

## Registration Form

TEQIP –III BPUT, Odisha (ATU) Sponsored  
Short-Term Training Programme

on

Predictive Analytic-Based Cyber-Physical Systems  
for Smart Grid

Name: \_\_\_\_\_

Department: \_\_\_\_\_

Institution: \_\_\_\_\_

Gender: \_\_\_\_\_

Address for communication:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Telephone: \_\_\_\_\_

Mobile: \_\_\_\_\_

E-Mail: \_\_\_\_\_

Place: \_\_\_\_\_

Date: \_\_\_\_\_

### Declaration:

The information furnished above is true to the best of my knowledge. I agree to abide by the rules and regulations framed by the governing body. If selected, I shall attend the course for the entire duration.

Signature of the participant

Signature of the Sponsoring Authority

### PATRON

Prof. (Dr.) C. R. Tripathy  
Vice-Chancellor, BPUT Rourkela Odisha

### CO-PATRONS

Dr. Sukant Kumar Mohapatra, Chairman, NIST  
Prof. Sangram Mudali, Director, NIST

### CONVENERS

Dr. B Rajanarayan Prusty, Dept. of EEE, NIST  
Dr. Ranjan Kumar Jena, TEQIP-III Coordinator, BPUT, Odisha

### PROGRAM COORDINATORS

Prof. Preeti Ranjan Sahu, Dept. of EEE, NIST  
Prof. Bhagbati Prasad Pattnaik, Dept. of EEE, NIST  
Dr. Sivkumar Mishra, EAP Coordinator, TEQIP-III

### ORGANIZING COMMITTEE

Dr. Ajit Kumar Panda, Principal, NIST  
Dr. Manas Ranjan Nayak,  
Nodal Officer, TEQIP-III, BPUT  
Dr. Tapas Kumar Mishra,  
TEQIP-III, Co-ordinator, NIST  
Prof. Sasmita Padhy  
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Dr. Shom Prasad Das  
Dr. Motahar Reza  
Prof. Bhawani Shankar Pattnaik  
Prof. M. Suresh  
Dr. Rajendra Kumar Khadanga  
Dr. Sachidananda Prasad  
Dr. Basant Kumar Sahu  
Dr. Swagat Kumar Samantaray  
Prof. Arabinda Panda  
Prof. Chitta Ranjan Biswal  
Prof. Aswini Kumar Nayak  
Prof. Gubbala Kedarnath  
Prof. Dharendra Kumar Malik  
Prof. Nrusingha Prasad Tripathy  
Prof. Kunja Bihari Swain  
Prof. Praneeth Kumar Pedapati  
Prof. Mandakini Mohapatra

### ADDRESS FOR COMMUNICATION

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# TEQIP III



TEQIP –III BPUT, Odisha (ATU) Sponsored

Short-Term Training Programme

ON

# PREDICTIVE ANALYTIC-BASED CYBER-PHYSICAL SYSTEMS FOR SMART GRID (PACPSG-2020)

3rd Feb. to 7th Feb. 2020

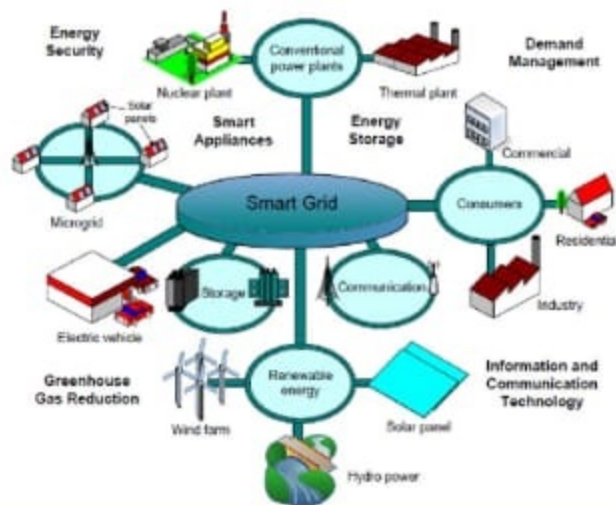


Organized by

Department of Electrical and Electronics Engineering  
National Institute of Science & Technology (Autonomous)  
Institute Park, Palur Hills, Berhampur, Odisha – 761008

Association with  
TEQIP Cell

Biju Patnaik University of Technology, Odisha, Rourkela



## STTP OVERVIEW

A smart grid uses state-of-the-art information technologies in computing, communication, and control for improved security, efficiency, stability, and sustainability. Energy Internet combines cyber-physical-social systems, integrates multiple energy systems, and creates innovative modes of business for the whole energy system. Unfortunately, the integration of advanced communication and control may create vulnerabilities in the physical grid, which can be exploited by adversaries via data manipulation and false data injection to compromise the grid's safety. Therefore, it is necessary to understand the fundamentals and engineering aspects of cyber-physical mechanisms that are prone to critical failures. Sensors enable the extensive collection of monitoring data that can help in a better understanding of the working of smart grids. The storage of tremendous volumes of raw time-series data to provide substantial support for precise time-series analytics becomes difficult. Further, due to undependable network transferring, these enormous volumes of data likely contain missing values. Meanwhile, data analytics and machine learning techniques have been considerably developed recently. It is essential to find out the application of such state-of-the-art methods for the improvement of the Energy Internet. Although increasing efforts are being made in modeling, analyses, control, operation, and planning of smart grids from a data-driven perspective, it is believed that the research on data analytics and machine learning still has a long way to go in the field of Energy Internet. This short-term training program addresses critical areas of cyber-physical security of the smart grid and the importance of predictive analytics.

