

Teaching Faculty

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Eligibility

- 1) He/ she must be a faculty member in the Department of Electrical Engineering/Electrical and Electronics Engineering with basic understanding of Electric Circuits, Signals and Systems, Electric Machines, Power Electronics, Power Systems, Energy Science and High Voltage Engineering related Departments and Centres.
- 2) B.E. / B. Tech. or equivalent degree holders in the above mentioned disciplines with minimum teaching experience of 2 years and moderate teaching experience in the area of Power and Energy Systems
- 3) M.E / M.Tech. degree holders in the above mentioned disciplines with minimum teaching experience of 1 year and moderate teaching experience in the area of Power and Energy Systems.
- 4) Ph.D. degree holders should have a minimum teaching experience of 1 year and moderate teaching experience in the area of Power and Energy Systems.

Who may benefit

The workshop is likely to benefit regular/visiting faculty colleagues who are teaching subjects like Electric Machines, Power Electronics, Power Systems, Energy Science and High Voltage Engineering etc.

Note

Please note that this ISTE STTP is conducted under the CEP IIT Kharagpur. Live recording of the course and other created contents will be released under Open Source through a portal. The recorded CD/DVD of the course lectures will be available for distribution, at cost, to any individual or institution. All participants are required to sign an undertaking for such release of contents contributed by them during and after the STTP. The recognition and citation will naturally be made for all contributors.

Course Fee

This ISTE STTP on Electric Power System is funded by the National Mission on Education through ICT (MHRD, Government of India), therefore there is no course fee for participation.

Accommodation and other Support for outstation Participants

Remote Centers are being funded to provide tea/lunch on each day of the workshop, and for accommodation, wherever available, for a limited number of outstation participants. **Travel expenses up to Rs. 1000/- one way and one-time will be reimbursed against proof of actual expenditure, for participants beyond a distance of 100 Km from the Remote Centre.**

How to Apply

Those wishing to attend this course should register online
<http://www.nmeict.iitkgp.ernet.in/epsmain.php>

Online registration open on 12th May, 2017

Address for Communication

Admin Team,
Project "T10KT", IIT Kharagpur
Vikramshila Building, Ground floor, Kalidas Auditorium
IIT Kharagpur, Kharagpur-721302
Contact Numbers:
Admin Team : +91 3222-281497
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TWO WEEK ISTE STTP ON ELECTRIC POWER SYSTEM

**National Mission on Education through ICT
(MHRD, Govt. of India)**

July 10-15, 2017



**Indian Institute of Technology Kharagpur
Kharagpur 721302
India**

Introduction

IIT Kharagpur and IIT Bombay are working together with Engineering Colleges of India to enhance the teaching skills of our faculty colleagues in core Engineering and Science subjects by conducting ISTE Short Term Training Programmes (STTPs) under Train Ten Thousand Teachers (T10KT) project using 353 established remote centers across India. Participating teachers attend live lectures at a remote center close to their own college, and also attend tutorial and lab sessions conducted in the same centers. The lecture transmission and live interaction takes place in distance mode using A-VIEW technology through Internet at the selected remote centers across the country. Since December 2009, a number of two-week ISTE STTPs were conducted on various Engineering subjects. We have reached out to more than 1,00,000 teachers and helped them to enhance their teaching skills in these subjects.

In order to run these STTP at selected remote centers, we invite expert faculty members from various remote centres to a five-day Coordinators' training programme held at IIT Kharagpur or at IIT Bombay, at least two months before the main STTP. The trained Coordinators then act as Workshop Coordinators during the main STTP liaising between the participants at their Remote Centers and IIT Kharagpur / IIT Bombay from where the interactive lectures are transmitted live. During the main STTP, the workshop Coordinator at every center supervises the tutorials and laboratories. All the lectures and tutorial sessions are recorded at IIT Kharagpur or at IIT Bombay. The final edited audio-visual contents, along with other course material are released under Open Source. The contents can be freely used later by all teachers, students and other learners.

