



This 5-day course is specially designed to give a complete coverage on fundamental ideas of power electronics converters and control designs in smartgrid systems. The course will also cover the integration of distributed generation, load balancing and energy storage form the model of a smartgrid to ensure high-efficiency and high-performance operation. Different layouts and topologies of microgrids and power electronic components, and the role of power electronics converters in smartgrid will be discussed in this course. The ideas on operation of centralized and decentralized control, forecasting, and evaluation of different market policies may be highlighted through case study. It is expected that this course will be suitable for engineering professionals from academia, R&D organizations as well as industries.

Key Speakers

Prof. Bidyadhar Subudhi, IIT Goa
 Prof. Subrata Banerjee, NIT Durgapur
 Prof. I N W Satiawan, Mataram, Indonesia
 Prof. Pravat Kumar Ray, NIT Rourkela
 Prof. Soumya Ranjan Mohanty, IIT BHU
 Prof. Chandan Kumar Chanda, IIST
 Prof. Arnab Ghosh, NIT Rourkela

Registration Form

1. Name: _____
2. Designation: _____
3. Specialization: _____
4. Department: _____
5. Organization: _____
6. Research/Teaching/Industry Experience: _____

7. Mailing Address: _____

- Phone: _____
- Email: _____
8. Accommodation required: YES / NO
9. Payment of Course Fee:
 DD No. _____
 Date: _____ for Rupees _____
 On Bank _____
10. Signature: _____
11. Place and Date: _____

NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA

announces
a
Short Term Course
On

POWER ELECTRONICS AND CONTROL ASPECTS IN SMARTGRID, ELECTRIC VEHICLE AND RENEWABLE ENERGY INTEGRATION

22 – 26 May 2020



Coordinators

Prof. Pravat Kumar Ray
 Prof. Arnab Ghosh

Organized by

*Centre of Excellence (CoE) on
Renewable Energy Systems*

DEPT. OF ELECTRICAL ENGINEERING
 NATIONAL INSTITUTE OF TECHNOLOGY
 ROURKELA – 769008, ODISHA



Introduction

Smartgrid technology is an advanced technology developed in recent years as a critical competence of traditional power networks with reliable and efficient operation across a wide range of industries. The ability to deliver the technical information of smartgrids to the right audience at the right time is a valuable skill, especially for those engaged in the field of power systems. Renewable sources of energies are often placed into a smartgrid, a local electricity distribution system that is operated in a controlled way and includes both electricity users and renewable electricity generation. This course deals with DC and AC microgrids and covers a wide range of topics, from basic definitions, through modelling and control of PV, EV integrated AC and DC microgrids. A number of advanced control techniques for different control aspects of microgrid i.e. primary, secondary and tertiary control will be discussed.

One will have opportunity to know various concepts related to microgrid technology and implementation, such as smart grid and virtual power plant, types of distribution network, markets, control strategies and components. Among the components special attention is given to operation and control of power electronics interfaces. One will familiarize with the advantages and challenges of microgrids. One will also have the opportunity to know different topics of microgrids through different

Course Coverage

- Introduction to Smartgrid, Electric Vehicle (EV)
- Importance of emerging role of Smart Grids for EV integrated Power Systems
- Grid Integration, Renewable energy sources and storage
- Intelligent generation control based on forecasting of solar irradiance
- Development of PV fed UPQC with advanced controller for Power Quality improvement
- Demand side and supply side management for improving reliability and efficiency of smartgrid
- Grid integration challenges and prospective solutions
- The role of Smart Grid in Integrating Renewable Energy
- Comprehensive overview of Smart Grid Pilot Projects

Venue

The course will be organized by the Centre Excellence on Renewable Energy Systems at National Institute of Technology (NIT), Rourkela. It is one of the premier national level institutions technical education in the country and is funded by Government of India. It is situated at the eastern of Rourkela steel city, beyond Sector-1 over an area 262 hectares of land. NIT Rourkela has twenty academic departments which offer B.Tech, M.Tech, PhD programs in various areas of engineering technology. It has six centers of Excellence including two centers hosted by the Department of Electrical Engineering namely Centre of Excellence on Industrial Electronics & Robotics and Renewable Energy Systems. The Institute is a participant of the Techno Education Quality Improvement programme-III Government of India.

Registration

The course fees given below in the form of demand draft drawn in favor of “**Continuing Education, Rourkela**” payable at SBI, NIT Branch, Rourkela (code - 2109) to be sent to the coordinator on or before **30th April, 2020**. The course fee will cover expenses towards registration kit and lecture notes only. The number of seats is limited to **60**. Therefore, interested faculty members should apply well within the scheduled time frame i.e. **30th April, 2020**.

Category	Registration Fee in INR
Faculty Members from Engineering Institutes	4000
Engineers from Industry	5000
Scientists from R&D Organizations	6000
Research Scholars/ PG & UG Student	3000

Accommodation

Accommodation and food for participants shall be available in the Institute's Guest House. The expenses towards these will be paid by the participant directly to the guest house.

Contact Us

Dr. Pravat Kumar Ray
Coordinator

Associate Professor,
Dept. of Electrical Engineering
National Institute of Technology
Rourkela – 769008, Orissa
Ph: 0661-2462412(O),
Email: rayp@nitrkl.ac.in ,
pravatkumar.ray@gmail.com