

TOGETHER IN PURSUIT OF EXCELLENCE



TRAINING CALENDAR

2017-2018

एनपीटीआई के साथ पावर सेक्टर का सुनिश्चित सम्पूर्ण विकास

NATIONAL POWER TRAINING INSTITUTE

An ISO 9001 : 2015 & 14001: 2015 Organisation

(Ministry of Power, Government of India)

NPTI Complex, Sector - 33, Faridabad - 121 003, India

Tel.: 0129 2257131 Fax: 0129 2277412 Website: www.npti.in



“In this age of globalization, we have no option but to make a quantum leap in energy production and connectivity.”



Shri Narendra Modi
Hon'ble Prime Minister of India



Our Source of Inspiration...



Shri Piyush Goyal
Hon'ble Minister of State (Independent Charge)
for
Power, Coal, New & Renewable Energy and Mines
Govt. of India



भारत की एकता का मुख्य आधार है
एक संस्कृति, जिसका उत्साह कभी नहीं टूटा!
यही इसकी विशेषता है!

मदन मोहन मालवीय



Foreword

With the continuous advancement of technology Training and Human Resource Development has become a relentless and unending task. With this objective in mind, National Power Training Institute (NPTI) is releasing its Annual Training Calendar 2017-18 in its attempts to meet the on-going as well as the futuristic training requirements.



The year 2016 saw sustained momentum in terms of improvements across the power value chain. It was marked by a record low in power deficits; promising progress in Distribution Reforms, record Capacity Additions and significant Grid Augmentation. However, maintaining proper Power Quality and Customer Satisfaction remains a key challenge for Utilities today.

Organizations are changing their functioning and improving operational processes by leveraging the best-in-class training-need solutions. Organizations will have to inculcate up-gradation of skill, knowledge and change in the attitude and perception of individuals to sustain the leaps in technology. We all at NPTI believe that trained personnel are the most important resource of any organization and are responsible for its progress and stability.

NPTI is playing a pioneering role to prepare the manpower not only for the existing thermal, hydro, gas based plants but also for the upcoming huge renewable energy power development program in a dedicated manner to achieve the energy independence and grid compatibility with Smart Power Control technology. Government of India is continuously emphasizing to provide adequate trained manpower for the Utilities. NPTI has trained over 2,92,000 Power Professionals in regular Programs over the last 5 decades and is a leading integrated power training institute with a spread all over India and covering a wide gamut of training programs related to Power Sector.

To keep our trainees upgraded with strategic training interventions, the existing training infrastructure as well as the faculty of NPTI are continuously updated, reorganized and restructured. All out efforts are being made to ensure that the courses offered by NPTI stand out and meet the Power Sector needs.

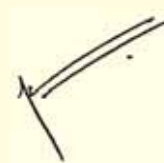
The following new PGDC Courses are being offered from 2017-18.

- i) PGDC in Smart Grid Technologies
- ii) PGDC in Power System Operation
- iii) PGDC in Energy market Management
- iv) PGDC in Renewable Energy & Grid Interface Technologies

In order to further enrich the quality of Training and understand the Sector's requirements, NPTI organized a stakeholder's meet last year at NPTI, Corporate Office, Faridabad and incorporated the suggestions in Training Programs to be offered.

I wish that the Training Calendar 2017-18 will be the leading source of Training information suiting all our stakeholders. Any further suggestion for improvement in the Training Calendar are most welcome.

I am sure our Quality Training will help our stakeholders to deliver the best to the country.

A handwritten signature in black ink, likely of Prof. (Dr.) Rajendra Kumar Pandey, is shown in the center of the page.

Faridabad
March, 2017

Prof. (Dr.) Rajendra Kumar Pandey
Director General



Shri P. K. Pujari, IAS, Secretary (Power), Govt. of India welcomed by Shri S. V. Malpe, Director at State Load Dispatch Centre, Guwahati, Assam



Visit of Shri P. K. Pujari, IAS, Secretary (Power), Govt. of India, at NERLDC Backup System in Guwahati, Ms. Shalini Prasad, Additional Secretary & Ms Jyoti Arora, Joint Secretary, Ministry of Power, Govt. of India were also present

GOVERNING COUNCIL NATIONAL POWER TRAINING INSTITUTE



Shri P. K. Pujari
Secretary, Ministry of Power
Chairman, Governing Council



Sh. R. K. Verma
Chairperson (I/C), CEA
Vice-Chairman, Governing Council



Shri Raj Pal
Economic Adviser
Ministry of Power, Permanent Member



Dr. Pradeep Kumar
Joint Secretary & FA
Ministry of Power, Permanent Member



Prof. (Dr.) Rajendra Kumar Pandey
Director General, NPTI
Member Secretary, Governing Council

NOTE: Besides there are 14 more Members from various utilities.



NATIONAL POWER TRAINING INSTITUTE

INTEGRATED MANAGEMENT POLICY

NPTI is committed to enrich Human Resources in the Power Sector with frontier technologies, managerial skills and practical exposure; empowering them for sustainable and environment friendly growth of the Nation in compliance with legal provisions.

VISION

To be the Global Centre of Excellence for Training and Skill Development in Power and Energy Sectors.

MISSION

Enhancing human and organizational excellence in Power and Energy sectors by blending frontier clean energy technologies to achieve economy and energy security.

VALUE

We value our drive and commitment to provide cutting edge technologies and top quality service to our clients, sharing our knowledge and caring for their needs.

ATTITUDE

We constantly strive to motivate every power professional to tap his unique human endowments, consciousness, imagination and willpower. Together we make a difference.

Fifty Years of Service to the Power Sector

DETAILED FRAMEWORK FOR VISION 2025

NPTI proposes to conduct Skill development Programs in all areas of Renewable Energy Sources, Smart Grid, Smart Village development, Decentralized Generation & Distribution, Programs on Regulatory Framework & Commercial Aspects, Demand Side Management & Energy Efficiency, Power Markets etc. to achieve the Ministry of Power's target of training Seven (7) lakhs Manpower in the Skill development and other associated programs.

The Programs would aim at developing the skill sets of Fresh personnel thereby improving their employability and refining / improving the skills of practicing Engineers, Diploma Engineers & Technicians, Consultants, Entrepreneurs and Faculty of Academic Institutions through Training-of-Trainers programs etc.

- Solar PV, Solar Roof Top, Solar Building Integrated (SBIPV) PV, Solar Thermal Technologies including Project Planning, Execution & Certification comprehensively including Resource assessment, Site selection, Shadow analysis, Load Calculation and Analysis, Procedures, permission & approvals, module mounting structures, Inverters, Cables, DC & AC Junction boxes, Lightning Arresters, Surge Protection, Fault Analysis, Earthing, O&M, Inspection, Testing & Commissioning, DPR preparations, Financial Modelling, commercial and financial aspects etc.
- Introduction to Wind Energy technology, Government policies and supportive schemes, Wind Resource Assessment Techniques, Wind flow modeling, Wind data analysis, Overview of Wind Turbine Design & Foundations, Grid integration, O&M aspects of wind farms
- Introduction to biomass to energy – biofuels, Present status of biomass based energy in India, Biomass Resources, Technologies, Basics of Gasification and types of Gasifiers, Sizing/Selection of Gasifiers, Technology and process overview, Successful Project Examples, Issues and challenges
- Conducting comprehensive training programs for Small Hydro Power development and develop the required operation, maintenance & commissioning skills at all levels such as for engineers, technicians etc.
- Develop smart villages by developing Solar parks in villages, which would not only generate revenue but also develop self-reliant economies including industries at village level bringing urban amenities to rural areas retaining the soul of the village.
- Conducting Training Programs for strengthening Urban Centers infrastructure.



- Decentralized Distributed Generation (DDG) and Micro-grid smart projects (solar, mini & micro hydel etc.) in remote areas & villages to not only make them self-sufficient but also promote the concept of Green Energy etc. and increase local employability as well.
- All Renewable Energy Modules to be equipped with integrated smart grid control to avoid least excursions at the point of connectivity.
- Bringing about complete awareness to personnel in the power sector about MoP initiatives such as DDUGJY, IPDS, UDAY, 24x7 Power to All Schemes etc.
- Programs on DSM & Energy Efficiency may be regularly announced and conducted for maximum awareness. Retailer programs for awareness in energy efficient equipments and Energy Conservation techniques for street lighting including automated switching on-off LEDs, Energy Efficient agriculture pump sets etc. in association with BEE / EESL.
- Awareness Programs on Climate change, carbon credits & Global warming issues.
- Courses on “Regulatory Framework & Commercial Aspects” of Indian Power Sector aggressively through Distance learning Mode educating all Utilities personnel at their doorstep through e-learning Modules & Assignments for greater understanding of Regulatory & Commercial concepts like Tariff calculations, MYT Framework, Trading etc. thereby improving the pace & effectiveness of Power sector reforms at large.
- The addition of 175 GW of renewable generation capacity by 2022 would require improving the System Operators skill-sets for planning, operating, maintaining and governing the power systems. NPTI would conduct Capacity building Programs for POSOCO - SLDCs, RLDCs and others associated to manage green energy corridors effectively. Also, all associated functions of Renewable Energy Management Centres (REMC) such as forecasting, Scheduling, balancing Renewable Energy resources and supporting the national grid etc.
- Programs on Power Market Transactions focusing on the Concept of Power Trading, Power Exchange mechanism in India, Availability Based Tariff & Concept of Deviation Settlement Mechanism, Open Access in Power Sector etc.
- The 24x7 Power for All, scheme of the Govt. of India would need intensive capsule courses for capacity building of personnel in the areas of Generation, Transmission & Distribution including various commercial aspects. This is to be taken up with all the State Utilities which have signed MoU with Ministry of Power under UDAY.

- Entering into proper understanding / agreements etc., and interfacing with Power Sector Skill Council (PSSC) to carry on the mission of Skill development training activities and certifying personnel for their appropriate employment in various areas of power sector and other areas as well.
- Conducting Training Programs for State Distribution Utilities on Smart Meters, AMI and associated infrastructure, Peak Load Management, Demand response and Outage Management System.
- Programs on Smart Grid highlighting the Concept, Understanding of Intelligent Power System, Achievements & Challenges. The Program would also focus on the need of Smart Grid in Indian context.
- The recent significant progress between the South Asian countries on moving towards expanded regional energy cooperation should be exploited to harness programs and NPTI proposes to conduct programs under USAID and for the SAARC countries in several areas of power sector as well as for others.
- Creating academic-industry interface short modular programs to effectively bridge the education-industry gaps for students passing out from Engineering, Diploma & ITI institutes.
- Delivering course modules & training in Supercritical technology to all GENCOs using this technology.
- Identify Knowledge Partners for Creating a Global Pool of competent experts in various areas of specializations to maximize connectivity and contribute to the concept of "**Train in India**".
- Collaborating with reputed Institutions & Industries like IIT/IIM/ASCI/TERI/ Nord Pool to be abreast of latest technological & managerial improvements of the industry.
- Create an authenticated institute-industry feedback interactive portal.
- Developing subject specialists in various areas and increasing internal Core Competence of NPTI through Training of Trainers programs.

