Information Brochure

Certification Course in

12 Weeks – Advance Professional in Renewable Energy Development including Grid Integration and Energy Storage System (Online/Offline)

(Starting from Monday 10th August, 2020)

Organized by

Central Board of irrigation and Power

CBIP Centre of Excellence, Gurugram

(Recognized as Grade A, category-1 training Institute by Ministry of Power, Govt. of India)

Under the aegis of

Society of Power Engineers (India)

CBIP Building Malcha Marg, Chanakyapuri, ND

(The only Professional Body which meant for Power Engineers)

Excellent learning opportunity for all the participants

BACKGROUND

ABOUT CBIP

Central Board of Irrigation & Power (CBIP) a premier Institution, setup by GOI in 1927 is serving the nation in the disciplines of Power, Renewable Energy and Water Resources Sectors for more than 94 years.

It is an exchange and knowledge bank for dissemination of technical knowledge & professional experience to help Engineers/ Professionals to update their knowledge and gain practical know-how.

CBIP'S MAIN OBJECTIVE IS:

- to disseminate technical knowledge through various modes, e.g., publication of technical documents, organizing conferences /workshops
- to provide specialized training to the professionals in the Power, Renewable Energy and Water Resources Sectors.

ABOUT SOCIETY OF POWER ENGINEERS (INDIA)

The Society of Power Engineers (India) is an apex body engaged in the activities of technological upliftment of the power engineers of this country by making available latest technological developments all over the world to the members. Publication & distribution of information Journal, Workshops/Seminar, group discussion are regular features of the society.

The aims and objects for which the Society is consitituedis to promote the advancement of power engineering and allied subjects, and their applications, and to provide facilities for the exchange of information and ideas on those subjects amongst the members of the Society and for that purpose

INTRODUCTION

A major goal of sustainable energy system using renewable energy is to provide clean, affordable, accessible energy with efficient energy storage with depleting the earth resources. There is a need to develop reliable energy systems that do not depend on fossil fuel to preserve the environment while powering the present and the future. This has led to the development of power generating systems utilizing renewable (Solar and wind). There has being rapid increase in the power generation from Renewable over there the years. Due to the rapid increase in renewable energy generation, energy storage is serves as a storage medium for excess generation which can use when needed. Energy storage systems also serve as a means of increasing the power utilization and consumption rate. Implementing battery storage is limited due to relatively high cost. In some grid connected systems, Plug in Hybrid Electric Vehicles (PHEV) is use as storage which can function as double use systems. Future smart and micro grids could benefit from the double use functionality of electric vehicles as part of the energy network to provide vehicle-to-grid services (V2G).

Indian power sector is undergoing a significant change that has redefined the industry outlook. Sustained economic growth continues to drive electricity demand in India. The Government of India's focus on attaining 'Power for all' has accelerated capacity addition in the country. At the same time, the competitive intensity is increasing at both the market and supply sides (fuel, logistics, finances, and manpower).

By 2022, wind energy is estimated to contribute 60 Gigawatt (GW), followed by solar power at 100 GW, and biomass and hydropower at 15 GW. The target for renewable energy has been increased to 175 GW by 2022.

Total installed capacity of power stations in India stood at 370.34 GW as of April 2020.

The Government of India has identified power sector including Renewable Power as a key sector of focus to promote sustained industrial growth. Keeping this aspect in view **CBIP** under the aegis of **Society of Power Engineers (India)** has taken this initiative to launch 12 Weeks Certification Course in **Renewable Energy Development including Grid Integration and Energy Storage System (Online/Offline)** for the graduates engineers /diploma engineers to update their knowledge in the field of Renewable Energy including Grid Integration and Energy Storage System. The duration of the course would be 12 weeks which includes online sessions (5 Days in a week and 4 Hrs. in a day).

The course is also open for the sponsored candidates from SEBs, Power Utilities and Industries (Public & Private).

After completion of the course the students would acquire extensive basic and advanced knowledge of the subject.

The modules covers during the course are as follows:

Solar Power

- Power Sector Scenario of India including Renewable
- Solar Power Technologies and Its Applications
- Overview of Solar System its Types and Components
- Load calculation Analysis
- Plant location identification- Site survey, Plant layout, Shadow analysis
- Solar geometry, Solar resources, Solar radiation
- Solar cell physics
- Balance of Plants: Battery, Inverter, Charge controller, Mounting Structure, Cables, Junction Box etc.
- Components Selection Criteria and Sizing of Solar PV Systems
- Inspection, Testing & Commissioning of Solar PV System
- Troubleshooting of Solar PV System
- O&M of Solar PV System
- Solar PV Module Testing
- Procedures, Permissions and Approvals for Solar PV System
- Preparation of DPR
- Financial Modeling of Solar PV System
- Tariff calculation of Solar PV System

Wind Power

- Introduction to Wind Energy , Evaluation and Development
- Wind turbine technology and developments
- Various Components of Wind Turbine
- Design Criteria of Wind Turbine
- Assessment of Wind resource and Its techniques
- Wind Farms- Planning & Designing
- Installation and commissioning of wind turbines
- Troubleshooting, O& M of wind farms
- Testing & Certification of wind turbines
- Introduction of Small wind turbine and hybrid systems
- Financial Modeling

Energy Storage System

- Introduction to energy storage system concepts including ESS applications
- Types of electrical energy storage and key characteristics and terminology
- Parameter, Role and Various Applications of Energy Storage System
- Introduction to battery energy storage systems (including Lead Acid, Lithium Ion, Ni-Cd Batteries)
- Small scale battery storage systems
- Introduction to Power-to-gas Technology: Hydrogen Cell
- Roles of storage in the electricity grid and Integration of energy storage into electrical grids
- Grid Level Battery Storage
- Concept of Micro Grid
- Pumped Storage
- Introduction to E- Mobility
- Case Study
- Business Models for deploying Energy Storage

Other Modules

- Hybrid System
- New Initiatives in Renewable Energy -
- Renewable Energy Govt. Incentives/policy, regulatory aspect/affairs
- Introduction of Substation Equipments and Grid Integration
- Introduction to SCADA
- Introduction to Smart Grid and Smart Metering
- Introduction to Power Trading
- Introduction to Power Scheduling – Load Dispatch
- Introduction to Financing of Projects
- Introduction to Inventory Management
- Introduction to Tendering & Contract

FACULTY

Renowned/Reputed and well experienced faculty members from Renewable Power Industry/Developers/ Manufacturers/Contractors/Professors from Engineering colleges will be delivering the lectures.

