

Training Calendar

January - March 2017

"एनपीटीआई के साथ, पावर सेक्टर का सुनिश्चित सम्पूर्ण विकास"



Fifty Years of Service to the Power Sector



राष्ट्रीय विद्युत प्रशिक्षण प्रतिष्ठान
National Power Training Institute

विद्युत प्रणाली प्रशिक्षण संस्थान

Power Systems Training Institute

(Ministry of Power, Govt. of India)

(An ISO 9001: 2008 & ISO 14001: 2004 Organization)

Bangalore- 560070



Circular Letter

Sir,

Sub: Circular letter inviting nominations for the training courses - reg.

The Power Systems Training Institute (PSTI) invites nominations for the following courses proposed to be conducted during the months **January – March 2017** quarter.

Sl. No.	Course	Period	Course fee for Indian participants including service tax	
			Non-Residential	Residential
1.	Substation Planning & Engineering	02 - 06 Jan, 2017	Rs.17,250/-	Rs.19,795/-
2.	Despatcher Training Simulator	09 - 20 Jan, 2017	Rs.31,625/-	Rs.37,733/-
3.	Reactive Power Management	23 – 25 Jan, 2017	Rs.12650/-	Rs.14177/-
4.	O&M of Transformers and Circuit Breakers	06 - 10 Feb, 2017	Rs.17,250/-	Rs.19,795/-
5.	Power System Operation (Basic Level System Operator Course)	13 – 25 Feb, 2017	Rs.31,625/-	Rs.51,463/-
6.	High Voltage Testing of Power System Equipment	20 – 24 Feb, 2017	Rs.17,250/-	Rs.19,795/-
7.	Electrical Safety and Inspection of Electrical Installations under IE Rules	27 Feb – 03 Mar, 2017	Rs.17,250/-	Rs.19,795/-
8.	Power Quality & Harmonics Mitigation and Reactive Power Management	06 - 10 Mar, 2017	Rs.17,250/-	Rs.19,795/-
9.	Power Market Specialist (Specialist Level Power System Operator Course)	13 – 18 Mar, 2017	Rs.23,000/-	Rs.32,919/-
10.	Power System Protection	13 – 24 Mar, 2017	Rs.31,050/-	Rs.38,176/-
11.	Advanced Power System Protection	20 – 24 Mar, 2017	Rs.17,250/-	Rs.19,795/-

It is requested that the nominations for these courses may please be sent so as to reach this office at least 7 days before the commencement of the course by Post/Fax/Email.

It is also requested to furnish the fax, email addresses and telephone Nos. of the sponsoring authorities and the sponsored candidates for fast communication. All payments in respect of the above short term courses shall be done in advance as given in general information.

Regards
M.N.MURTHY
Principal Director

Course Details.....

JANUARY, 2017

1. Substation Planning and Engineering		
Duration: 5 days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 02 - 06 Jan, 2017	Rs.17,250/-	Rs.19,795/-
Course Outline:- Planning of Substation & Preparation of Project Report, Layout of Substation, Choice of Switching Schemes and Bus Bar /Bay Design, Selection of Substation Main Equipment, Design considerations of Substation equipment and Earthing, Cost estimates of Sub-Station and case studies, Electrical Clearances and pre-commissioning inspection, Over Voltages & Selection of Surge Arrestors , Engineering of Protection System for Substation, Measurement of Soil Resistivity, Metering in Substation, Substation Automation, One and half breaker system and its comparative advantages with respect to traditional three bus system, Field visits and Case studies.		

2. Dispatcher Training Simulator		
Duration: 2 weeks	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 09 - 20 Jan, 2017	Rs.31,625/-	Rs.37,733/-
Course Outline:- Dispatcher Training Simulator overview, Indian National Network including HVDC lines, Prime mover dynamics (Hydro, Steam, Gas and Pumped storage units), Active and Reactive Power Control, Load shedding schemes, Islanding Schemes, SCADA Operation, Automatic Generation Control, Islanding and Integrated Operation, System Occurrence and Restoration, System Stability, Voltage control & Voltage Collapse Simulation & Prevention of Grid Disturbance.		