## TOPICS TO BE COVERED

- (i) Data Analytics of Cyber-Physical Systems
- (ii) Smart Grid Security Against Cyber-Physical Attacks
- (iii) Data Privacy and Security for Various Participants in the Smart Grid
- (iv) Wireless Sensor Network in Smart Grid: Applications and Challenges
- (v) Efficient Data Compression, Cleaning, and Management Algorithms
- (vi) Application of Machine Learning Techniques to Smart Grid
- (vii) Cyber-Physical Security of Renewable Energy Systems
- (viii) Intelligent Techniques for Time-Series Analysis and Forecasting

## ABOUT NIST

National Institute of Science and Technology (NIST) the first engineering college in South Odisha and the brain child is of top technopreneurs like Dr. Sukant Kumar Mohapatra, founder Chairman and Prof. Sangram Mudali, Founder Director. The primary objective of the founders was to promote NIST as a center of academic excellence and research in the field of science and technology in their home state of Odisha. Keeping true to its core value, mission and vision, NIST has become a top notch institute in the state and country since its establishment.

NIST is a considered as a benchmark research institution in eastern India. The Institute has recently signed MoU's for research collaboration in the field of nanosciences, communications, semiconductor technology with the National Taiwan University and University of Electro Communications, Japan. NIST has signed MoU with industries like Sandhur and SunMoksha for collaborative work in the area of nano technology and renewal energy. NIST, in association with IIT, Kharagpur, is also part of the MHRD Virtual Laboratory project. The Institute has received a number of grants, projects, special funding, travel funding, SDPs, FIST grant, scholarships, etc., from the DST, CSIR, AICTE, IT companies, etc.

## ABOUT SCHOOL OF ELECTRICAL SCIENCES

Established in 1996, the Department of Electrical Engineering of the National Institute of Science and Technology offers programs leading to Bachelor's Degree, Master's Degree as well as Ph.D. The four-year undergraduate program leads to the Bachelor of Technology (B.Tech) degree in Electrical and Electronics Engineering and Electrical Engineering. Specializations for the Master's level programs is Power Systems. The program is of two-year duration and leads to the degree of Master of Technology (M.Tech) in Electrical Engineering with respective specializations mentioned explicitly in the degree certificate. The research program in Electrical Engineering, Control Systems, Renewable Energy System, Smart Grid, and other related areas leads to the Ph.D. degree awarded by the university. In addition to these regular programs, this department is also actively involved in conducting faculty development programs, job-oriented short-term training programs, and continuing education programs for engineering professionals and academic faculty.

The five major research groups in the department are the Power Systems, Industrial Power and Automation, Power Electronics and Drives, Control System and Robotics, and Renewable Energy Systems. These groups also promote interdisciplinary research that is in the domain of the faculty expertise. The laboratories and research facilities in the department are well maintained and regularly updated. Members of the faculty are actively involved in sponsored research and consultancy works. The R&D projects undertaken in the past were sponsored by the various agencies like the Ministry of Human Resources Development (MHRD) Government of India, the Department of Science & Technology (DST) Government of India, All India Council for Technical Education, Government of India and the Odisha Renewable Energy Development Agency, Government of Odisha. Several projects are in progress.

## RANKING AND ACCREDITATION

- NIST is an Autonomous Institute - Status accorded by University Grant Commission
- NIST has been ranked #28 in India by DataQuest - CMRSurvey Report 2013-2014.
- NAAC has Accredited NIST with Grade 'A' with a high score of 3.22
- NIST has bagged with the prestigious eINDIA 2013 Award at an event held in Hyderabad on July,23 under the category of "Best Teaching Learning Institute".
- BPUT (Affiliating University) Students has ranked NIST as No.1 Engineering Institute among 100+engineering institutes of Odisha through public voting.
- NIST has once again proved its credentials in bagging the "Best Technical Institute in R & D activities" in the State of Odisha. The Award was received by NIST at a glittering ceremony in Jaydev Bhavan,Bhubaneswar on the eve of Engineers' Day-2013

## REGISTRATION

The registration is open to all interested faculty and research Scholars of Engineering Colleges/University absolutely on pre-registered, first-come-first-served basis,since the number of seats is limited. Registration form in the attached format along with declaration (forwarded by the respective head of the department) should reach the convener on or before 02.02.2020

### Registration Fee

Registration fees which will take care of the lunch, tea, seminar material and local hospitality during the conference period are specified below:

TEQIP Institutes: NIL

For non-Affiliated and non-TEQIP Institutes: Rs. 1000/-

Industrial Personnel (Indian) Rs. 2000/-

Accommodation charges: NIL (NIST, Berhampur will provide free of cost in its Guest House/ Hostel)

## IMPORTANT DATES

**Start of Registration (Online): 20th Jan. 2020**  
**Last Date of Registration: 2nd Feb. 2020**  
**Intimation to Selected Participants: 2nd Feb.2020**