

INTRODUCTION

Electricity provision around the world is undergoing a profound transformation driven by limited resources of fossil fuels unmatched with increasing demand in the developing countries and climate policies. There is a big concern about the damage done to our environment by these by-products of fossil fuel combustion. At the same time, due to their excessive use, fossil fuels' reserves are depleting at a fast rate and their cost is on rise. As a result of all these factors, efforts have been made in the last few decades to develop technologies towards generation of green energy using renewable energy sources such as wind, solar PV, fuel cells. Unfortunately, the renewable energy is not available in a form that can be directly used by electrical loads. Hence, almost always some power conditioning is required to get the energy in the desired form. This is where 'power electronics' plays a vital role. A big component of research on renewable energy goes into studying and developing efficient, reliable and low cost interfaces to couple the loads to the energy source.

The course focuses on a series of class room as well as laboratory sessions covering both the fundamentals and recent advances in Renewable Power Generation Systems. One of the interesting features of the course is to provide hands-on sessions on how to successfully model, control and simulate renewable sources using different available MATLAB toolboxes and also in Hardware supplementing the theory sessions covered in the class room sessions.

Course Coverage

Broad coverage of the course includes:

- Introduction to Renewable Power Generations
- Photovoltaic and Wind Energy System Fundamentals
- Control Techniques for Renewable Energy Systems
- Power Electronics Techniques for Renewable Energy Systems
- Microgrid/Smart Grid
- Computing Platform i.e. FPGA, Microcontroller, VLSI etc.
- Photovoltaic and Wind Energy Systems Modelling and Control
- Estimations and Filtering of Distributed Generations
- Fuel cell Modelling and Control
- Control strategies for Hybrid Energy system

Venue

The course will be organized 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 Nineteen academic departments which offer B.Tech, M.Tech and PhD programs in various areas of engineering and technology. The Institute has six Centers of Excellence to promote interdisciplinary research and industrial participation.

Dept of Electrical Engineering

Department of Electrical Engineering, NIT Rourkela was established in 1961. Since its inception, the Department is under dynamic progress and is reputed for imparting quality education both at B.Tech, M.Tech levels. The Department currently runs Four M.Tech programmes with the specializations in (i) Power Electronics and Drives, (ii) Electronic Systems and Communication, (iii) Control and Automation, (iv) Industrial Electronics. Besides the undergraduate and postgraduate teaching, a good number of research scholars are working on different areas of Electrical Engineering towards the award of PhD degrees. The Department is identified as the host department for execution of two Centers of Excellence, namely CoE Industrial Electronics and Robotics and CoE in Renewable Energy Systems. The Department has well equipped modern laboratories such as Signal Processing & Communication, Image Processing & Computer Vision, Power Electronics & Drives, Control & Robotics, Embedded & Real-Time System Lab for pursuing research in the emerging areas of Electrical Engineering.

Speakers

B. Subudhi, *NIT Rourkela*
A.K. Panda, *NIT Rourkela*
M. H. Shaheed, *Queen Marry Univ. of London*
R. Vepa, *Queen Marry Univ. of London*
A. K. Pradhan, *IIT Kharagpur*
M. Kumar, *IIT Madras*
S. Mishra, *IIT Delhi*
K. K. Mohapatra, *NIT Rourkela*
S. N. Suryavanshi, *NIT Hamirpur*
Pravat Kumar Ray, *NIT Rourkela*
Sandip Ghosh, *NIT Rourkela*

Registration Form

Short Term Course
on

CONTROL OF RENEWABLE POWER GENERATION SYSTEMS

7 - 11 July 2014

(Capital Letters)

1. Name _____
2. Designation _____
3. Specialization _____
4. Department _____
5. Organization _____
6. Teaching Experience _____
7. Mailing Address _____

Phone _____

FAX _____

Email _____

8. Accommodation required

YES NO

9. Registration Fee

DD No. _____ Date _____

for Rupees _____

On Bank _____

Date

SIGNATURE

NATIONAL INSTITUTE OF TECHNOLOGY ROURKELA

A
Short-Term Course
on



CONTROL OF RENEWABLE POWER GENERATION SYSTEMS

7 -11 July 2014



Co-ordinators

Prof. Bidyadhar Subudhi
Dr. Pravat Kumar Ray
Dr. Sandip Ghosh

Organized by

Centre of Excellence on
Renewable Energy Systems

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

Coordinators

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Pravat Kumar Ray
Sandip Ghosh

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Who Should Attend ?

This one-week course is specially designed to give a complete coverage of all aspects of Renewable Power Generations to professionals who need to understand the developments and opportunities in this field. It is highly suitable for those who already have some exposure towards energy, power generation and looking to update or renew their knowledge. The course is broadly intended for

- Academician and scholars
- Electricity industry staff members from all parts of the supply including distribution, generation and transmission operators
- Commercial and industrial consumers including key decision makers
- ICT industry professionals exploring future opportunities in the energy and renewable power generations

Accommodation

Accommodation for participants shall be arranged in the Institutes Guest House on request.

Registration

The course fee is (i) ₹. 7000/- for delegates from industry and (ii) ₹. 5000/- for academicians and scholars. It is required to be paid 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 **18th June, 2014**. The course fee will cover expenses towards boarding, lodging and lecture notes.

The number of seats is limited to 50. Therefore, interested participants are encouraged to apply well within the scheduled time frame i.e. **18th June 2014**.

Organizing Committee

PATRON

Sunil K. Sarangi, Director, NIT Rourkela

ADVISORS:

P. C. Panda, NIT Rourkela

J. K. Satapathy, Vice Chancellor, BPUT

ORGANIZING COMMITTEE MEMBERS

Bidyadhar Subudhi, NIT Rourkela

Anup K. Panda, HOD, EE, NIT Rourkela

Kanungo B. Mohanty, NIT Rourkela

Prasanna K. Sahu, NIT Rourkela

Susmita Das, NIT Rourkela

Dipti Patra, NIT Rourkela

Sanjeeb Mohanty, NIT Rourkela

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Sandip Ghosh, NIT Rourkela

Somnath Maity, NIT Rourkela

Susovon Samanta, NIT Rourkela

Subrata Karmakar, NIT Rourkela

S. Gopalakrishna, NIT Rourkela

Pravat K. Ray, NIT Rourkela

Supratim Gupta, NIT Rourkela

Sanjib Ganguly, NIT Rourkela

Monalisa Pattanaik, NIT Rourkela

Sponsorship Certificate

On the event of selection,

Mr/ Ms. _____

will be relieved for participation of the above programme.

SIGNATURE OF

THE HEAD OF THE INSTITUTE /

SPONSORING AUTHORITY

(WITH DATE AND SEAL)