3. Reactive Power Management		
Duration: 3 days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 23 - 25 Jan, 2017	Rs.12650/-	Rs.14177/-
Course Outline:- Reactive Power Control Equipment, Performance of Reactive Power Equipment under different Operating Conditions, Comparative Study of AVR, OLTCs, Power Capacitors, Shunt Reactors, SVCs, TCRs, Statcoms etc, in reactive power management, Automatic Power factor controllers, Harmonics – causes, measurement and mitigation, Thyristor based and voltage source converter based FACTS Controllers.		

FEBRUARY, 2017

4. O&M of Transformers and Circuit Breakers		
Duration: 5 days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 06 - 10 Feb, 2017	Rs.17,250/-	Rs.19,795/-

Course Outline:- Transformers-Construction, connections, Tap Changing Mechanism & Parallel Operation, Selection and sizing of Transformer, Transformer Neutral Earthing and Substation Earthing Practices, Testing of Transformers, Condition Monitoring of Transformers, Protection of Transformers, Maintenance of Transformers, Application and Design of Air and Gas Insulated Circuit Breakers, Selection, Sizing, Performance Analysis of Circuit Breakers, O&M of Circuit Breakers, Testing and Condition Monitoring of Circuit Breakers, Testing of Circuit Breakers, Transformer diagnostic tests, FURAN, SFRA, Winding resistance measurement, partial discharge measurement, Residual life assessment (RLA) of transformers, Earthing practices in transformers and Field visits.

5. Power System Operation (Basic Level System Operator Course)				
Duration: 2 weeks	Non-Residential course fee inclusive of Service Tax per participant		Residential course fee inclusive of Service Tax per participant	
Schedule: 13 – 25 Feb, 2017	Sponsored by SLDC	Others	Sponsored by SLDC	Others
	NIL	Rs.31,625/-	Rs.19,838/-	Rs.51,463/-

Course Outline:- Power Sector Overview, Policy, Legal framework
 Power sector overview in India, Hydro station layout, startup, shutdown and emergency response, Electricity Act 2003, Legal Framework, policies & regulations and organizational set up in India, EHV AC Substations: Layout, Equipment & Bus arrangements, Gas Insulated Sub-Station, Ring Fencing of System Operation & Independent functioning of Load Despatch Centers, Thermal station Layout, startup, shut down and emergency response. New technologies, Smart Grid Operations- Prevailing practices and future roadmap, CEA Grid connectivity standards, Grid Standards Regulations Metering Standards.

Power System Operation and Control, Frequency control-Primary, Secondary and Tertiary Control and RGMO; Reactive power management, Indian Electricity Grid Code, Protection of Generators and transformers, Protection of Bus Bars and Distribution Systems, Impedance protection- fault loops, impedance relay characteristics, reactance, impedance, admittance (MHO), quadrilateral, special characteristics, faults affecting impedance relay performance, Fault resistance, load encroachment, remote in feed, mutual induction, System protection schemes, Protection for abnormal frequency and voltages.

Power Market Operation, Power system reliability, TTC / ATC Computations and Ancillary Services in Indian Electricity Market, POC Tariff Philosophy and Transmission Losses, Open Access Regulations and Long Term & Medium Term Access and connectivity with Regional and States Perspectives, Metering and settlement principles, Power Exchange Operations, Regional energy, UI and reactive energy account, Terms and condition of Tariff Regulations, Renewable energy in Power Sector, Integration of Renewables, REC Mechanism & RRF.

