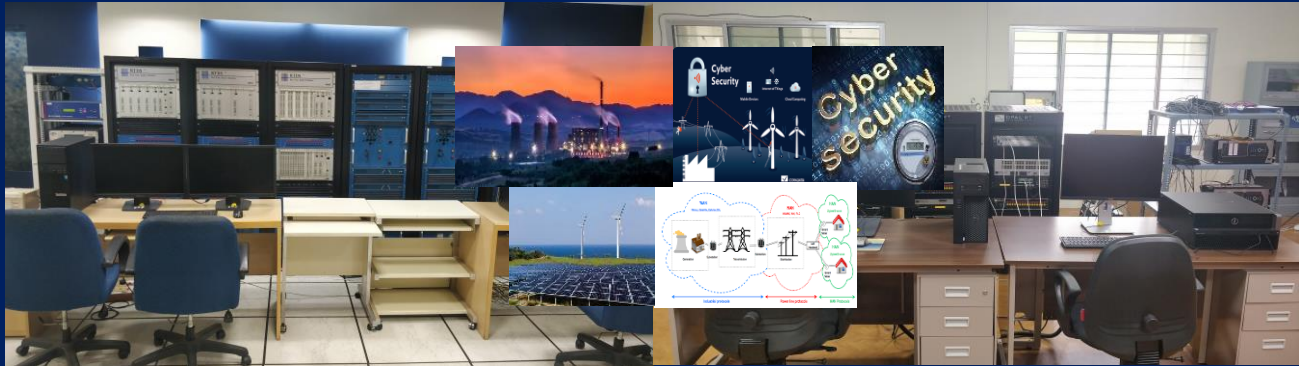


One day Online Webinar training

On

“Cyber Security with Real Time Simulation”

January 08, 2021



आयोजक / Organised By



विद्युत प्रणाली प्रभाग (पीएसडी)
Power Systems Division (PSD)

केंद्रीय विद्युत अनुसंधान संस्थान / Central Power Research Institute
(भारत सरकार की सोसाइटी, विद्युत मंत्रालय) / (Govt. of India Society, Ministry of Power)
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About the Online Webinar training:

The integration of Information and communication capabilities with the power grid has led to the numerous vulnerabilities in the cyber-physical system (CPS) and has also opened up the possibility of a cyberattack. This cyber security threat can significantly impact the physical critical infrastructure of power grid. It is necessary to understand the complex relationship between the cyber and physical system domains, and its potential impact on the power grid because of a successful cyber-physical attack. The real time simulation is used worldwide as a crucial component of cybersecurity, in which the simulated power system can be connected to real protection, control, and measurement devices and subjected to both intentional and unintentional attacks. A cyber-physical test bed that can model and simulate the smart grid is necessary to test and validate algorithms and devices. This will be helpful for providing a realistic, flexible, and contained environment for evaluation of Smart power grid system security technologies.

The following topics will be covered in the webinar:

- Real Time Modeling and Simulation of Cyber Physical System
- Cyber-Physical Systems Security for Smart Grid
- Cyber Attack power grid real time simulation using RTDS
- Cyber Attack power grid real time simulation using Opal-RT

Pre-requisites

The Participant should have good internet connection and good quality headphone/speaker set with Laptop/Desktop. The participant should also have notepad/pen to note down important points.

Who should attend?

The webinar is aimed at Engineers, Managers responsible for the operation and maintenance of Renewable Energy Systems, Distribution Systems, Transco's, Discoms, Transmission & Distribution Planners, Consultants, Officers of Power Utilities/Corporations, State Govt./SEBs, Policy makers, Entrepreneurs, Energy Planners, Renewable Energy Providers, Private Entrepreneurs, Manufacturers, Research/Academic Institutions and Financial Institutions, etc.

Registration

Participation Fee Details	
Organizations/Institutions	Per person/day
¹ State Power Utilities/Government agencies	
Up to 5 Participants	Rs: 1500/-
5-15 Participants	Rs:1300/-
15-30 Participants	Rs: 1200/-
² Private Sector Organizations	
Up to 5 Participants	Rs: 2000/-
5-15 Participants	Rs:1500/-
15-30 Participants	Rs: 1200/-
³ Educational Institutions with Min 5 to Max 30 Nos	
Students	Rs:500/-
Faculty members	Rs:1000/-
GST of 18% Extra is Applicable	

Registration form, a part of this brochure, complete in all respect shall be sent to the webinar Coordinator along with the registration fee in the form of crossed DD drawn in favour of Accounts Officer, CPRI, payable at Bangalore.