UNIQUE FEATURES OF ONLINE TRAINING

- High safety of participants w.r.t. COVID19 as no travel is involved
- No travel related costs
- Flexibility to join via android / ios mobile phones
- Well proven online platform with high cyber security.
- Live message chat, Live voice chat, polls and Quiz Real time engagement
- Working Group Discussion within participants

E-Certificates Note:

- Audio/video recording is prohibited however the presentations will be send to the mail of the participants
- CBIP will not be responsible for any quality and interruption of audio/video due to poor internet connectivity at the customer end
- Online training session link will be provided to the participants only. Forwarding the link to other person is strictly prohibited
- The participants will be required to adhere the time schedule fixed for the training

RECOGNISION/CERTIFICATION OF THE COURSE

Certificate will be issued by Central Board of irrigation & Power (CBIP) which is a reputed autonomous body in the field of Power & Water Resources having liaison with various Govt./Semi-Govt./Pioneer-Pvt. Sector Organizations including Central Electricity Authority, NTPC, NHPC, Powergrid, SECI etc.

CBIP institute has been recognized as Grade – A Category-I training Institute by Ministry of Power, Govt. of India and also a recognized training partner of National Skill Development Corporation (NSDC), Power Sector Skill Council (PSSC) and Skill Council for Green Jobs (SCGJ)

WHO SHOULD ATTEND?

The Engineering Graduate/Diploma Engineers who wish to make their career in the Renewable Energy/Power sectors. The working professional can also join the course to update their knowledge in the field of Renewable Energy sector.

DURATION AND PERIOD OF COURSE

The duration for the course will be of 12 Weeks having 05 days in a week and 04 Hrs. in Day preferably 02 Hrs. FN and 02 Hrs. AN. (2 hrs) out of which 1 hr 30 minutes will be for subject session followed by 30 minutes for question/answer session.

COVID 19 SPECIAL REGISTRATION FEE

The Course Fee will be Rs. **25,000/-** per participant

There is limited seat for the course which will be filled on First cum First serve basis. The Last date of registration is 09th August, 2020

WHO CAN BECOME MEMBER OF SOCIETY OF POWER ENGINEERS (INDIA)

- Any students' studying for Diploma in Engineering or Degree in Engineering in any Discipline having inclination to work on Power Sector
- Any Diploma or Degree holder in any discipline having power engineering related interest.
- Any Institute which is engaged in the power Engineering business or is interested in Development of power Sector

MEMBERSHIP GRADE

- Student
- Associate Member
- Member
- Life Member
- Fellow Member
- Institution Member

MEMBERSHIP FEE

For Student Member: Rs. 5,00/- (including Admission Fee and annual Subscription Fee and Local Fee)

For Associate Member: Rs. 700/- (including Admission Fee and annual Subscription Fee and Local Fee)

THE BENEFITS AND OPPORTUNITIES OF SPE INDIA MEMBERS ARE OUTLINED BELOW.

- Members will have access of half yearly periodic Journal contains latest articles by the experts
- Members will have preference to publication of article in the Society Journal
- Members can have free online access of SPEINDIA and CBIP's international Societies technical papers/presentations and publications.
- Free online access to Telephone Directory of Key Personnel in Power, Renewable and Water resources sectors being published by CBIP
- Regular intimation about the activities and events being organized by Society and its chapters from time to time.
- 10% discount maximum up to Rs. 500/- in the participation fee for the events being organized from time to time by the Society.
- 10% concession for publishing advertisement in the periodical/Journal of the Society.
- Inclusion of one page write-up about the Organization in Journal for Institutional Members.
- Network and opportunity to interact with industry leaders and corporate officials during various events being organized by Society, which will help the student members for making their career in power sector.
- Members will receive "Certificate of Membership"
- Student Members will have opportunity to participate in online quiz being organized by Society free of cost
- Save Rs.2500 to Rs.5000 per annum while attending various events organized by SPEINDIA time to time.

TO REGISTER

The perspective participants, desirous of attending the above course may register themselves by clicking the following button:

Click to Register

Or by sending the following details to CBIP by email

Title of Course
- Name:
- Qualification:
- Organisation (if any)
- Mailing address:
- E-mail:
- Mob:

Note: After registration, the participants will be provided the link to participate in the course

(GST No. 07AAAJC0237F1ZU)

Payments of registration fee should be made by cheque at par/Demand Draft drawn in favour of **"Central Board of Irrigation and Power"**, payable at New Delhi

or

by transfer the amount to following bank

Name of Bank: HDFC, Bank,
SB Account No.: 00031110004411;
IFSC: HDFC 0000003
MICR Code: 110240001
Address: 209-214, Kailash Building, 26 Kasturba Gandhi, Marg, New Delhi 110001,

Address for Correspondence

G.P. Patel, Secretary, CBIP
A.K. Bhatnagar, Director, CBIP
Nodal Officers:
Shri Jaideep Singh, Sr. Manager (T)
M : 9871718218 E-mail: jaideep@cbip.org

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