI) and PGCIL to carry out collaborative projects.

### Highlights of the Course:

This short-term course will be conducted three hours a day with no overlap to the regular office hours. The sessions will begin in the evening time, possibly after 3pm.

### Registration is open to:

The programme is open to faculty, industry professionals, research scholars, as well as engineers and scientists working in the Electrical and Electronics Engineering domain.

### Registration fee:

Category	Amount (for 5-days)
Faculty, Post-doctoral fellows	Rs. 750 /-
Research Scholars, PG students, UG students	Rs. 500 /-
Industry & International participants	Rs. 1000/-

### How to Apply:

Interested candidates can apply online by clicking below link (Google form).

<https://forms.gle/FYr5xTtjGy3Dsv1B6>

**Last date:** 1<sup>st</sup> July 2023, 11:59 PM

### Bank Details:

Interested candidate can submit his registration fee through online transaction at following institute account.

Account Name	COORDINATOR, TLC NITW
Account Number	40376545007
Bank	State Bank of India
Branch	NITW CAMPUS
IFSC code	SBIN0020149

The registration fee may be remitted Online through NEFT, Quick transfer, Gpay, PhonePe, Paytm, or any other UPI to the Bank account given below and upload the proof of remittance in the google form.

### Confirmation of Participation:

On receipt of the Google Form and Fee Remittance Receipt, participants will be sent confirmation of their participation through email by 2<sup>nd</sup> July 2023. As the programme is conducted online with the number of participants in the workshop is limited to 100. Candidates are advised to register early to avoid disappointment.

### Teaching Learning Centre (TLC)

The TLC has been established at NIT Warangal with grants from the MHRD, through its scheme "Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching". Under this Scheme, a separate building has been built with the state-of-art training facilities that include a studio for video and audio recording of lectures, training halls, seminar hall, a computer lab for developing on-line courses and other learning resources, learning space for facilitating interaction among various stake holders.

The main objective of TLC is to conduct training programmes for the aspiring, newly inducted and in-service faculty in science, engineering, social sciences disciplines in higher education use of ICT in teaching. To conduct FDPs in inter-disciplinary and emerging areas of Science, engineering and Technology, Preparation learning materials, offering on-line courses, and integrating with ICT into teaching-learning process

Teaching Learning Centre (TLC) is now part of Centre for Training and Learning along with the Centre for Continuing Education (CCE), Centre for Educational Technology (CET), Learning Management System (LMS) and Integrated Teacher Education Program (ITEP). The vision of CTL is to become the self-sustainable Nodal Centre for all Training and Learning Activities to all the faculty, Staff and Students of our Institute and other educational institutes in India, Industries and Research Organizations. The CTL has special programmes of training for the marginalized and women-faculty.

***\*All attendees will receive the participation certificate***

### About NIT Warangal:

NIT 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 5000 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 Laboratories.

**For any queries regarding this workshop, please contact the Coordinators.**

**Dr. Debasmitta Panda**, [dpanda@nitw.ac.in](mailto:dpanda@nitw.ac.in),  
Phone.7899852334  
**Dr. Altaf Q H Badar**, [altafadar@nitw.ac.in](mailto:altafadar@nitw.ac.in)  
Phone.9890068893  
**Prof. M. Sailaja Kumari**, [sailaja@nitw.ac.in](mailto:sailaja@nitw.ac.in)  
Phone.9849034581

**For further details about Centre for Training and Learning, please contact:**

### Prof. D Srinivasacharya

Head, Centre for Training and Learning,  
TLC Building, NIT Warangal

E-mail: [ctl\\_hod@nitw.ac.in](mailto:ctl_hod@nitw.ac.in), [tlc\\_coordinator@nitw.ac.in](mailto:tlc_coordinator@nitw.ac.in);

Office: 0870-2462686.