2016

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2017

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2018

The figure displays a 4x3 grid of 12 calendar cards, each representing a month from January to December. Each card is a 7x7 grid with days of the week (S, M, T, W, T, F, S) as columns and dates as rows. The cards are color-coded and contain the following data:

- JANUARY (Red):** S: 1, 8, 14, 21, 28; M: 2, 9, 16, 23, 30; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- FEBRUARY (Orange):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30; T: 3, 10, 17, 24; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- MARCH (Yellow):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- APRIL (Green):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30; T: 3, 10, 17, 24, 30; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- MAY (Blue):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- JUNE (Purple):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- JULY (Pink):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- AUGUST (Light Green):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- SEPTEMBER (Light Blue):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- OCTOBER (Light Orange):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- NOVEMBER (Light Yellow):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.
- DECEMBER (Light Green):** S: 1, 8, 15, 22, 29; M: 2, 9, 16, 23, 30, 31; T: 3, 10, 17, 24, 31; W: 4, 11, 18, 25; T: 5, 12, 19, 26; F: 6, 13, 20, 27; S: 7, 14, 21, 28.

List of Holidays to be Observed During the Year 2017 in NPTI

S.No.	Holiday	Date		Day
1.	Republic Day	January	26	Thursday
2.	Holi	March	13	Monday
3.	Ram Navami	April	04	Tuesday
4.	Mahavir Jayanti	April	09	Sunday
5.	Good Friday	April	14	Friday
6.	Buddha Purnima	May	10	Monday
7.	Id-ul-Fitr	June	26	Wednesday
8.	Independence Day	August	15	Tuesday
9.	Janmashtami	August	15	Tuesday
10.	Id-ul-Zuha (Bakrid)	September	02	Saturday
11.	Dussehra	September	30	Saturday
12.	Muharram	October	01	Sunday
13.	Mahatma Gandhi's Birthday	October	02	Monday
14.	Diwali (Deepavali)	October	19	Thursday
15.	Guru Nanak Birthday	November	04	Saturday
16.	Milad-Un-Nabi or Id-E-Milad	December	02	Saturday
17.	Christmas Day	December	25	Monday

Patron	: Prof. (Dr.) Rajendra Kumar Pandey, Director General
Editor	: Sh. J. S. S, Rao, Principal Director
Co-Editors	: Sh. S. Kar, Dy. Director Sh. V. K. Pandey, Astt. Director
Visuals	: Sh. K. L. Vijaya Kumar, AVO
Coordination	: Sh. Ram Mehar, JSO



Inauguration of Training Program on Legal Aspects of Regulations for Senior Officers of CERC & SERC at NPTI CO, Faridabad



Inauguration of 30 Weeks Induction Training of Assistant Directors, CEA at NPTI CO, Faridabad

Awards



राष्ट्रीय विद्युत प्रशिक्षण प्रतिष्ठान की पुस्तक पंच अनुरक्षण को 'प्रथम पुरस्कार' (क क्षेत्र) से सम्मानित किया गया



Awards



9th ENERTIA AWARDS 2015
India's Award for "Sustainable Energy & Power"

CITATION

"National Power Training Institute (NPTI)"
is the **"WINNER"** of the VAJRA in the
Category : "ENERTIA - Pradeep Pimply Award Trophy"
for 'Institutional Research, Training and Excellence in Academia'
At the "9th ENERTIA Awards 2015" given this Thursday, 5th November 2015

The Eminent Jury of "9th ENERTIA Awards 2015" recognizes "National Power Training Institute (NPTI)" is the Sole and only of its kind Apex Institution of the Government of India providing Education, Supporting Research, Development and Training in the Power & Energy domain of Engineering.

EMINENT JURY PANEL

CHAIRMAN	DE CHAIRMAN	SPECIAL NATIONAL CHAIRMAN
 Prof. A. S. Rao Editor in Chief of <i>Power Engineers</i> (ENERTIA), President, ENERTIA Foundation & President, NPTN & ACADE	 Mr. A. K. Bhatia Former IAS, IAS, & Member, Planning Commission, India (1980-85)	 Mr. Pradeep Pimply Former IAS, IAS, & Former President, NPTI
 Mr. P. K. Singh Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI
 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI
 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI
 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI	 Mr. S. K. Bhatia Former IAS, IAS, & Former President, NPTI

NPTI has been conferred the 'WINNER OF VAJRA' in the category : "ENERTIA Pardeep Pimply Award Trophy for Institutional Research Training & Excellence in Academia" at the Ninth ENERTIA Awards 2015 given on 5th November, 2015.



National Power Training Institute (NPTI) which is an autonomous organization under Ministry of Power, Govt. of India has been conferred the 8th Employer Brand Award 2014 for "**Excellence in Training**". The award was announced at a glittering ceremony held at Taj Lands End, Mumbai on 17th February, 2014. The award was decided by a panel of eminent jury consisting of Senior Professionals from the Industry. This was the part of World HRD Congress 2014, 22nd Edition.

NPTI has been conferred '**Global Training & Development Leadership**' award for "**Training Provider of the Year 2013**" by World Training & Development Congress. The award was announced at a glittering ceremony held at Taj Lands End, Mumbai on 15th February, 2014. This award was decided by an International Jury of World HRD Congress.





TRAINING CALENDAR 2017-2018

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NPTI'S ACTIVITIES AT A GLANCE

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FEE STRUCTURE FOR VARIOUS TRAINING PROGRAMS (2017-18)

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**(B). LONG TERM COURSES FOR ENGINEERS/SUPERVISORS/OPERATORS
(17 WEEKS AND ABOVE)**

1. Graduate Engineers Course in Power Plant Engineering	50
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SUPERVISORS/OPERATORS**

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**(D). SHORT-TERM COURSES FOR ENGINEERS/SUPERVISORS/OPERATORS
(1 DAY TO 4 WEEKS)**

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2. Transformer Maintenance for Field Engineers	57
3. Smart Transmission & Distribution System for Graduate Engineers	58
4. Power System Communication SCADA & EMS	58
5. Substation Planning & Engineering	59
6. Energy Efficiency Management in Power System	59
7. Awareness programme for Executive in Hot Line Activities	59
8. Valve and Pump Maintenance	60
9. Gas Turbine & CCPP Refresher Course	60
10. Pumps Operation, Maintenance and Performance Monitoring	61
11. Valve Actuators Maintenance	61
12. Thermal Power Station Operation	61
13. Power Plant Auto Control	62
14. Valve Maintenance	62
15. Fans & Air Heaters	63
16. Switchgear & Trans-former Maintenance	63
17. Switchyard Maintenance Techniques Using LLMT For Linemen/Supervisor	64
18. Electrical Safety and Inspection of Electrical Installations Under IE Rules	64
19. Reactive Power Management	65
20. Distribution Metering	65
21. Operation & Maintenance (O&M) of Transformers and Circuit Breakers	66
22. Power Quality and Harmonics Mitigation and Reactive Power Management	66
23. Boiler Operation/Boiler & its Auxiliaries Operation	67
24. Operation & Maintenance (O&M) HT/LT Switchgear	67
25. Control & Instrumentation in Power Station (For Operation Engineers)	68



26. Power System Studies	69
27. Power System Operation	69
28. Power System Protection	70
29. Advanced Power System Protection	71
30. Steam Turbine & Aux. Operation	71
31. Electrostatic Precipitator	71
32. Boiler Firing System & Equipments	72
33. Electrical Protection System	73
34. Distribution Engineering	73
35. Operation & Maintenance (O&M) of Distribution System	73
36. Reliability Centered Maintenance of Rotary Equipments	74
37. O&M of Coal Mills & Feeders	74
38. Reduction in Power Distribution Losses	75
39. Flexible AC Transmission System (FACTS)	75
40. Power System Reliability	76
41. Low Voltage Power Distribution System Design	76
42. Generator & Auxilliaries including Excitation System	77
43. Power Cables and Jointing Techniques	77
44. High Voltage Testing of Power System Equipment	78
45. Vibrational Analysis	78
46. Regulatory Framework in Power Sector	78
47. Power System Logistics	79
48. Non Destructive Testing & Welding Defects	80
49. Thermal PP Efficiency & Performance Monitoring	81
50. Operation & Maintenance (O&M) of Transmission Lines & Sub-Station	81
51. Relay Maintenance	82
52. Power Plant Chemistry for Operation Engineers	82
53. Boiler Tube Failure and Case Studies	82
54. Training Program on Cold Lines	83
55. Management of Electrical Contracts	83
56. Power System Energy Losses	84
57. Energy Efficiency in Electrical Utilities	84
58. Issues Related to Supercritical Technology	85

59. Burner Management System/FSSS	85
60. Power System Studies & Load Despatch	85
61. Battery Maintenance	86
62. Large Capacity CFBC Boilers	86
63. Motor Maintenance	87
64. Energy Conservation and Energy Audit (For Generation Sector)	87
65. Operation & Maintenance (O&M) of Transformer	88
66. HVDC Transmission Systems	88
67. Operation & Maintenance (O&M) of HVDC Transmission Systems	88
68. Welding Practices	89
69. Trouble Shooting of Steam Turbine	89
70. Small, Mini and Micro Hydro Power Generation	90
71. Fan & Air Heaters Maintenance	90
72. Fire Prevention, Protection & Safety	90
73. Bearing Maintenance and Shaft Alignment	91
74. Switchgear Maintenance	91
75. Transformer Maintenance	91
76. Transformers	92
77. Pump Maintenance	92
78. Operation & Maintenance (O&M) of Power & Distribution Transformers	93
79. Data Acquisition & Distributed Digital Control System in Thermal Power Station	93
80. Renewable Energy Technologies - Solar	93
81. Condition Based Maintenance	94
82. Energy Audit & Demand Side Management in Power Utilities	94
83. Environmental Pollution & Pollution Control Related with Power Plants Engineering	95
84. Power Plant Instrumentation	95
85. Management Development Program	96
86. Renewable Energy Sources & Grid Integration	96
87. Renewable Energy Technologies - Hydraulic	97
88. Change Management	98
89. Safety in Hydro Power Station	98



90. Hydro Power Plant Operation	99
91. Valves & Pumps in Power Plants Engineering	99
92. Hydro Generator & its Excitation Systems	99
93. Valves & Pumps in Hydro Power Plants	99
94. Auxiliaries in Hydro Power Plants	100
95. Hydro Turbines, Governing & Its Protection Systems.	100
96. Role of Smart Grids in The Indian Power Sector : Current Developments, Challenges and Way Forward	100
97. Transmission Line Maintenance and Introduction to Live Line Maintenance Techniques.	101
98. Operation and Maintenance of Sub-Station.	102
99. Operation and Maintenance of Sub-Station.	103
100. Live Line Punctured Insulator Detection (PID) on EHV Lines	103
101. Automation System (PLC & SCADA) for Power Plant	103
102. Power System & Load Despatch	104
103. Training for Trainers	104
104. Management of Renewable Energy (Solar Energy in Particular) Finance and Economics of Renewable Energy	104
105. Power Market Specialist	105
106. Design and Operation and Maintenance (O&M) of LED Light	106
107. RLA & LE of Sub-station equipment	106
108. Switchgear and Transformer Maintenance	107