Power System Logistics-SCADA, Communications & IT, Energy Management System
 State estimation techniques, Energy Management Systems: Load Forecasting and Network Study, UI and Congestion Charge Regulations, SCADA/ EMS- Overview, Architecture, Main Components; Communication Systems- Overview, VSAT, Microwave, Optical Fiber etc.,

Hardware Protocols, Configuration, Communication network, System software – Displays, Database; Disturbance data collection modules / HDR retrieval & playback, HIM, Trends, Alarms, Health check, trouble shooting.

Labs & Assessments- DTS Lab, Relay Testing Lab.

Technical Visits- Visit to SRLDC, HVDC Sub-station.

6. High Voltage Testing of Power System Equipment

Duration: 5 days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 20 – 24 Feb, 2017	Rs.17,250/-	Rs.19,795/-

Course Outline:- High voltage technology, Solid insulating media, liquid insulation media, Gas & Vacuum Insulation, Generation of high voltages for testing, High voltage measurements, High voltage testing of transformers, Testing of Circuit Breakers, Testing of Surge Arrestors, Testing of Insulators, Cables and Capacitors, High Power Testing of switchgear, Partial Discharges and Field visits.

7. Electrical Safety and Inspection of Electrical Installations under IE Rules

Duration: 5 days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 27 Feb – 03 Mar, 2017	Rs.17,250/-	Rs.19,795/-

Course Outline:- Overview & Safety Requirements of IE Rules 1956, Design of Electrical Installations, Earthing System Design, Circuit Breakers and Protective Relays, Basic Protection schemes of power equipment, Inspection procedures for statutory inspection by Electrical Inspectors, Check points in Electrical Inspection, Pre-commissioning tests of Transformers, Switchgears and Power Cables, First Aid and Fire Fighting Practices in Industrial Installations / Substations, Nitrogen injection systems, fire alarm systems, fire audit, accident prevention-safety equipments and Field Visits.

MARCH, 2017

8. Power Quality & Harmonics Mitigation and Reactive Power Management

Duration: 5 days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 06 - 10 Mar, 2017	Rs.17,250/-	Rs.19,795/-
<p>Course Outline:- Power Quality, Harmonics Mitigation and Reactive Power Control Equipment, Performance of Reactive Power Equipment under different Operating Conditions, Comparative Study of AVR's, OLTC's, Power Capacitors, Shunt Reactors, SVC's, TCR's, STATCOM, SSSC, UPFC etc, in reactive power management. Automatic Power factor controllers. Harmonics – causes, measurement and mitigation, Basic concepts of real, reactive and apparent power, voltage profile, causes of low power factor, power factor improvement, series and shunt compensation, static VAR compensators, Synchronous compensators.</p>		

9. Power Market Specialist (Specialist Level Power System Operator Course)

Duration: 6 Days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant		
Schedule: 13 – 18 Mar, 2017	Sponsored by SLDC	Others	Sponsored by SLDC	Others
	NIL	Rs.23,000/-	Rs.9919/-	Rs.32,919/-
<p>Course Outline:- Fundamentals of Electricity Markets, Demand forecasting, Day-ahead scheduling and Despatch, Wholesale market design; Bilateral contracts, market abuse and Congestion charge regulations, PoC charges and Transmission loss regulations, Metering Regulations, Energy accounts and Settlement of bills, DSM Regulations, Reactive energy accounting and congestion charges, Balancing of Capacity & Energy markets, Power exchange operations, Grid connectivity standards, Long term, Medium Term and Short term Open access Regulations, Ancillary services for frequency regulation, Ancillary services for voltage regulation.</p>				