Participants from international may transfer the fee via Swift code No.: SBININBB425, SBI A/C No. 10270577483, and participant from National may transfer fee to SBI A/C No.10356553310, IFSC code: SBIN0002215. Beneficiary Name: SBI, IISc Branch, Bangalore under intimation to the webinar coordinators.

Kindly use separate form for each participant, Downloaded/ Photo copies of Registration form are acceptable.

The Registration fee includes training material-soft copy and Digitally signed Electronic/Soft Copy certificate will be to the participants.

Power Systems Division (PSD)

Power Systems Division with its state-of-the-art facilities and latest software tools offers a wide range of power system simulation services, including real time performance analysis of various types of controllers such as FACTS, HVDC, SVC and protection relays. It has been conducting power system studies for the past two decades for its own needs and at the request of utilities and manufacturers. To carry out such studies the division possesses Real Time Digital Simulator (RTDS), RT Lab and various Power System Analysis Software Packages. Power Systems Division has carried out for the first time in the country the pilot project on "Protection system study and Protection audit" of selected DTL transmission system. Furthermore the Division is accredited by ISO: 9001-2015.

The Relay Testing Laboratory (RTL) is equipped with sophisticated Computerized Relay testing systems for testing of Protection relay for all its characteristics/functions meeting its accuracy requirements as per IS:3231 series and IEC:60255 series of standards. The laboratory conforms to ISO/IEC 17025-2017 requirements. Field-testing of protection relays is also carried out for major power stations and utilities and also undertakes pre-dispatch Third Party Inspection (TPI) on Relay and Control panel.

Central Power Research Institute, Bangalore has established **country's first** Phasor Measurement Unit (PMU) test facility. Fluke make 6135A/PMUCAL Phasor Measurement Unit Calibration system is a automated system and has traceable solution for PMU testing and Calibration. It's a unique facility for carrying out Validation/Evaluation of PMU both M-class and P-Class steady state and Dynamic conditions as per IEEE C37.118.1-2011, IEEE C37.118.1a-2014, IEEE C37.242.2013, IEEE Synchrophasor Measurement Test suite Specification-Version 2-2015 and IEC/IEEE 60255.118.1:2018.

6135A/PMUCAL at a Glance

The 6135A/PMUCAL system enables you to:

- * Calibrate and test a PMU from a client PC, either at the site of the test system or remotely over the Internet
- * Quickly set up a PMU test
- * Speed through automated calibration procedures
- * Provide the required static and dynamic voltage and current conditions that occur in a power distribution grid specified by the standard
- * Apply those signals to a phasor measurement unit
- * Capture the PMU's reported results
- * Compare those results with the original stimulus
- * Evaluate against the thresholds defined in IEEE Std C37.118.1a™-2014 & IEC/IEEE 60255-118-1:2018
- * Create test reports, graphs and calibration certificates that can be readily printed or shared electronically

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 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 substantial impact on the level of training and education to India's electricity utilities, manufacturing companies, transmission and distribution companies. By upgrading the occupational skill 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 an overall competitiveness of Indian industry.

Registration form shall be sent by E-Mail/Fax/Post to
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Speaker



Shri Kaliappan Perumal, B.Tech., M.E., (Ph.D). He has 26 years of experience with Central Power Research Institute (CPRI), Ministry of Power, A Govt of India Society, working in the field of Power System Protection, Synchrophasor, Wide Area Monitoring, Protection and Control (WAMPAC) and Smart Grid Technology and Applications. His areas of interests are Adaptive Relaying, Computer Relaying, Protection issues in Distributed Generation, Validation of Phasor Measurement Unit, and Synchrophasor for Power system Protection and Control applications, Internet of Things with Renewable Energy, Internet of Things with Smart Grid, and Cyber Physical System Security for the Smart Grid. Presently he is holding the Post of Joint Director with Power Systems Division of CPRI, Bangalore. He is a Senior member IEEE and Fellow IE and he is also pursuing his Ph.D at National Institute of Technology (NIT), Tiruchirappalli. Mobile: +91 94491 49924, Email: kaliappan@cpri.in