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2. 500 MW Fossil Fuel Power Plant Simulator Training	109
3. Combined Cycle Gas Turbine Power Plant Simulator Training	110
4. 250 MW Hydro Simulator Training	110
5. Dispatcher Training Simulator	111
6. 800 MW Super Critical Thermal Power Plant Training Simulator	112

Following programs can be conducted/offered to National as well as International organizations on request /demand basis on applicable terms and conditions at different NPTI Institutes

(F) MEDIUM TERM COURSES FOR ENGINEERS (5 WEEKS TO 16 WEEKS)

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2. Control & Instrumentation for Supervisors/Technicians	113
3. Training Programme for Supervisor/Managerial Person Deployed in Power Industry	114
4. New and Renewable Sources and Grid Integration In India	114
5. Executive Development Program for the Supervisory Staff Working in Finance & Accounts Department	115

(G) SHORT-TERM COURSE FOR ENGINEERS (1 DAY TO 4 WEEKS)

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7. Training of Trainers	117
8. Operation & Maintenance of EHV Sub-station	117
9. Micro Processors	118
10. Vibration Analysis	119
11. Renovation & Modernization of Thermal Power Plant/Station	119
12. Regenerative Feed Heating System	120
13. Transmission Distribution Equipment Maintenance	120
14. Balancing and Alignment Techniques	120
15. Electricity Act and Regulation	120
16. Basic Electronics	121
17. Training for Assistant Level Persons/ Personnel Staff	121
18. Human Resource Development Program for Finance Officer/ Manager	122
19. Development of Finance Managers	122
20. Live Line Insulator Washing Techniques on EHV Swithyard / Lines at onside	123
21. Design and Verification of Electrical Installations	123
22. Training Mind for Excellency	124
23. Executive/Management Development Programs for Executives & Supervisors	124
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25. Supervisory Development Programs	124
26. HR for Non-HR Executives	124
27. Executive Development for Supervisory Staff Working in Finance and Accounts	124
28. Environmental Management	124
29. Business Communications & Presentations Skills	124
30. General Introduction to Hydro Power Plant	124
31. Hydro Power Plant Schemes & Systems Discussions	124
32. Hydro Power Plant Operation & Pump Storage Options to Governing	124
33. Hydropower Plant Protections	124
34. Maintenance (On-Job) in Hydel Plant	124
35. Planning and Cost Control of Hydro Electric Power Station	124
36. Control & Instrumentation of Hydro Electric Power Station	124
37. Site Selections of Hydro Electric Plants, Geology, Hydrology	125
38. Tunnels & Channels, Penstocks, Surge Shaft, Spillways	125
39. Valves in Hydro Power Plants	125
40. Construction Equipment of Hydro Electric Plants	125
41. Environmental Impact Assessments	125
42. Material Handling and Transportation	125
43. Safety in Hydro Power Plants	125
44. Pumps in Hydro Power Plants	125
45. Transformers & Electrical Equipment in Hydropower Plants	125
46. Constructional Details of Hydro Turbines & Generators	125
47. Electrical Auxiliaries of Hydro Power Plants	125
48. Erections of Hydro Turbines, Generators and Auxiliaries	125
49. Types of Dams & their Constructional Details	125
50. Lead Auditors Program on ISO-14001	125
51. HR Issues in Power Sector	125
52. Time Management	125
53. Stress Management	125
54. Lead Auditors Program on ISO 9000	125
55. Leadership Skills	125
56. Project Management	125

57. Customer Relationship Management	125
58. Finance For Non-finance Executives	125
59. ABT, Power Trading	125
60. Electricity Act 2003 & CERC, SERC	125
61. Financial Management in Power Sector	125
62. Current HR Problems in Power Sector	125
63. First – Aid for Technical Persons	125
64. Total Productive Maintenance	125
65. Retirement Management	125
66. Change in Attitude	125
67. Customer Orientation	125
68. Contract Management	125
69. Computer Appreciation Program	125
70. O&M of Motors	125
71. Power System Studies & Load Dispatch	126
72. Valve Maintenance	126
73. Maintenance of Pumps	126
74. IT Application in Power System	126
75. Pump Storage Hydro Power Station	126
76. Management Development Program	126
77. Performance in Testing of Hydro Power System	126
78. GIS/GPS For Power Utilities	126
79. Managing Carbon Credit of TPS Through CDM Route	126
80. Energy Efficiency in Thermal Utilities	126
81. It Application in Power Utilities	126
82. Energy Efficiency in Electrical Utilities	126
83. Power Distribution Management	126
84. Steam Turbine its Auxiliaries Operation	126
85. Advance Mechanical Maintenance Practices	126
86. O&M of Generators & Excitation System for Supervisors	126
87. Fuel (Coal & Oil) Handling System Operation	126
88. Material Management	126
89. Fluidised Bed Combustion Boilers	126



90. Reviewable Energy Source & Grid Integration	126
91. System Operator Training	126
92. Advances in Power Plant Chemistry for Chemists	126
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94. Electrical Motors for Power Plants	126
95. Switchgear for Power Plant	126
96. High Voltage Direct Current (HVDC) Transmission	126
97. Hydro Power Plant Engineering	126
98. Insulator Washing Technique (On-site)	126
99. Distribution Franchise	126
100. Grid Management	126
101. Maintenance Pumps and Valves	126
102. Power Exchange and Power Training	126
103. Power Business Tariff and Regulations	126
104. Indian Electricity Act and Rules & De-Regulation	127
105. O&M EHV Transmission Lines	127
106. Governing System & Hydro Power Generation	127
107. Project Management for Power System Engineers	127
108. Power and Tele-Communication (PTCC)	127
109. Advance Power Generation Protection & Control	127
110. Power Market Regulations	127
111. Control & Instrumentation	127
112. Smart Grid	127
113. Regulatory Framework in Power Sector	127
114. Coal Mill/Milling System Maintenance (Case Studies)	127
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NPTI Signs MoUs with different Organizations



MoU Signed between
"NPTI and Power Research
Development Consultants"
PRDC, Bengaluru



MoU Signed between
"NPTI and Abu Dhabi Water
and Electricity Authority
(ADWEA)



MoU Signed between
"NPTI and IIT, Guwahati



National Power Training Institute (NPTI), an ISO 9001 & ISO 14001 organization is an autonomous organisation of the Ministry of Power, Govt. of India. NPTI is the National Apex body for Training and Human Resources Development in Power Sector with its Corporate Office at Faridabad. NPTI had been providing its dedicated service for more than five decades.

NPTI has trained over 2,92,061 Power Professionals in regular Programs over the last 5 decades. NPTI is the world's leading integrated power training institute. NPTI is the only institute of its kind in the world with such a wide geographical spread and covering a wide gamut of academic and training programs in Power Sector. NPTI's committed faculty is providing excellent training in the Power Sector, which is the most important sector among various infrastructure sectors. A number of programs for foreign as well as national level organization have been conducted. These programs have benefitted the executives from different organizations. Training provided by NPTI on Power Plant Simulators has improved Plant Load Factor of Generating Units, has increased the availability of Transmission & Distribution System and has decreased Aggregate Technical & Commercial Losses. This in turn is providing more power to the country. Thus the training being provided by NPTI is having a cascading effect in the growth of GDP and economy of the country.

NPTI operates on an all India basis with man-power strength of 281 including 99 officers through its 9 Institutes in different zones of the country as per detail below:

A. Northern Region

1. NPTI Corporate Office Faridabad.
2. NPTI (Northern Region) Badarpur, New Delhi
3. NPTI (Hydro Power Training Centre) Nangal

B. Southern Region

4. NPTI (Power System Training Institute) Bengaluru
5. NPTI (Hot Line Training Centre) Bengaluru
6. NPTI (Southern Region) Neyveli

C. Eastern & North Eastern Region

7. NPTI (Eastern Region) Durgapur
8. NPTI (North Eastern Region) Guwahati

D. Western Region

9. NPTI (Western Region) Nagpur

MANPOWER TRAINING PROGRAMMES

NPTI conducts the following industry interfaced programs with the objective to create a pool of committed and competent professionals equipped with appropriate technical skills to steer the Indian Power Sector

- One Year Post Graduate Diploma Course in Power Plant Engineering
- One Year Post Graduate Diploma Course in Sub-Transmission & Distribution system
- One Year Post Diploma course in Thermal Power Plant Engineering

- One Year Post Diplomat course in PGDC in Energy Market Management
- One Year Post Diplomat course in PGDC in Power System Operation
- One Year Post Diplomat course in PGDC in Renewable Energy and Grid Interface Technologies
- One Year Post Diplomat course in PGDC in Smart Grid Technologies
- Nine Months Post Graduate Diploma Course in Hydro Power Plant Engineering.
- Six Months Post Graduate Diploma Course in Transmission and Distribution System for Engineers.
- Six months Post Diploma course in Hydro Power Plant Engineering.

In addition to the above, several long-term, medium term and short-term training programs in the areas of Thermal, Hydro, Transmission & Distribution and Management, Regulatory affairs etc. are being conducted in the various Institutes of NPTI. Customized training programs for various Power Utilities are also organized round the year. NPTI also conducts various training programmes to ensure availability of properly trained personnel covering the syllabus as per Indian Electricity Rules.

NPTI has also been catering to the Training Needs of Power Sector Organisation Process Industries such as Steel, Cement, Aluminum, Fertilizers, Refineries viz., BBMB, BHEL, CEA, DPL, DVC, ECIL, FACT, GAIL, IFFCO, IOCL, IREDA, KRIBHCO, NALCO, NEEPCO, NFL, NHPC, NLC, NPC, NTPC, Power Grid, SAIL, THDC, APGENCO, CESC, HPGCL, KPCL, MPEB, OHPC, OPGCL, RRVNL,

UPRVUNL, ACC, AECO, BSES, HINDALCO etc.

INDUCTION TRAINING

NPTI has imparted induction training to fresh Graduate Engineers/Executives of various Power Sector Organization as indicated below:

Power Grid Corporation of India Ltd., Avantha Power & Infrastructure Ltd., Tata Power Company Ltd., National Hydroelectric Power Corporation Ltd., Rajasthan Rajya Vidyut Utpadan Nigam Ltd., LANCO Power, Dakshin Haryana Bijli Vitran Nigam Ltd., Lanco kondapalli Power Ltd & PPN Power, Generating Company Ltd., GMR Energy Ltd., Lanco Infratech Ltd., Lanco Vidarbha Thermal Power Power Ltd. & Udupi Power Corporation Ltd., UP Rajya Vidyut Utpadan Nigam Ltd., Bokaro Power Supply Corporation Ltd., Sterlite Grid Ltd., CLP (I) Pvt. Ltd., Ideal Energy Power Ltd., L&T Power Ltd., Chhattisgarh State Power, Generation Corporation Ltd., Torrent Power Ltd.