In the backdrop of the success of these STTPs, we now announce another 6 day ISTE STTP on "**Electric Power System**" during July 10 – July 15, 2017 under Blended MOOCs (Massive Open Online Courses) model. Here,

1. The participating teachers will complete the equivalent of two-week full time work online, spread over 6 physical weeks where video lectures and assignments will be uploaded beforehand.
2. After completing the online assignments spread over 4 to 5 weeks the participants will assemble at the selected Remote Centers for 6 days face to face interaction and lecture sessions through A-VIEW and will complete team assignments, tutorials, quizzes etc.

3. Offline assignments will be uploaded and the participants will have to complete these assignments within a stipulated time.
4. There will also be a system of students' feedback in the Main STTP.

The above proposed model is tentative and subjected to minor changes

Course Justification

Electricity is the third most important commodity, next only to Air and water for survival of human beings. The course on Electric Power System is a very important course in an electrical engineering curriculum on all aspects of Electricity right from Generation to utilization. Every graduate in broad area of Electrical Engineering needs to have a detailed exposure to (a) Elements of Power System (b) Importance of Renewables and (c) Importance of ICT in reliable operation of Power System.

Course Overview

Electrical Power System is a core course for any undergraduate programme in Electrical Engineering. It is expected to be the first course on this topic and is typically meant for participants who already have some introductory knowledge of Electric Circuits, Electric Machines and Control Systems. The course shall cover the basic foundations of Power System Analysis. which can be used to assess effective Electric Power Delivery in practice. An awareness of available software tools for the purpose. Need for renewable energy resources will also be brought out. Participants are exposed to usefulness of employing ICT in developing smart grids. Through this course a participant is expected to be able to learn to properly identify as to what comprises an Electric Power System, examine its inherent complexity and explore different ways to develop an algorithmic solution by analyzing the various alternatives to finally develop a good practical solution that is supported by logical and theoretical justification.

Course Objective

Participants pursuing this course should be able to :

1. Identify as to what Comprises a Power System
2. Realize the need for Renewable Energy Sources for Electric Power Supply.
3. Become aware of usefulness of ICT in reliable operation of Electric Power System.
4. Be able to carry out all essential analyses necessary to have reliable operation of Electric Power System.

Course Modules

1. Introduction and Components of Power System
2. Steady State Operation of Power System
3. Power Flow Analysis
4. Symmetrical Components
5. Symmetrical Faults
6. Un-symmetrical Faults
7. Power System Stability
8. Economic Operation of Power System
9. Power System Protection
10. Application of Software for Power System Analysis
11. Recent Trends and Application of ICT in Power System Operation
12. Overview of a Laboratory Course on Power Systems
13. Control of Power Systems
14. Renewable Energy Issues

The learning begins by reading a good text book on the subject. This is to be followed by solving problems, including peers in a group learning effort. Discuss and interpret the results obtained. All the three are important to achieve success. In addition, it is important to be able to be aware of available softwares for the analysis. Practice some real life situations , execute them and compare their performances to check whether theoretical analysis confirms with experimentation. A text-book must be available for study. It is preferred to generally follow a single text-book. However, referring to other text-books at times to understand different topics may be preferred. While studying in a group, it is useful if individual members follow different books so that a variety of inputs are obtained. Web and video resources are good additional inputs. The steps include reading the chapters relevant, watching the video, discussing the concepts in a group and then solving a set of problems. The solutions to the problems solved by the group can be discussed together and one or more final versions may be accepted. Trying to check, other member's solutions are a very important aspect of learning any subject.

Duration and Venue

Duration : The duration of the STTP will be six working days. It will start on **Monday 10th July, 2017 at 9:30 AM** and will end on **Saturday 15th July, 2017**.The participants must report to the respective remote centres by 8:00 AM on 10thJuly, 2017.

Venue: 194 remote centers located in different parts of the country. The list of participating remote centers is given along with online application form.