

**TWO DAY TUTORIAL
ON
POWER SYSTEM GROUNDING PRACTICES**

विद्युत प्रणाली भूसम्पर्कन अभ्यासों पर दो दिवसीय शिक्षकीय कार्यक्रम
(26th - 27th OCTOBER 2010)

GOLDEN JUBILEE YEAR



**POWER SYSTEMS DIVISION
CENTRAL POWER RESEARCH INSTITUTE
PROF. SIR C.V. RAMAN ROAD, PB NO 8066
BANGALORE 560 080
<http://www.cpri.in>**

ABOUT THE TUTORIAL

Grounding plays a vital role in the power system operation. Effective grounding is necessary for the proper operation and co-ordination of protection schemes as well as for safety of personnel.

More often, not much attention and care is given to the design, construction & maintenance of grounding systems which give rise to problems of mal operation of power system equipment and hazards to the safety of personnel. Besides this, such a situation may prove to be uneconomical in the overall context of planning, design & construction of EHV substations & generating stations.

CPRI has been offering consultancy services in the economic design of protective grounding system both for HV/EHV stations and power houses. This includes the measurements at site, computer-aided design & testing of grounding grids for various utilities & industries.

The tutorial is intended to provide theoretical and practical knowledge that enables the participants to have in-depth understanding of essential issues relevant to economic design & maintenance of grounding systems and their applications.

TOPICS

- ◆ Introduction to power system grounding practices
- ◆ Mathematical analysis of gradient problem
- ◆ Design of HV/EHV station grounding grids – general considerations
- ◆ Design considerations of grounding system for DC transmission
- ◆ Use of special chemicals in high soil resistivity areas
- ◆ Recent advances in grounding system design
- ◆ Design of grounding grids using CPRI grid design software
- ◆ Influence of Tower footing impedance on Lightning performance of Transmission Line towers
- ◆ Impulse behaviour of grounding systems
- ◆ Field Measurements – Soil resistivity and earth resistance

SPEAKERS

- Dr. Satish Nayar, BHEL, New Delhi
- Dr. B R Gupta, Retd., Professor (Punjab Engg. College)
- Dr. Uday Kumar, IISc, Bangalore
- Shri. H Jayakumar, Retd., Joint Director, CPRI
- Shri. M M Babu Narayanan, CPRI, Bangalore
- Dr. R S Shivakumara Aradhya, CPRI, Bangalore
- Shri. R A Deshpande, CPRI, Bangalore
- Shri. J Sreedevi, CPRI, Bangalore
- Shri. C Prabhakar, CPRI, Bangalore

WHO SHOULD ATTEND ?

- ◆ This tutorial will be highly beneficial for Engineers from power utilities, research establishments, industries and consultancy firms who are involved in the design, construction, installation, inspection, operation, and maintenance of electrical grounding systems.

REGISTRATION

- ◆ Registration fee per delegate for the training programme is Rs.10,000/- plus service tax. Present service tax and cess is 10.3 %.
- ◆ Registration form, a part of this brochure, complete in all respect shall be sent to the programme coordinator along with the registration fee in the form of crossed DD drawn in favor of Accounts Officer, CPRI, payable at Bangalore.
- ◆ Delegates may transfer the fee by Wire transfer to the S/B Bank A/C of CPRI in State bank of India, IISc Branch, Swift code No.: SBININBB425, S/B A/C No. 10270577483, Beneficiary Name: CPRI, Bangalore under intimation to the programme coordinator.
- ◆ Kindly use separate form for each participant, Downloaded/ Photo copies of Registration form are acceptable.
- ◆ The Registration fee includes kit, course notes - CD, tea/coffee with snacks and working lunch on both days.

ORGANISING COMMITTEE

- Dr. R S Shivakumara Aradhya
- Shri. MM Babu Narayanan
- Shri. R A Deshpande
- Smt. J Sreedevi
- Shri. S Shyamsundar
- Shri. G Pandian
- Shri. C Prabhakar

TRAVEL & ACCOMODATION

- ◆ Bangalore is well connected by Road, Rail and Air.
- ◆ Participants have to make their own travel arrangements.
- ◆ *Guest house accommodation on twin share basis can be provided on chargeable basis subject to availability.*

CPRI'S PROFILE

Central Power Research Institute (CPRI) set up in 1960 by the Government of India, functions as a National organization for applied research in power sector and also serves as an independent laboratory for testing and certification of power equipment. CPRI is a member of STI (Short Circuit Testing Liaison) of Europe and is accredited by M/s ASTA of UK. CPRI also provides consultancy services on various facets of power sector. CPRI has expertise in the area of simulation, diagnostics, system analysis and testing. CPRI laboratories have modern equipment needed for power system simulation, short circuit testing, diagnostics of equipment, materials engineering, Seismic qualification etc. CPRI has experienced faculty in different subjects concerned to power sector with practical experience in their respective areas of interest, as well as extensive experience in presenting courses/seminars. Over the period, CPRI officers have gained lot of practical knowledge concerning to testing and operational problems of the industry, CPRI is a leading provider of Training and Continuing Education to Utilities, PSUs, across the country for the past 50 years.

CPRI is continually setting new standards in training and continuing education from basic theoretical information to practical hands-on electrical equipment training. CPRI courses have made a substantial impact on the level of training and education to India's electricity utilities, manufacturing companies, transmission and distribution companies. By upgrading the occupational skills of technical workers, CPRI training courses have improved the career path of many electrical personnel, as well as contributed to an improvement in electricity efficiency, plant productivity, electrical system reliability and overall competitiveness of Indian industry.