POWER TRAINING SIMULATORS

The Institutes of NPTI are well equipped with Hi-Tech infrastructural facilities for conducting different courses on technical as well as management subjects covering the needs of Thermal, Hydro, Transmission & Distribution Systems, and Energy related fields of the Indian Power and allied Energy sectors. NPTI has a 500MW Thermal Power Plant Training Simulator at Faridabad Institute and 210MW Thermal Power Plant Training Simulator at Nagpur and Badarpur Institute for imparting specialized skills



to operation personnel across the country. Also a 430 MW (2 x 143 MW Gas Turbine and 1 x 144 MW Steam Turbine), Full Scope Combined Cycle Gas Turbine, Replica Simulator has been commissioned at NPTI Corporate Office, Faridabad. A High fidelity Load Dispatch Operator Simulator for the National Grid has been commissioned at PSTI, Bengaluru. A 250MW Hydro Simulator has been commissioned at HPTC, Nangal.

800 MW SUPERCRITICAL THERMAL TRAINING SIMULATOR

NPTI is in the process of commissioning a 800MW Supercritical Thermal Simulator at NPTI Corporate Office, Faridabad.

6 more DCS based Multi configured simulators is under process of Commissioning.

GIS

A Geographical Information System (GIS) Resource Centre has been set up at NPTI Corporate Office, Faridabad. The Centre is conducting various courses in GIS and Remote Sensing to meet the requirements of the Power Sector.

HOT LINE TRAINING CENTRE

A facility has been created at NPTI's Hot Line Training Centre, Bengaluru for Live Line Maintenance of Transmission Lines upto 400 KV (first of its kind in Asia) which enables trained personnel to attend to maintenance requirements without power interruptions. Facilities for water washing of sub-station equipments is also available.

CONSULTANCY SERVICES

In order to serve the industry requirements and make best usage of infrastructure and expertise, NPTI has ventured into providing consultancy services in Preparation of DPRs under R-APDRP (11th Plan). NPTI was appointed as REC Quality Monitor (RQM) for Tier-II Inspection of RGGVY Works under 11th Plan for six (6) states and completed the assignment. NPTI also completed the Third Party Inspecting Agency (TPIA) works by a few DISCOMs for the RGGVY works under the 10th Plan & 11th Plan.

NPTI has provided consultancy services to WAPCOS for preparation of DPR for establishment of Power Training Institute in Bhutan. NPTI also Consultancy services to NHPC for preparation of DPR for establishment of Hydro Power Training Institute in Jammu & Kashmir.

NPTI provided DPR preparation services under IPDS & DDUGJY Schemes to DVVNL-Agra, UP.

NPTI is also providing Project Management Agency (PMA) services for DDUGJY & IPDS Project Works for NESCO & WESCO Utility areas of OPTCL, Odisha.

NPTI in association with TATA Consulting Engineers (TCE) completed an assignment of preparation of a Feasibility Study for establishing a "National Power Academy" in the Kingdom of Saudi Arabia.

NPTI has been awarded a consultancy contract by Bureau of Energy Efficiency (BEE) to create master trainers for imparting training to officials of DISCOMs on DSM and Energy Efficiency under the "Capacity Building of DISCOMs"

Program during XII Plan.

NPTI also provides consultancy in the field of Human Resources Development including Training Need Analysis, Upgradation of training facilities, Customized Course Designs, Capacity Assessment/Evaluation for Promotion etc.

Basic level System Operator Certification and Specialist level System Operator Exam on "Regulatory Framework in Power Sector"(RFW) and "Power System Reliability" (PSR)

NPTI's Power System Training Institute (PSTI) has been conducting Certification of Power System Operators since 2011. Training Courses at NPTI, Corporate Office, Faridabad and Power System Training Institute (PSTI), Bengaluru equip the System operators with necessary inputs to take up the System Operation Certification Exam.

Basic Level On-Line System Operator Certification exams have been conducted in November 2011, December 2012, July 2014, November 2015 and December 2016 at various centres across the country. A total of 1033 system Operators were certified against 1277 who appeared for the Basic Level Certification Examinations.

Specialist courses on 'Regulatory Framework in Power Sector', 'Power System Reliability', 'Renewable Energy Sources and Grid Integration', 'Power System Logistics' and 'Power Market Specialist' are being conducted both at Corporate Office, Faridabad and PSTI, Bengaluru. Examinations on all the specialist level subjects have been planned to be conducted.

On-Line examinations for Specialist Level Certification have been conducted for 'Regulatory Framework in Power Sector' in March 2013 and February 2016 . 161 System Operators were certified against 254 that appeared. Specialist Level Certification Examination on 'Power System Reliability' was conducted in February 2015. 77 System Operators against the 112 that appeared, were certified. The next certification examination on "Power System Reliability" is scheduled to be conducted on 2nd July 2017 across the country.

INTERNATIONAL TRAINING

Professionals from various countries like Oman, Bangladesh, Cambodia, Bhutan, Ethiopia, Iraq, Kenya, Malaysia, Mexico, Myanmar, Nepal, Nigeria, Afghanistan, Philippines, Sudan, Syria, Zambia, Zimbabwe Electricity Supply Authority (ZESA) Zimbabwe, Sri Lanka, Libya etc. have also undergone training at NPTI's various training Institutes.

NPTI'S PUBLICATION AND MULTI MEDIA CBTS

NPTI has published around 99 Training Manuals for different courses. NPTI has also developed more than 55 Multimedia Computer Based Training Packages for power professionals and marketing them at reasonable prices to the utilities and educational Institutes.



SETTING UP NEW TRAINING INSTITUTES

New Power Training Institute of NPTI in Southern Region at Pallipuram, Dist. Alappuzha, Kerala

In 12th Five Year Plan, Ministry of Power, Govt. of India has approved new Power training Institute of NPTI in Southern Region at Pallipuram, Dist. Alappuzha, Kerala. The project will cost about Rs. 58 crores and shall provide training in the area at Thermal, Hydel, Transmission, Distribution, Regulatory Affairs etc. This Training Institute shall also have multi function thermal and hydro training simulator. The Institute is being set up on 15 acres of land provided by Govt. of Kerala and having the infrastructure like Institute Building with classrooms, labs, workshops hostel facilities for trainees, canteen facilities, residential accommodation, conference hall, auditorium and guest house. Work of the said project is in progress.

New Power Training Institute of NPTI in Western Region at Shivpuri, Madhya Pradesh

In 12th Five Year Plan, Ministry of Power, Govt. of India has approved New Power Training Institute of NPTI in Western Region at Shivpuri, Madhya Pradesh. The project will cost about Rs. 64 crores and shall provide training in the area at Thermal, Hydel, Transmission, Distribution, Regulatory Affairs etc. This Training Institute shall also have multi function thermal and hydro training simulator. The Institute will be set up on 15 acres of land for which a suitable land has been handed over to NPTI on 22nd October 2015 for 99 years on lease basis by the Govt. of Madhya

Pradesh. The Institute is envisaging the infrastructure like Institute Building with classrooms, labs, workshops hostel facilities for trainees, canteen facilities, residential accommodation, conference hall, auditorium and guest house. Work of the said Project is in Progress.



'International Yoga Day' being observed in NPTI Complex, Faridabad

PLACEMENT

Out students of MBA in Power Management, B.Tech. in Power Engineering, Post Graduate Diploma Course and Post Diploma Courses are finding placement in reputed companies like PWC, KPMG, Care, Deloitte, Infraline, Tata Power, Torrent Power, Enercon Capital, Suzlon, Noida power, PTC, Satyam, UJVNL, GMR, Crisil, TERI, Lahmeyer, Enzen Global, NDPL, Erudite, KSK Energy Ventures, Datagen, LNJ Bhilwara, Moser Baer, CFL, Eco Securities, Feedback Ventures, ABPS Advisory, Adani, Care, IL&FS, Vedanta, Lanco, BSES etc.

VISION AHEAD

NPTI is furthering the quality of industry-interfaced education and training being



"Swatch Bharat Abhiyan" being observed in
NPTI Complex, Faridabad

provided by our various Institutes focusing on improvement in the following areas:

- Renovation & Modernization of existing nine (9) Institutes by way of Improvement of infrastructure of the Institute office buildings, Labs, hostels etc.
- Augmentation of the existing infrastructure of all Institutes by way of creation of more training infrastructure like class-rooms, conference halls, auditoriums, hostels, residential quarters etc.
- Establishment of more Power Training Institutes in the country.
- Improvement and upgradation of skill and knowledge of existing faculty to keep pace with fast changing technological advancements taking place in power sector.
- Starting of new training programs related to 24 x 7 Power to various State Utilities.
- Starting of new programs for skill development in Power Sector.

AWARDS AND RECOGNITIONS

NPTI has been granted **ISO 9001 & 14001 Quality Environmental management Integrated System Certifications.**

NPTI's conscious commitments were recognized by the National Foundation of Indian Engineers (NAFEN) and their '**Best Training and HRD Institute of the Millenium Year Award**' was conferred on NPTI by the Hon'ble Minister of Power in 2000.

NPTI was conferred with the '**ISTD National Award 2001-02 for Best HRD Practices: Second Best Organization**' in a National Competition.

"Jawaharlal Nehru Memorial National Award 2002" for Excellence in Energy Conservation was conferred on NPTI by the International Greenland Society, Hyderabad during 2000-01.

NPTI was conferred upon **"Mother Teresa Memorial National Gold Award 2003"** for the best Educational



Dignitaries in NPTI Stall at IITF-2016, New Delhi



Institution in the country by the MSBR Educational Society, Hyderabad.

The display of NPTI at the **32nd India International Trade Fair, 2012** has been adjudged second for excellence in Display for the Ministries & Departments Pavilion and given the award of '**SILVER MEDAL**' by Union Minister of State for Commerce and Industry, Govt. of India.

NPTI has been awarded a consultancy contract by **Bureau of Energy Efficiency (BEE)** to create master trainers for imparting training to officials of DISCOMS on DSM and Energy Efficiency under the "**Capacity Building of DISCOMs**" Program during XII Plan.

TANGEDCo, has awarded a **Third Party Inspection Agency (TPIA)** Assignment under their **RGVY works** for their 3 Districts.

NPTI also teamed up with **M/s TCE** for a Feasibility Study to establish '**National Power Academy**' in Saudi Arabia.

NPTI provided **DPR** preparation services under **IPDS & DDUGJY Schemes** to DVVNL-Agra, UP.

NPTI is also providing Project Management Agency (PMA) services for **DDUGJY & IPDS Project Works for NESCO & WESCO** Utility areas of OPTCL, Odisha.

NPTI was conferred with award for "**Institutional Building**" for the year 2008-09 by the World HRD Congress, Mumbai.

NPTI has been conferred the 2nd Asia Best Employer Brand Award 2011 for "**Excellence in Training**" for the year

2010-11 by the World HRD Congress, under the category Employer Branding Award at Singapore.

NPTI has been conferred the award for "**Best Learning and Development Strategy**" for the year 2010-11 by the World HRD Congress, under the category shine.com HR Leadership Award.

