



This 5-day course is specially designed to give a complete coverage on fundamental ideas of power electronics converters and control designs in microgrid systems. The course will also cover the integration of distributed generation, load balancing and energy storage from the model of a microgrid 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 microgrids 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.

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 OF
MICROGRID SYSTEMS**

26 – 30 December, 2018



Co-ordinators

**Prof. Bidyadhar Subudhi
Prof. Arnab Ghosh**

Organized by

**Centre of Excellence on
Renewable Energy Systems**

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



Introduction

Microgrid 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 microgrids 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 microgrid, 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 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 an exercise.

Course Coverage

- Introduction to Microgrids
- Microgrid operation and control
- Energy management systems in Microgrids
- Modeling of Hybrid Energy Sources system and MPPT algorithms
- Transition management of Microgrids with high penetration of renewable energy
- Topologies of Microgrid Converters
- Control problem in Microgrid systems
- Grid integration issues
- Controls for Microgrids with storage: Review, challenges, and research needs
- SiC power devices for Microgrids
- Seamless formation and robust control of distributed generation Microgrids
- Simulations of microgrid control schemes
- Smartgrid

Venue

The course will be organized by the Centre of Excellence on Renewable Energy Systems at the National Institute of Technology (NIT), Rourkela. It is one of the premier national level institutions for technical education in the country and is funded by the Government of India. It is situated at the eastern end of Rourkela steel city, beyond Sector-1 over an area of 262 hectares of land. NIT Rourkela has twenty one academic departments which offer B.Tech, M.Tech and PhD programs in various areas of engineering and 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 Technical Education Quality Improvement programme-III of 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 November, 2018. The course fee will cover expenses towards registration kit and lecture notes only. The number of seats is limited to 50. Therefore, interested faculty members should apply well within the scheduled time frame i.e. 30th November 2018.

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

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Coordinator

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