केंद्रीय विद्युत अनुसंधान संस्थान (सीपीआरआई) जिसकी स्थापना भारत सरकार द्वारा 1960 में की गई, विद्युत क्षेत्र में अनप्रयुक्त अनुसंधान के लिए राष्ट्रीय संगठन के तौर पर कार्य करने के अलावा विद्युत उपस्कर के परीक्षण तथा प्रमाणन के लिए स्वतंत्र प्रयोगशाला के तौर पर काम करता है। सीपीआरआई यूरोप के एसटीआई (लघु पथन परीक्षण सम्पर्क) का एक सदस्य है एवं यूके के मेसर्स आस्टा द्वारा प्रत्यापित है। सीपीआरआई विद्युत क्षेत्र के अनेक पहलुओं पर परामर्श सेवाएँ भी उपलब्ध कराता है। अनुकार, निदान, प्रणाली विश्लेषण तथा परीक्षण के क्षेत्र में सीपीआरआई की सुविज्ञता है। सीपीआरआई की प्रयोगशालाओं में विद्युत प्रणाली अनुकार, लघु पथन परीक्षण, उपस्कर निदान, सामग्री अभियांत्रिकी, भूकम्पी अर्हता आदि के लिए आवश्यक आधुनिक उपस्कर हैं। सीपीआरआई में विद्युत क्षेत्र से संबंधित विभिन्न विषयों से संबंधित अनुभवी संकाय हैं, जिनके अपनी अभिरुचि के क्षेत्र में प्रायोगिक अनुभव के साथ साथ पाठ्यक्रम / संगोष्ठियों की प्रस्तुति में व्यापक अनुभव है। वर्षों के दौरान, सीपीआरआई के अधिकारियों ने उद्योग की परीक्षण तथा प्रचालनात्मक समस्याओं से संबंधित प्रायोगिक ज्ञान अर्जित किया है। पिछले 50 वर्षों के दौरान देशभर में उपयोगिताओं, उपक्रमों को प्रशिक्षण तथा अनुवर्तन शिक्षा उपलब्ध कराने में सीपीआरआई का प्रमुख हाथ है।

सीपीआरआई प्रशिक्षण तथा अनुवर्तन शिक्षा में मौलिक सैद्धांतिक सूचना से लेकर प्रायोगिक अभ्यास युक्त वैद्युत उपस्कर प्रशिक्षण तक में नए मानकों को स्थापित करता रहा है। सीपीआरआई के पाठ्यक्रमों का पर्याप्त प्रभाव भारत की विद्युत उपयोगिताओं, निर्माता कम्पनियों, संचरण तथा वितरण कम्पनियों को दिए गए प्रशिक्षण तथा शिक्षा के स्तर पर पड़ा है। तकनीकी कार्मिकों की व्यावसायिक कुशलताओं के उन्नयन के द्वारा सीपीआरआई के प्रशिक्षण पाठ्यक्रमों ने अनेक वैद्युत कार्मिकों के करियर मार्गों को सुधारा है, साथ ही भारतीय उद्योग में विद्युत दक्षता, संयंत्र उत्पादकता, विद्युत प्रणाली विश्वसनीयता और समग्र प्रतियोगिता में सुधार की ओर योगदान दिया है।

Registration form shall be sent by email / fax / post to

Shri R A Deshpande/Shri C Prabhakar
(Programme Coordinators)

Power Systems Division

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REGISTRATION FORM**TWO - DAY TUTORIAL ON
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Mr. Ms. Mrs. Dr. Prof. Others (please specify) _____

Full Name of the Participant _____

Designation _____ Nationality _____

Full address of Organisation _____
(for correspondence) _____

Country: _____ ZIP/PIN Code: _____

Phone/Fax Nos.:(Please Mention Country & STD Code)

Office: _____ Res(Optional): _____

Fax: _____ Mobile/Cell: _____

E-mail: _____

Enclosed is a Demand Draft No: _____ dated _____ for Rs. _____ drawn on
_____ bank towards delegate fee drawn in favour of
"Accounts Officer, CPRI" payable at "Bangalore."

Date: _____

Note: Kindly mention your Name, Name of the Company and Name of the conference behind the Demand Draft

Program Coordinators:**Shri. R.A. Deshpande/Shri. C. Prabhakar**

Joint Director / EO-3

Power Systems Division

Central Power Research Institute

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State Bank of India, IISc Branch,

Indian Institute of Science,

Bangalore - 560 012, INDIA

Swift Code No. : SBININBB425

Account No. : 10270577483

Beneficiary Name : CPRI, Bangalore

CANCELLATIONS & SUBSTITUTIONS:

Registration without payment does not confirm the reservation for the event. Request for cancellations must be received in writing, more than 7 working days before the conference to get refund. However, Rs.1000/-(\$100 for foreign Delegates) will be deducted as handling charges. If the fee has been paid in full, substitutions can be made with prior intimation with no extra cost. In case this conference is cancelled, full refund will be made. CPRI reserves the right to postpone or cancel this event.

Sponsors, Co-Sponsors and Exhibitors shall give full details of all the participants in this format.
<http://www.cpri.in/training/nsda/index.html>

Kindly use separate form for each participant, downloaded/photocopies of this registration form is acceptable.