10. Power System Protection

Duration: 2 weeks	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
Schedule: 13 – 24 Mar, 2017	Rs.31,625/-	Rs.37,733/-
<p>Course Outline:- Introduction to basic protection philosophy, principle of sampling, Programmable Schematic Logic (PSL) and setting of relay, Numerical feeder protection, Fault analysis, Relay input sources, Protection of Generators & motors, Protection of bus bars, Protection of Transformers, Protection of EHV lines, Protection of Distribution systems, Protection against over voltages, Insulation co-ordination, Testing of Surge Arrestors, Testing & commissioning of relays, Present trends in protection, Case studies, Integrated Protection, Control & Monitoring, Intelligent Electronic Devices in system protection, Software Architecture and performance characteristics of numerical relays, Phasor Measurement units, Wide Area Protection, Introduction to IEC protocols- IEC 103, IEC 61850, Communication methods and topology, introduction to digital substation-digital equipment, process bus information, IED hands on session and Field visits, Video Sessions, Laboratory sessions, Tutorials.</p>		

11. Advanced Power System Protection

Duration: 5 days	Non-Residential course fee inclusive of Service Tax per participant	Residential course fee inclusive of Service Tax per participant
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Schedule: 20 – 24 Mar, 2017	Rs.17,250/-	Rs.19,795/-
Course Outline:- Overview of System Protection, Numerical Relays, Protection of Transformers, Transmission lines, Bus bars, Feeders, Integrated Protection, Control & Monitoring, Intelligent Electronic Devices in system protection, Software Architecture and performance characteristics of numerical relays, Phasor Measurement units, Wide Area Protection, introduction to IEC protocols- IEC 103, IEC 61850, Communication methods and topology, introduction to digital substation-digital equipment, process bus information, IED hands on session and Field Visits.		

General Information

1. Entry requirements:

- Engineers / Supervisors / Faculty of Private and Government Power Corporations / Utilities / Companies and Technical Educational Institutions may participate in the programs. The TA & DA of the participants have to be borne by the sponsoring authorities.
- The participants shall report at 9:30am on the first day of training program at PSTI.

2. Accommodation:

Accommodation in PSTI Hostel will be arranged at the following rates:

Accommodation	Executive Hostel		Graduate Hostels		Guest House A/C
	AC	Non AC	AC	Non AC	
Single Room	400	350	350	300	750
Double Room per head	300	250	300	250	
Family Accommodation	600	500	600	500	

- The Hostel Accommodation may be confirmed from Shri S.D.Patil, Deputy Director over phone No.09480253706.

3. Mode of Payment:

- Payments must be in the form of **e-transfer / DD** only in favour of **Power Systems Training Institute payable at Bangalore.**
- Name of the trainee & course shall be written on the backside of the DD.
- The bank transaction id and date shall be sent by mail to pstinpti@yahoo.com in case of e-transfers.

Bank Details in case of e-transfer:

- Name of the Beneficiary : Power Systems Training Institute, Bangalore
- Name of the Bank & Branch : State Bank of India, Banashankari II Stage Branch
- Address of the Branch : 9th Main Road, Banashankari-II Stage, Bangalore: 560070
- NEFT IFSC Code : SBIN0006767
- Account Type : Current
- Account No. : 10031210203
- MICR No. : 560002008
- RTGS IFSC Code : SBIN0006767

Note: PSTI is a non-profit making educational institute. It does not come with in the purview of I.T Act for deduction of tax at source vide 10(23C) (iii ab) of I.T Act 1961. Hence no tax deductions at source shall be done against PSTI payments. TAN No: BLR P00338C; PAN No: AAALN0083C.

4. SLDC Nominations for System Operation Courses: "In line with the CERC's directions in response to Petition No. 222/MP/2015 dated 6.11.2015, the SLDC Incharge, sponsoring their executives to NPTI/PSTI's System Operation Courses (both Basic Level and Specialist Level), is requested to submit an undertaking that the SLDC system operators whose training is funded through LDC Fund will not be transferred from SLDC for at least 1½ (one and half) year from the date of completion of the training".

5. Address for correspondence:

- Nominations shall be sent at least 7 days before commencement of the course/workshop.
- Contact Persons: Sh.D.Abraham, PS, PSTI, Mobile No: +91-9480449481

Smt. Piyali Sarkar, Asstt. Director, Mobile No: +91-9900097375

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