NPTI has been conferred the 4th Indian Power Award 2011 instituted by Council of Power utilities for "**Excellent Work in Imparting Training to Power Engineers**".

NPTI has been adjudged the winner in recognition for Institution of "**Excellence in Water and Energy Sector**" by council of power utility at forth India Power Award 2011 held at New Delhi, Nov. 2011.

NPTI has conferred the 3rd Asia's Best Employer Brand Awards 2012 for "**Excellence in Training**" for the year 2011-12 by the World HRD Congress, under the category Employer Branding Awards at Singapore.

NPTI has been awarded "Silver Medal" for "**Excellence in Display**" for the Ministries and Department Pavilion in the 32nd IITF - 2012 held at Pragti Maidan, New Delhi.

NPTI alongwith all the member organisations of ministry of Power, Govt. of India, has been awarded "**Gold Medal**" for **Excellence in display for Ministries & Departments pavilion** in the 33rd India International Trade Fair-2013.

NPTI alongwith all the member organisations of ministry of Power, Govt. of India, has been awarded "**Gold Medal**" for **Excellence in display for**

Ministries & Departments pavilion in the 34th India International Trade Fair-2014.

NPTI alongwith all the member organisations of ministry of Power, Govt. of India, has been awarded **"Gold Medal"** for **Excellence in display for Ministries & Departments pavilion** in the 35th India International Trade Fair-2015.

NPTI has been conferred the 4th Asia's Best Employer Brand Awards 2013 for **"Executive in Training"**. 4th Asia's Best Employer Brand Awards 2013 were hosted by Employer Branding Institute, World HRD Congress and Stars of the Industry Group and endorsed by Asian Confederation of Businesses and presented in a glittering ceremony at Singapore on 31st July, 2013.

NPTI has been conferred the 8th Employer Brand Awards 2014 for **"Excellence in Training"** in Mumbai on 17th February, 2014.

NPTI has been conferred 'Global Training & Development Leadership Award' for **"Training Provider of the Year"** by World Training & Development Congress in Mumbai on 15th February, 2014.

NPTI has been conferred **"Pradeep Pimpley Award Trophy for Institutional Research, Training & Excellence in Academia"** at the 9th Enertia Awards 2015 on 5th November, 2015.

ACHIEVEMENTS & PERFORMANCE

Since the inception of its first Institute in 1965, NPTI has so far imparted training to more than 2,92,000 personnel from

Central PSUs, SEB, Power Utilities and Private Sector organizations. More than 20,000 operation engineers have been imparted effective integrated unit operation training on the Simulators available with NPTI.

NPTI has trained 18,669 personal with 1,32,100 Trainee-weeks in the financial year 2016-17.

NOTABLE ACHIEVEMENTS

Some of the notable achievements of NPTI are indicated below :

- Conducted several training programs for foreign nationals of Afghanistan, Nigeria, Sudan, Bhutan, Sri Lanka etc.
- NPTI Faculty conducted training workshops for Senior Executives in Negeria for establishment of a Power Training Institute in Nigeria.
- Providing consultancy for R-APDRP and Inspection works under RGGVY.
- Conducting National Serminars by our various Institutes.
- Provided 100% text books, free of cost through Book Banks to all students of 4-years B.Tech. course in Power Engineering and 2 years MBA course in Power Management.
- Training on the country's only 250MW Hydel Simulator at Nangal.
- Training on the country's only Power System (Load Despatch) Simulator at Bengaluru.
- Country's first System Operators Training for System Operators of Load Despatch Centres and country's first On-line Certification Examination for System Operators.



- NPTI provided consultancy for preparation of DPRs for establishment of a Power Management Institute in Bhutan and to NHPC for setting up of a Hydro Power Training Institute at Kangan, J&K.
- Daily upload of Power News appearing in media on NPTI Website.
- PFC has selected NPTI as a Partner Training Institute for preparation of course material and conduction of Training under R-APDRP, Part C Capacity Building scheme.
- The display of NPTI at the 32nd India International Trade Fair, 2012 has been adjudged second for excellence in Display for the Ministries & Departments Pavilion and given the award of 'SILVER MEDAL' by Union Minister of State for Commerce and Industry, Govt. of India.
- NPTI has been awarded a consultancy contract by Bureau of Energy Efficiency (BEE) to create master trainers for imparting training to officials of DISCOMS on DSM and Energy Efficiency under the "Capacity Building of DISCOMs" Program during XII Plan
- NPTI also teamed up with M/s TCE for a Feasibility Study to establish 'National Power Academy' in Saudi Arabia.
- NPTI provided DPR preparation services under IPDS & DDUGJY Schemes to DVVNL-Agra, UP.
- NPTI is also providing Project Management Agency (PMA) services for DDUGJY & IPDS Project Works for NESCO & WESCO Utility areas of OPTCL, Odisha.
- NPTI has been conferred the 8th Employer Brand Awards 2014 for **"Excellence in Training"** in Mumbai on 17th February, 2014.
- NPTI has been conferred 'Global Training & Development Leadership Award' for **"Training Provider of the Year"** by World Training & Development Congress in Mumbai on 15th February, 2014.
- NPTI has been conferred **"Pradeep Pimpley Award Trophy for Institutional Research, Training & Excellence in Academia"** at the 9th Enertia Awards 2015 on 5th November, 2015.
- A MoU has been entered into with Abu Dhabi Distribution Company (ADDC) on 25th January, 2017, for Training their Generation, Transmission & Distribution personnel and also establishing a Training Centre at Abu Dhabi. The training programs shall be taken up from June, 2017.
- NPTI signed a MoA with IEEMA in the presence of Hon'ble Power Minister on 30th September 2016, at Mumbai for employment linked skilling programs which includes youth in the villages.
- NPTI entered into an MoU with PTC Financial Services for employment linked skilling programs for youth in villages.
- National Institute of Solar Energy (NISE) has selected NPTI as an Implementing Agency for Surya Mitra Solar Programs for Skill Development of Technicians.
- NPTI has also initiated the process of MoAs with various Organizations such as POSOCO, PGCIL, SECI Tata Power, PRDC etc.
- NPTI is entering into an MoU with India Smart Grid Forum (ISGF) for training in the areas of Smart Grid

Technologies and Implementation, Advance Metering Infrastructure (AMI) and Regulatory Framework.

- NPTI signed a MoA with EESL & BEE for Skilling training to personnel involved in O&M of LED Street Lighting and Retailers Training Programs for Awareness in Energy efficient equipments respectively.

MANPOWER IN NPTI

NPTI is having on its roll total 277 nos. employees out of which group 'A' officers are 99.

TRAINING PROGRAMS

(I) Post Graduate Diploma Course in Power Plant Engineering (PGDC)

NPTI weaves formal education with industry oriented specialized skills to cater to the needs of Power Sector. In one of its most successful attempts to create a pool of Technically trained man power for ready availability for recruitment by PSUs/SEBs/ Power Utilities, NPTI launched a one year 'Post Graduate Diploma Course in Power Plant Engineering', in 1996 recognised by AICTE, at its institutes in Faridabad, New Delhi, Nagpur, Durgapur, Neyveli, Guwahati and Nangal. The PG Diploma Course is having an exceptionally encouraging response and many Power Companies recruited this trained man power through campus recruitments over the years.

This course is now renamed as PGDC in Power Plant Engineering catering to all Generation areas of Power Sector for fresh and practicing Graduate Engineers for a period of one (1) year.

(II) Post Graduate Diploma

Course in Sub-Transmission and Distribution 52 weeks in PSTI.

This 52 week duration course cover all aspects of Sub-Transmission and Distribution of Electrical Power and having the objective to create technically trained man power readily available for recruitment.

(III) Post Graduate Diploma Course in Hydro Power Plant Engineering in HPTC Nangal

This 39 week duration course cover all aspects of Hydro Power Plant engineering viz creation O&M commissioning etc. The Course authorised the engineer to operate and maintain Hydro Power Plants

(IV) Post Graduate Diploma Course in Transmission and Distribution System

This 26 week duration is having the objective to create technically trained man power readily available for recruitment to the power companies in the area of transmission and distribution system. The course is being conducted at Badarpur, Bengaluru, Guwahati and Nagpur.

(V) Post Graduate Diploma Course in Energy Market Management

This 52 weeks Post Graduate Certificate Course in Energy Market Management for the candidates willing to make a career in the Power Industry. The course focuses on the market structures that exist within the electric energy industry. It includes mechanism of energy markets; comparative market systems; determination of prices under different market structures; electricity market architecture; electricity market design; dispatch and new build decisions; risk and risk management, current and



proposed policies on the energy industry etc.

(VI) Post Graduate Diploma Course in Power System Operation

This 52 weeks Post Graduate Certificate Course in Power System Operation for the candidates willing to make a career in the Power Industry. To provide the basics of electric power system generation, operation, and control to the students. The emphasis is on power system operation and operating tools

(VII) Post Graduate Diploma Course in Renewable Energy and Grid Interface Technologies

This 52 weeks Post Graduate Certificate Course in Renewable Energy and Grid Interface Technologies for the candidates willing to make a career in the Power Industry. To equip the student with technologies, economics and policy involving energy systems and supply with Renewable Energy sources. Detail expertise will be offered in Solar energy systems involving photovoltaic as well as thermal energy systems, wind energy, biomass, Geothermal, Tidal and Wave energy, Hydrogen & Fuel cells, Small Hydro along with problem associated with grid integration of all the sources and concept of SMART grid

(VIII) Post Graduate Diploma Course in Smart Grid Technologies

This 52 weeks Post Graduate Certificate Course in Smart Grid Technologies for the candidates willing to make a career in the Power Industry. The use of communications and information technologies is likely to cause major shifts in the way energy gets delivered. The objective of this course is to introduce about the smart grid technologies, their applications and control

issues covering Smart Generation, Smart Transmission and Smart Distribution.

(IX) Post Diploma Course in Power Plant Engineering (PDC)

Sensing the need for trained man power in the Supervisory cadre a Post Diploma Course in Thermal Power Plant Engineering was also launched in December 2000 at the four Institutes New Delhi, Nagpur, Durgapur, Neyveli and in Guwahati also. This one year course is aimed at developing skills and the attitude for fresh and practicing Diploma engineers.

(X) Post Diploma Course in Hydro Power Plant Engineering

This 26 week duration program is having the objective to prepare Diploma Engineers to become Power Station Managers in operation & maintenance of Hydro Power Station. Venue of this course is NPTI, HPTC-Nangal.

(XI) Post Diploma Course in Distribution & Sub-Station Management

This 26 week duration program is having the objective to prepare technically trained manpower readily available for recruitment to the power companies in the area of Transmission & Distribution of electrical power. Venues of this course are Badarpur, PSTI-Bengaluru and Durgapur.

