

INTRODUCTION

In recent years, the ill effects of global warming due to heavy dependence on fossil fuels are becoming more and more visible. This has forced the global community to initiate corrective measures to check this trend. The need of developing clean, renewable and secure energy sources is being increasingly realized. The economic growth can not be sustained until renewable energy is made available at a reasonable cost. At this juncton, the aim of this short-term course is to give a brief, yet comprehensive exposure to young faculties, working scientists / engineers regarding the need of Renewable Energy sources now-a- days and also to feed back some knowledge in enhancing extensive R&D efforts towards the development of these renewable resources and related technologies.

The course focuses on a series of class room as well as laboratory sessions covering both the fundamentals and recent advances in modeling and control of renewable energy sources. One of the interesting features of the course is to provide hands-on sessions on how to successfully model, control and simulate using different available MATLAB toolboxes. Thus, these will supplement the theory sessions covered in the class room sessions. The course will also provide laboratory demonstrations on control of renewable sources.

COURSE COVERAGE

- Introduction to Renewable Energy Sources
- Principle of Generation of Electricity from Renewable Sources
- Modeling of Photovoltaic system and Wind Energy System
- Modeling of Storage devices i.e Fuel cells, battery and ultra capacitor

- Control aspects of Distributed Generations in Stand alone and Grid Connected modes
- Power Electronics and Control necessary for Renewable Energy Sources
- MPPT Algorithm for Photo Voltaic systems and Wind Energy systems
- Design of DC-DC Converters and Inverters for Photovoltaic systems and Wind Energy systems
- Control strategies for Photovoltaic and Wind Energy system control
- Control strategies for Hybrid Energy system control

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 fourteen academic departments which offer B.Tech, M.Tech and PhD programs in various areas of engineering and technology. The Institute is a participant of the Technical Education Quality Improvement programme of Government of India.

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 three M.Tech programmes with the specializations in (i) Power Control and Drives, (ii) Electronic Systems and Communication, (iii) Control and Automation. 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 has well equipped modern laboratories such as Signal Processing & Communication, Image Processing & Computer Vision, Power Electronics & Drives, Control & Robotics, Embedded Systems & Real-Time and Soft Computing Labs for pursuing research in the emerging areas of Electrical Engineering.

FACULTY

NIT Rourkela has a good number of Professors specialized in the area of Power system, Power Electronics and Control, Industrial Electronics and Control in both Electrical and Electronics & Communication Engg. Departments, who have designed the course and will deliver lectures. In addition to this experts from VNIT, Nagpur and IIT Delhi will deliver a number of lectures.

COORDINATORS

Prof. Bidyadhar Subudhi
Prof. Pravat Kumar Ray

CORRESPONDENCE

Dr. Bidyadhar Subudhi
Professor and Head , Department of Electrical Engineering
National Institute of Technology
Rourkela – 769008, Orissa
Phone: 0661 – 2462416 (O),
0661 - 2463416 (R)
Email: bidyadhar@nitrrkl.ac.in ,
bidyadharnitrrkl@gmail.com

Department of Electrical Engineering (Annexe)
Centre of Industrial Electronics & Robotics

REGISTRATION FORM

Short Term Course on

MODELING AND CONTROL OF RENEWABLE ENERGY SOURCES

04 June – 08 June 2012

1. Name: _____

(Capital Letters)

2. Designation: _____

3. Specialization: _____

4. Department: _____

5. Organization: _____

6. Teaching Experience: _____

7. Mailing Address: _____

Phone _____

FAX _____

E-mail _____

8. Accommodation required: YES / NO

9. Refundable Caution Money sent:

DD no. _____ Dated _____

for Rupees _____ On Bank _____

Date

SIGNATURE

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)

WHO SHOULD ATTEND?

Faculty from AICTE approved Institutions with Bachelor's degree in Electrical/ Electronics/ Instrumentation & Control/ Communication/Chemical/Bio-Tech./ Mechanical Engineering are eligible to attend.

ACCOMODATION

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

REGISTRATION

A course fee of Rs. 5000/- in the form of demand draft drawn in favour of "Continuing Education, Rourkela" payable at SBI, NIT Branch, Rourkela (code- 2109) to be sent to the coordinator on or before 05th May, 2012. The course fee will cover expenses towards boarding and lecture notes.

The number of seats is limited to 50. Therefore, interested faculty members should apply well within the scheduled time frame i.e.5thMay 2012.

Short Term Course

On

MODELING AND CONTROL OF RENEWABLE ENERGY SOURCES

04 June – 08 June 2012

Co-ordinators

**Dr. Bidyadhar Subudhi
Dr. Pravat Kumar Ray**



Organized by

Centre for Industrial Electronics & Robotics

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