17th International Training Course on

WIND TURBINE TECHNOLOGY AND APPLICATIONS

3rd February to 1st March 2016

नीवे NIWE

Organized by

NATIONAL INSTITUTE OF WIND ENERGY

An Autonomous Research and Development Institution under the Ministry of New and Renewable Energy, Government of India

Chennai, India

Sponsored by

MINISTRY OF EXTERNAL AFFAIRS

Government of India

Introduction

With the rising concerns on climate change, countries are under pressure to turn to Renewable Energy (RE) sources and reduce CO_2 emissions. Amongst RE sources, Wind energy has proved a highly successful energy option and about 359 GW (by end of 2014) has been installed worldwide. Earth's commercially viable wind power potential is estimated at 72 TW which is five times more than World's total energy demand. With such a huge potential, only very few countries are using wind power. USA, some of the European countries and Asian countries like China and India are using wind energy on a large scale and it is in startup stage in many parts of the world. Lack of skilled human resource has been one of the main barriers that hinders wind and other renewable energy diffusion.

National Institute of Wind Energy (NIWE) formerly Centre for Wind Energy Technology (C-WET), Chennai, India, being first of its kind institution in Asia, perhaps in developing countries, has responsibilities to address this issue. NIWE has contributed for diffusion of wind energy as one of the primary energy sources in India. India, over the years, has been a trend- setter nation with regard to wind power utilization. Decades of concerted efforts have started to yield gratifying results and today, Wind power contributes about 8.75% (22644.63 MW as on February 2015) of the total Indian energy mix (258701.45 MW as on January 2015) and stands fifth in terms of installed wind power capacity worldwide. With this vast experience, India can incorporate lessons learnt from its own experience to foster growth elsewhere in the globe. In this context, a four week International Training Course is scheduled by NIWE. The Course is sponsored by Ministry of External Affairs (MEA), Government of India, for ITEC / SCAAP member countries and supported by Ministry of New and Renewable Energy (MNRE), Government of India. To highlight, NIWE has so far successfully organized 15 international training programmes, wherein 340 professionals from 68 countries have been trained and it has also organized 17 national training courses and trained about 1000 professionals.

Objectives

- The prime objective is to transfer knowledge and special skills to the international participants.
- To build skilled human resource so that there will be advancement of wind energy in the participating country.
- To provide an invaluable platform for exchange of professional and cultural experiences among diverse participants.
- To leverage the research that continues to shape this rapidly evolving discipline.

Training Methodology

(a) Class room lectures including exercises and case studies to stimulate active participation and dialogue.

(b) Practical classes at laboratories.

(c) Hands-on working on wind energy equipment

(d) Study visits to operating wind farms and wind turbine manufacturing facilities to enhance effective transfer of knowledge.

Resource Persons

The resource persons for this training course will be NIWE scientists, industry professionals, academicians and other national experts who have significantly contributed for wind energy development.

Course Syllabus

The course content for the training has been carefully thought out syllabus with specific subject experts giving lectures and going through specific case studies such that, at the end of the day considerable useful knowledge transfer is perceived.

The course will address the following aspects:

- Wind energy conversion technology and power generation
- Wind turbine technology and developments
- Design of wind turbines
- Wind turbine components
- Wind resource assessment and techniques
- Planning including design of wind farms
- Wind farm developments and feasibility study
- Pre-Investment study and cost benefit analysis
- Installation and commissioning of wind turbines
- Post installation activities - Grid integration
- O & M aspects of wind farms
- Testing & Certification of wind turbines
- Small wind turbine and hybrid systems

- Indian government policies and schemes and legal frameworks.
- Wind energy developments in India

Additional lectures would also be organized while visiting wind farms and manufacturing facility to give a complete picture of the know-how and how to go about setting up a coordinated wind energy programme at national level.

Participants will also have opportunity of hands on experience in manufacturing Small Wind Turbines with local materials at low cost after theoretical training.

Target Participants

The course will be useful for anyone involved in wind energy or those who are looking for an introduction. Persons from the following fields will find this course very relevant.

- Academic & R & D Institutions
- Power Industry
- Manufacturers
- Suppliers and Distributors
- Utilities
- Consultants
- Project Developers
- Government Organization
- NGOs
- Media

Eligibility

- Applicants should be from any one of the ITEC / SCAAP countries.

  (List of ITEC / SCAAP countries can be found in http://itec.mea.gov.in)
- Degree / Diploma in Engineering / Science with good knowledge in English.
- Age should be between 25 to 45 years.

Course Fee

The entire cost of Training Course is funded by Ministry of External Affairs (MEA), Government of India under ITEC / SCAAP programme which includes **to and fro air fare, local travels, accommodation, living allowance and book allowance.** Accommodation provided will be of international standards.

Reason to Attend

The course will offer a good foundation on the principles of engineering behind wind energy technology and power generation & distribution along with financial viability and entrepreneur opportunities. The course would facilitate an invaluable forum for dialogue and open exchange of views and experiences with Indian scientists and professionals. The course would give a picture of complete know-how and pave the way to go about setting up financially viable wind farm projects.

The Programme

The course duration will be **28 days** from **3rd February to 1st March 2016**.

Venue

The venue for the programme will be the **Conference Hall** of **National Institute of Wind Energy**, Chennai, India.

How to Apply?

Interested candidates are required to visit the website https://itecgoi.in and fill up the details in application form online by clicking the link "Apply for ITEC/SCAAP course.

The applicants should create his / her own login ID and password by providing a valid email address to get the application processing status.

After a candidate has applied for the course, a link will be sent to the candidate's email ID (given by the candidates while applying for the course) for activating his account. After activation of account, the applicant has to take a printout of the application and complete the remaining sections of the applications on English Proficiency, Medical Report, Undertaking by the Applicant and get it forwarded by their respective Ministry / Employer and submit it to the Indian Embassy. The Embassy will in turn forward to MEA and NIWE for further processing.

Course Coordinator

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ABOUT NIWE

National Institute of Wind Energy formerly Centre for Wind Energy Technology shortly known as NIWE is an autonomous R&D institution established at Chennai in 1998 by the Ministry of New and Renewable Energy (MNRE), Government of India. It is a young organization with highly experienced professionals with expertise in all related disciplines of wind energy sector. This unique combination makes it a forward looking and practical organization that will take the next logical steps towards advancing wind technology in the right direction. With its open approach to all wind energy related science and technology, NIWE assures assistance from resource assessment to project implementation. As an integral part of NIWE, a world class Wind Turbine Test Station (WTTS) is located at Kayathar in Thoothukudi District, Tamil Nadu. Perhaps, NIWE is the only Testing and Certifying agency in the country.

NIWE has the responsibility to provide complete scientific and technical backing to all stakeholders in the field of wind energy and has stated its commitment through its quality policy.

NIWE is committed to achieve customer satisfaction, loyalty and confidence by providing credible, prompt and complete solutions of international quality to all the stakeholders in the wind energy sector.

NIWE, strives to be technical focal point of excellence for the present and future. NIWE shall stay at the forefront of Wind Turbine Technology application by continuously improving its expertise.

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