(XII) Post Diploma Course in Transmission Line Maintenance

This 26 week duration program is having the objective to provide in depth approach and technical knowledge in Live Line Maintenance Techniques. Venue of this course is HLTC, Bengaluru



NPTI CORPORATE OFFICE

The corporate office of NPTI is situated in Sector-33, Faridabad. While coming from Delhi to Faridabad, NPTI Complex is around 5 Kms. from Badarpur Border and located adjoining to NHPC Corporate office. One has to take local bus up to Badarpur Border from Railway Station, Sarai Kale Khan (Near Nizamuddin Railway Station), ISBT, Lajpat Nagar or Ashram. From Border autorickshaws are available upto NPTI complex, Auto rickshaws are also available from Faridabad to reach NPTI Corporate Centre. The Centre for Advanced Management and Power Studies (CAMPS) is located in the same campus.



NPTI (NORTHERN REGION) BADARPUR, NEW DELHI



The institute is located inside the Badarpur Thermal Power Station (BTPS) Complex, situated on the National Highway No. 2 (Mathura Road); from Delhi & New Delhi Railway Stations, Delhi Transport Corporation (DTC) and private buses ply to Badarpur Border and pass right by the side of Thermal Power Station Gate. DTC and Haryana Roadways buses going to Faridabad and Ballabgarh from Inter State Bus Terminal (ISBT) stop at BTPS Complex DTC and Private Buses of Route No. 405, 415, 460, 473 & 479 ply to Badarpur, Buses are also available from Faridabad to reach the institute.

NPTI (HPTC), NANGAL

The Institute is located at Nangal, (district Ropar), Punjab, just besides Nangal Dam railway Station. It is close to the Bhakra Beas Management Board Township. It is about 390 Km from Delhi and 104 Km from Chandigarh. Nangal Dam can be reached by trains from Delhi Railway Station and by bus from I.S.B.T. Kashmiri Gate, New Delhi. Bus services are also available from Chandigarh.



POWER SYSTEMS TRAINING INSTITUTE, BENGALURU



The Institute is situated on the Subramanyapura Road opposite to 9th Main road, Yarbagnagar, Banashankari Second Stage behind Banashankari temple, Bengaluru. The Institute is about 10 Kms. away from Bengaluru City railway Station/ Bengaluru City Bus Stand and 20 Kms. From Bengaluru Airport. Pre-paid Auto Rickshawa servies are available form Bengaluru City railway Station. City buses also ply via Yarbagnagar bus stop (Bus Route Nos. 15 C, 15 E, 15 H, 210 A, 210 R and P 210 A from Bengaluru City Bus Station). Pre-paid taxi services are available from the Airport also.

HOT LINE TRAINING CENTRE, BENGALURU

This institute is about 35 Km from Bengaluru city Railway Station and City Bus Stand. It is situated next to 220KV Sub-Station of Karnataka Power Transmission Corporation Ltd. (KPTCL) and 400KV Sub- Station of Powergrid on Kanakapura Road (National Highway 209) and opposite to Acharya Patasala College (APS) of Engineering Campus. Buses are available from Krishna Rajendra (K.R.) Market which is about 3 Km from City railway station/ City Bus Stand. The Institute can be reached by buses with the following route numbers 211, 211D, 211E, 211G, 211N, 211Q, 213, 213A, 213B, 213K, 213F/A etc. The Bengaluru city (International) Airport is about 60 kms North-West of the institute from where prepaid taxis are available.





NPTI (SOUTHERN REGION), NEYVELI



The Institute Complex is located at Block 14 of Neyveli township and is about 6 kms from the Neyveli Central Bus Stand. Auto Rickshaws are available at the bus stand to reach the Institute Complex. Neyveli can be reached from Chennai by Tamil Nadu State Transport Corporation Buses. Neyveli can also be reached by train from Chennai Egmore Railway Station to Virudhachalam Railway Station and by bus from Virudhachalam to Neyveli. Neyveli is about 200 kms. by road and 250 kms. by train from Chennai.

NPTI (EASTERN REGION), DURGAPUR

The institute complex is located at the City Centre area (Michel Faraday Avenue) and is about 9 Kms. From Durgapur Railway Station. Taxis, Auto rickshaws are available at Durgapur Railway Station. City buses also ply upto City Centre from where Rickshaws can be engaged for reaching the Institute.



NPTI (NORTH EASTERN REGION), GUWAHATI



The Institute is located near SLDC Complex, ASEB, Kahilipara, Dakhingaon, Guwahati-19. In order to reach the Institute, city buses, (Route No.-2 at Kachhari), autorickshaws, taxis are available from the Guwahati Railway Station. The Institute is about 10 Km from Guwahati Railway Station and 30 Km from Gopinath Bardoloi International Airport, Guwahati.

NPTI (WESTERN REGION), NAGPUR

The Nagpur Institute is located at about 8 kms. From the Nagpur railway station. Taxis, autorickshaws and city buses are available to reach the Institute. The Institute is situated opposite to the main gate of Vishweshwarayya National Institute of Technology (VNIT) on South Ambazari Road and the nearby area is called Gopalnagar. The institute is about 10 kms from the Dr. Baba Saheb Ambedkar International Airport





MAIN OBJECTIVES

The primary objectives of this organization are:

- To function as a National Organisation for training in the fields of (a) Operation and Maintenance of Power Stations, and (b) All other aspects of Electrical Energy Systems including transmission, sub-transmission and distribution.
- To act as an Apex Body for initiating and coordinating training programs in the Power Sector of the Country.
- To establish and run Training Institutes for Engineers, Operators, Technicians and other personnel of the Power Sector.

Subsidiary Objectives

- To design syllabi/courses for the Graduate Engineers, Operators and Technicians to be inducted in Power Stations.
- To co-ordinate the training activities of the various utilities with those of other technical institutions and industries.
- To establish standard norms regarding qualifications and training for personnel at various levels.
- To serve as a National Certification Authority (NCA) for the purpose of certification of competence and/or participation to ensure availability of properly trained personnel to man the electricity supply industry.
- To initiate and co-ordinate the research and development in the field of operation, maintenance and management of power generation and transmission distribution

systems.

- To establish, maintain and manage laboratories, workshops, experimental transmission lines, sub-stations and other facilities required in the pursuance of its objectives.
- To collect information and maintain documentation in the field of electricity generation and distribution.
- To collect, prepare, edit, print and publish materials, papers, periodicals or reports in furtherance of objectives of the Society.
- To organize seminars and workshops.
- To enter into agreements with any enterprise(s) or institution(s) or person(s) and provide efforts for specific training programs, demonstrations, assignments, preparation of training material or technical guidance.

Training – A Necessity

- Power industry is a multi-disciplinary, highly capital intensive industry.
- Human element is the most vital input of the Power Sector.
- Power Generating Stations require technically trained manpower for project planning, implementation, erection, commissioning, testing, O&M including transmission and distribution of power.
- Formal studies available in educational institutions can not equip a person with knowledge of different inputs required for the job performance in Power Sector.

- Special training becomes necessary for personnel at every level in the industry to keep abreast with rapidly advancing state-of-the-art in the power industry.
- Power is basic to national development and industrialization, thus making it imperative to have optimum efficiency.

Training Methodology

To achieve the objectives of providing total concept of power plant training, different types of learning situations will have to be created/ organized. These are :-

- Class room lectures for imparting formal, theoretical and technical knowledge.
- Case studies/Group discussions.
- Self learning techniques, like computer based self learning training packages etc.
- Practical hands-on training in corrective maintenance methods and techniques.
- Through simulation techniques and on-job training in Power Stations/ Power Systems. The training methodology so adopted creates step by step environment for all round development of skills and knowledge of the participants.

On-job Training

On-job training is an essential supplement to formal training which provides the trainees an understanding of the functions through involvement with real work situations. Special stress is laid on acquisition of required skills for undertaking specific responsibilities

in a particular area of work. On-job experience simplifies and consolidates knowledge in a particular sphere for which special type of work books have been designed according to the needs of area where on-job training is conducted.

Training Support Services

A Technical section is setup under NPTI to develop training aids like manuals, periodicals, slides etc., to meet the training needs of the Power Sector. Technical Section is playing crucial role in the following areas:-

- To design appropriate programs for Power Sector personnel.
- To design and develop manuals, lessons, notes, tests including the Audio-Visual training aids.
- To revalidate training programs through evaluation, feed back on training effectiveness and follow-up.
- To advise on training methodology.
- To establish and maintain data bank, and reprographic facilities.
- To collect, prepare, edit, print and publish training manuals, papers, periodicals, annual training programs calendar and reports.
- To collect information and maintain documentation in areas related to Power Sector.
- To render assistance in equipping the Regional Training Centres with appropriate training equipments and materials.
- To organize Seminars/Workshops/ Conferences as per the need of the Power Sector.



Multimedia Computer Based Training (CBT)

Multimedia CBT has been identified as one of the cost effective means of delivering consistent high quality training. In view of this, a CBT cell has been established at NPTI, Corporate office at Faridabad and also at other Regional Centres for developing the multimedia "Self-Learning" packages in various technical areas concerning Power Generation, T&D and Management. These packages are widely used by the trainees at the open Learning Centres (OLCs) of NPTI as well as by the other power utilities of the country like APGENCO, BHEL, MSEB, RRVUNL, NTPC, NHPC, SJVNL, J&KPDC, PSEB, NPCL, TNEB, OHPC, NLC, DVB, KLTPS, DVC, WBPDC, IPPGCL, BBMB, BSES, TATA POWER, Thermax, ACC, APSEB, NDPL, UPRVUN, BSEB, WSEB, JSW energy Ltd., Bellari Karnataka, Adani Power, THDC, Orissa Power Transmission Corpn. Ltd., MP Poorv Kshetra Vidyut Vitran Corpn. Ltd., Mahavitrans Maharashtra, Karebo System (P) Ltd., (U.K), Meghalaya SEB etc.

Engineering Institutions: G.B. Pant University of Agriculture and Technology, NIT, Raipur, NIT, Durgapur, Jawaharlal Nehru Technological University (AP), Kalyani University (WB), CMERI (Durgapur), VNIT (Nagpur), Delhi College of Engineering (Delhi), Bharati Vidyapeeth, Deemed University, Pune etc.

These CBT packages developed are available for sale, at cost-effective nominal prices.

This cell also provides assistance to the SEB's and Utilities in developing

facilities for use of these packages.

Hostel Facilities

Well furnished Executive hostel and Trainee hostel with modern lodging and boarding facilities are available to accommodate about 550 trainees at NPTI Corporate Centre complex, Faridabad.

Well furnished hostels are also available at each of the regional institute of NPTI where modern and hygienic lodging and boarding facilities are available. Those desirous of availing the hostel facilities will have to intimate in advance to the Principal Director/HoI and obtain confirmation for the same. In case a participant does not stay in the hostel, he has to make his own arrangements to reach the Institute. Recreation and indoor sports facilities like Table Tennis, Badminton, Carom, Chess etc. are available for trainees in Hostel, creating a congenial atmosphere of a Home away from Home.

The hostel accommodation is provided to the trainees only for the period of training course.

Library

NPTI Corporate Centre library has a



Library at NPTI Corporate Office, Faridabad

large collection of books and video packages on modern power station technology and practices, various branches of engineering, science, industrial relations, management etc. It subscribes to a number of Indian and foreign technical journals and periodicals.

All regional institutes have modern libraries having a large collection of books and multimedia films on Power Station Technology, Mechanical Engineering, Electrical Engineering, Power Plant, Chemistry, Control and Instrumentation, Electronics, Computers, Management etc. These libraries also subscribe to a variety of Indian and foreign periodicals and journals for keeping in tune with the latest developments in Engineering & Technology.

As many as 99 Technical manuals/books have been published by NPTI faculty with lucid presentations to enhance the conceptual understanding of various subsystems. These are available at nominal prices for procurement by Power Utilities and individual. Price List of NPTI Publications can be provided on request.

Auditorium, Conference Hall, Residential Quarters

The NPTI Corporate Centre Complex is situated on a picturesque landscape of about 15 acres. The campus houses the main institute building, guest house, hostels, sports complex and residential quarters for the employees. The main Institute building houses lecture halls, a Syndicate room, Sanctum Sanctorum, Library, Administrative Office, a 500MW Simulator, and a 430MW CCGT Simulator etc. A centrally air-conditioned 275 seat

capacity Auditorium with the latest Audio/Video System with motorized screen has been established at NPTI Corporate Centre. A cozy conference hall with most modern amenities and seating capacity for 55 persons is also available. Both Conference Hall and Auditorium are being used for conducting Seminars, Conferences, Workshops and for Cultural Activities.

Each Regional Institute has auditorium/conference hall for conducting Conferences, Seminars and workshops etc. These auditoriums are also provided for conducting of cultural programs by the trainees, staff and their family members.

SIMULATORS



Japanese delegates interacting with trainees of 500MW Simulator at NPTI Corporate Office, Faridabad

A. 500 MW Simulator

NPTI has set up a high-quality, high-fidelity real-time full scope 500 MW Fossil Fuel Fired Power Plant Training Simulator, at its Corporate Centre. The Simulator realistically emulates the behavior of the entire process simulation in a real-time scenario for a meaningful and off-job Operator Training. This is a replica of the 500 MW Stage-III, Unit-



Delegates from Abu Dhabi during their visit to NPTI Corporate Office, Faridabad

5 of Chandrapur Thermal Power Station of MAHAGENCO and has a unique facility of imparting training on the 'Conventional Control Panels' as well as on the 'Video Process Control' (DDC/CRT-Key Board based Unit Operation) Panels in Virtual Panel and Control Schematic modes of Unit Operation, taking care of the needs of futuristic trends in Power Plant Operation. The Simulator training results in Operators making better judgment calls, reduced plant trips, trouble free start-ups and maneuvering of plant sub-systems, optimum usage of auxiliary resources, extended equipment life, less down time and lower costs. The Simulator has more than 250 emergency conditions, including DAS functions for applications ranging from Operator Training to engineering and plant performance analysis and improvements etc.

B. Combined Cycle Gas Turbine Simulator

NPTI has set up a high-quality, high-fidelity real-time 430 MW Combined Cycle Gas Turbine Power Plant Simulator, at its Corporate Centre. The Simulator realistically emulates the behavior of the entire process simulation in a real-time scenario for a meaningful and off-job Operator Training. This is a replica of NTPC Faridabad Gas Power Plant, Siemens Make V-94.2 Model comprising of 2x143 MW Gas Turbines and 1x144 MW steam Turbine. This CCGT replica Simulator is equipped with all the CRT controls with Latest State-of-the art Barco Screens. The training on this simulator will benefit operators and Shift Charge Engineers working or being posted on Combined Cycle Gas Plants.

C. 210 MW Thermal Power Plant Simulators

Regional institutes at Badarpur and Nagpur are equipped with 210 MW Fossil Fuel fired thermal power plant full scope real time Simulators. The Simulator at Badarpur is a replica of 210 MW Unit of Badarpur Thermal Power Station, New Delhi and the one at Nagpur replicates 210 MW unit of Khaperkheda T.P.S. of MAHAGENCO These Simulators provide a unique opportunity for the trainees to experience a full range of operation and stress situations in an integrated mode of Unit Operation. These state-of-the-art Simulator facilities improve the reflex operational skills of Shift Charge Engineers, Unit Controllers, Operators and fresh engineers being inducted into Operation and fine-tune their skills in

Operational emergencies together with tremendous integrated Unit experience, exposure and understanding of normal operations viz., Cold, Warm & Hot Start

up processes as well. NPTI has trained more than 10,000 engineers and operators on these simulators, since their installation.

D. Dispatcher Training simulator (DTS)

The DTS laboratory at PSTI Bengaluru is a digital computer based high fidelity Power System Simulator in which a representative system of National Grid is simulated. It has options for all types of generation like Hydro, Thermal, Nuclear, Gas, Pumped Storage System and for Transmission schemes covering 200KV & above and also for the various generation voltages. The transmission equipment like Transformers, Transmission lines, Capacitor banks, Bus Line Reactors, SVCs, CBs, isolators etc. are all suitably represented in the simulator. The real-timesimulation is carried out for normal and emergency conditions of the network with initial conditions. The behaviour of various Power System elements for different



Skill Development Program in Simulator at NPTI Corporate Office, Faridabad



loading conditions can be studied in the Simulator. Time tagged or manual events can be introduced on-line into the Simulator during exercises. Protection schemes could be implemented with the help of voltage relays, frequency relays, rate of change of frequency relays, over current relays etc. Thus the actual system occurrences can be Simulated and saved as save cases. Hence, it is a comprehensive training tool for training of Power System and Load Dispatch Engineers and Operators.

E. Hydro Simulator, Nangal

NPTI has installed a state of the art real time full scope 250 MW hydro simulator replica of Unit-1 of Nathpa Jhakri Hydro Power Plant at HPTC Nangal.

The Simulator has the facility to operate from the conventional Panel as well as from the VPC mode of operation.

F. 800 MW Supercritical Thermal Training Simulator

NPTI is in the process of commissioning a 800MW Supercritical Thermal Simulator at NPTI Corporate Office, Faridabad.

6 more DCS based Multi configured simulators is under process of Commissioning.

Laboratories/Workshops

The laboratories and Workshops are the prerequisites for providing off-job, hands-on training in the maintenance aspects. The institutes under NPTI have built well equipped laboratories and workshops with wide ranging facilities



A Training Session in progress at 430MW Combined Cycle Gas Turbine Simulator at NPTI Corporate Office, Faridabad



Two weeks Training Program on 'Hydro Power Plant' being organized at NPTI Corporate Office, Faridabad

for imparting training from Technicians to Operators to Engineers, in various aspects of Power Stations. Some of the areas where expertise have been built up are:

- (i) Control and Instrumentation Laboratories with facilities for testing, calibration and repairs of different types of process control instruments.
- (ii) Maintenance workshops for Valves, Bearings & Shaft alignment, Pumps, Motors etc.
- (iii) Electrical laboratories with facilities for testing of relays, electrical equipments, insulating oils etc., along with repairs as per requirement.
- (iv) A lab of 120 nos. computers along with instructor console has been

established with the facilities of LAN and Internet connectivity at corporate office Faridabad.

OLCs (Open Learning Centres)

OLC (Open learning Centre) is the infrastructural facility available to help the trainee/trainer to go through the multimedia CBT packages at their own choice and pace without any help of the subject expert. OLCs have been established at all the six Regional Institutes. The multimedia CBT packages developed at NPTI Corporate Centre and other Institutes are being used by the Institutes for training.

Additionally all the OLCs at the Corporate Centre and the Regional Institutes have complete Internet access through all days of the week.



Consultancy Services

In order to serve the industry requirements and make best usage of infrastructure and expertise, NPTI has ventured into providing consultancy services in Preparation of DPRs under R-APDRP (11th Plan). NPTI was appointed as REC Quality Monitor (RQM) for Tier-II Inspection of RGGVY Works under 11th Plan for six (6) states and completed the assignment. NPTI also completed the Third Party Inspecting Agency (TPIA) works by a few DISCOMs for the RGGVY works under the 10th Plan & 11th Plan.

NPTI has provided consultancy services to WAPCOS for preparation of DPR for establishment of Power Training Institute in Bhutan. NPTI also Consultancy services to NHPC for preparation of DPR for establishment of Hydro Power Training Institute in Jammu & Kashmir.

NPTI provided DPR preparation services under IPDS & DDUGJY Schemes to DVVNL-Agra, UP.

NPTI is also providing Project Management Agency (PMA) services for DDUGJY & IPDS Project Works for NESCO & WESCO Utility areas of OPTCL, Odisha.

NPTI in association with TATA Consulting Engineers (TCE) completed an assignment of preparation of a Feasibility Study for establishing a "National Power Academy" in the Kingdom of Saudi Arabia.

NPTI has been awarded a consultancy contract by Bureau of Energy Efficiency (BEE) to create master trainers for imparting training to officials of DISCOMs on DSM and Energy Efficiency under the "Capacity Building of DISCOMs" Program during XII Plan.

NPTI also provides consultancy in the



Inauguration of USAID, SARI/EI one week Program on 'Techno-Economic Hydro Power Project Appraisal'



Inauguration of 3-Weeks Program on 'Operation and Maintenance of Hydro Power Plant - SALMA DAM, Afghanistan' organized at NPTI Corporate Office, Faridabad

field of Human Resources Development including Training Need Analysis, Upgradation of training facilities, Customized Course Designs, Capacity Assessment/Evaluation for Promotion etc.

Basic level System Operator Certification and Specialist level System Operator Exam on "Regulatory Framework in Power Sector" and "Power System Reliability"

NPTI's Power System Training Institute (PSTI) has been conducting Certification of Power System Operators since 2011. Training Courses at NPTI, Corporate Office, Faridabad and Power System Training Institute (PSTI), Bengaluru equip the System operators with necessary inputs to take up the System Operation Certification Exam.

Basic Level On-Line System Operator Certification exams have been conducted in November 2011, December 2012, July 2014, November 2015 and December 2016 at various centres across the country. A total of 1033 system Operators were certified against 1277 who appeared for the Basic Level Certification Examinations.

Specialist courses on 'Regulatory Framework in Power Sector', 'Power System Reliability', 'Renewable Energy Sources and Grid Integration', 'Power System Logistics' and 'Power Market Specialist' are being conducted both at Corporate Office, Faridabad and PSTI, Bengaluru. Examinations on all the specialist level subjects have been planned to be conducted.

On-Line examinations for Specialist Level Certification have been conducted for



'Regulatory Framework in Power Sector' in March 2013 and February 2016 . 161 System Operators were certified against 254 that appeared. Specialist Level Certification Examination on 'Power System Reliability' was conducted in February 2015. 77 System Operators against the 112 that appeared, were certified. The next certification examination on "Power System Reliability" is scheduled to be conducted on 2nd July 2017 across the country.

Models

All the Institutes under NPTI have good number of working and non-working models relating to various main systems and equipments of Thermal Power Stations, Hydro Power Stations and Power Systems. Models for demonstration in the diversified areas of training in NPTI are also available.

Audio Visual Aids

All the institutes are well equipped with

Audio Visual aids which are required for efficient running of training programs. Latest computer compatible projection systems have been added to the existing slide projectors, over head projectors, DVD Players televisions, recoding decks, personal computers, slide-synchronized packages for various lessons in operation and maintenance of Power Stations.

Medical Services

Services of well qualified doctors are available on part-time basis in each of the Institute Complex.

General Information

NPTI and its Institute work on five days a week (Monday to Friday) and the working hours are from 09:30 to 18:00 hrs. The changes in program schedule, if any, shall be duly intimated. NPTI regularly organizes Training programs/ Seminars/ Workshops in collaboration with National/ International Power Sector Organizations, details of which are



Prof. (Dr.) Rajendra Kumar Pandey, Director General, NPTI taking a technical session to the Assistant Directors of Central Electricity Authority



A Free Medical Check-up Camp organized by Fortis Escorts Hospital, Faridabad at NPTI Complex, Faridabad

circulated separately. NPTI publications provided to the trainees of various courses are also available for sale on specific requests.

How to apply for participation

Nomination along with course fee for various courses may be sent to The Principal Director/ HoI of the respective institute at least 15 days in advance from the date of commencement of the course.

Training Programs

NPTI is conducting the following training programs at its institutes

- One year Post Graduate Diploma in Thermal Power Plant Engineering
- One year Post Graduate Diploma Course in Sub-Transmission and Distribution
- 52 weeks Graduate Engineers Course in Thermal.
- 26 weeks Post Graduate Diploma Course in Transmission and Distribution.
- 52 weeks induction level training course in Operation and Maintenance of TPS for Graduate Engineers, Diploma Engineers/ Operators.
- Nine months Post Graduate Diploma Course in Hydro Power Plant Engineering.
- Six months Post Graduate Diploma course in Transmission and Distribution System.
- Six months Post Diploma course in Thermal Power Plant Engineering.
- 26 weeks Post Diploma Course in Distribution & Sub-Station Management
- 26 weeks Post Diploma Course in Transmission Line Maintenance
- Short-term refresher courses for in-service Engineers/supervisors/ Operators.
- Short-term courses for maintenance Technicians.
- Simulator training courses.
- Power System Training Courses at PSTI.
- Live Line Maintenance Courses at HLTC.
- Short Term Training Course in Hydro- Power Training Centre at Nangal.



NPTI ORGANISATION

Besides its Corporate Office at Faridabad (Haryana), National Power Training Institute operates on all India basis through its Regional Institutes located in the different Power Zones of the country. These Institutes are headed by Principal Directors/Directors under the overall control of the Director General, NPTI. The addresses of NPTI Corporate Office and Regional Training Institutes are given below:

NPTI CORPORATE OFFICE

Director General

National Power Training Institute

NPTI Complex, Sector-33, Faridabad – 121 003 (Haryana)

Telephone: 0129-2275475, 2257131, 2272142, **EPABX :** 0129-2274916, 2274917

Fax: 0-129-2277412 **e-mail:** akmalik.npti@gov.in akmalik60@ymail.com **Website:** www.npti.in

TRAINING INSTITUTES

01. Principal Director

NPTI Complex, Sector-33, Faridabad-121003 (Haryana)

Ph.: (0129) 2255213

e-mail: jssrao.npti@gov.in

02. Director, (F&A)

NPTI Complex, Sector-33, Faridabad-121003 (Haryana)

Ph.: (0129) 2272210

e-mail: rkmishra.npti@gov.in

03. Head of Institute, National Power Training Institute (N.R.)

Badarpur, New Delhi -110044

Ph.: (011) 26940722, 26976516

Fax: (011) 26940722

e-mail: jssrao.npti@gov.in;
mvpandey.npti@gov.in

04. Head of Institute, National Power Training Institute (HPTC)

Opp. Nangal Dam Rly. Station, Nangal, Distt. Ropar, Punjab - 140124

Ph.: (01887) 220573, 221129

Fax: (01887) 221129

e-mail: sksinha.npti@gov.in
hptc_npti@rediffmail.com

05. Head of Institute, Power Systems Training Institute, National Power Training Institute

P. O. Box: 8201 Subramanyapura Road, Banashankari II Stage, Bengaluru-560070 (Karnataka)

Ph.: (080) 26713758, 26718185

Fax: (080) 26713758

e-mail: bngpstl@kar.nic.in
mnmurthy.npti@gov.in

06. Head of Institute, Hotline Training Centre, National Power Training Institute

26th Km, Kanakapura Road, Somanahalli Gate Udayapura Post, Bengaluru-560082 (Karnataka)

Ph.: (080) 28432596, 28432212

Fax: (080) 28432596

e-mail: ksvenu.npti@gov.in

07. Head of Institute, National Power Training Institute (S.R.)

Block 14, NLC Township,

Neyveli – 607803 (Tamil Nadu)

Ph.: (04142) 269427, 257873

Fax: (04142) 269427

e-mail: jayasamraj.npti@gov.in

08. Head of Institute, National Power Training Institute (E.R.)

City Centre, Durgapur-7132616 (WB)

Ph.: (0343) 2545888, 2546887

Fax: (0343) 2545888

e-mail: nptidurgapur@npti.in

09. Head of Institute, National Power Training Institute (NER)

Dakhingaon, Kahilipara (Assam),
Guwahati-781019

Ph.: (0361) 2381329, 2381346

Fax: (0361) 2381329

e-mail: nptiguwahati@npti.in
svmaple.npti@gov.in

10. Head of Institute, National Power Training Institute (W.R.)

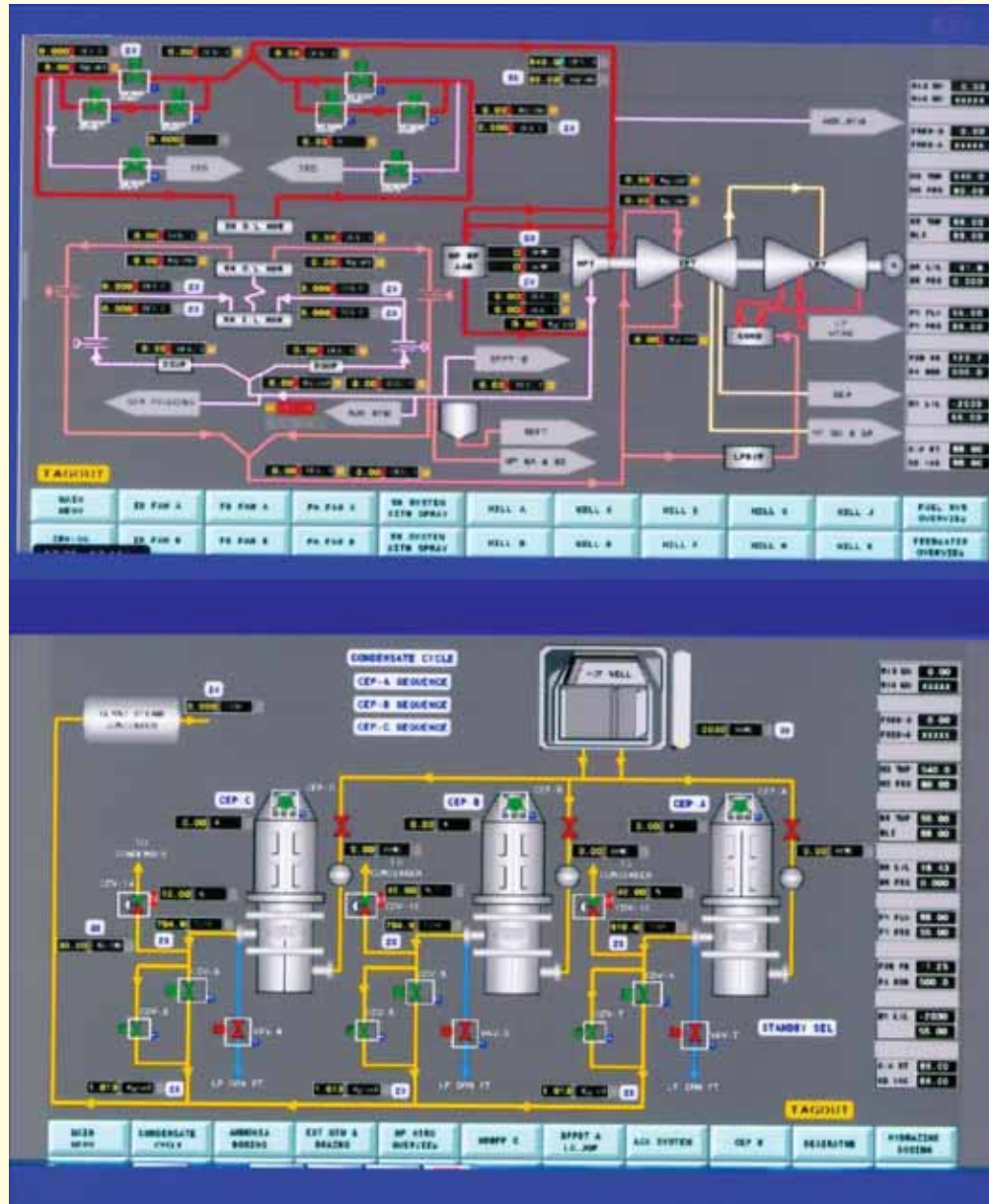
South Ambazari Road, Gopal Nagar,
Nagpur – 440 022, (Maharashtra)

Ph.: (0712) 2231478, 2226176

Fax: (0712) 2220413

e-mail: nptinagpur@npti.in
dmlokhande.npti@gov.in

800 MW Super Critical, Coal Fired Operator Training Simulator



NPTI is in process of commissioning 800 MW GUI based, Super Critical, Coal Fired Operator Training Simulator being developed by M/s BHEL, EDN-Bengaluru. The system is equipped with latest hardware with high end servers, Six nos. Operator's work stations, 5 nos. large video screens with latest Instructor's features viz. Backtrack, condition override, cry wolf alarm, replay, snapshots and malfunctions etc.

The real-time replica simulator of 800 MW Super Critical unit of NTPC's Kudgi T.P.P. is likely to be available for training at NPTI, Corporate Office, Faridabad in July 2016. This is the First 800 MW Super Critical Thermal Simulator in the Country to be owned by Government Sector.



TRANSNATIONAL TRAINING

NPTI and its Regional Institutes are equipped with state-of-the-art infrastructural facilities to meet the specific requirements of training foreign nationals. NPTI offers all the courses detailed out in this calendar and also tailor-made/customized need base programs to suit the organization's objectives. Typical training capsules have been designed on Power Plant Management, Combined Cycle Gas Turbine Power Plants, Transmission & Distribution areas etc.

NPTI in its various courses has trained many foreign Nationals from Zimbabwe, Iraq, Oman, Bhutan, Bangladesh, Sudan, Ethiopia, Syria, Malaysia, Philippines, Cambodia, Myanmar, Zambia, Mexico, Nigeria, Kenya, Afghanistan, Papua New Guinea, Ecuador, South America etc. Programs conducted for these Nationals did receive exceptionally encouraging feedback with rave reviews.

Foreign Training Course Fee: 2017 - 2018

S.No.	Course	All Foreign Countries
1.	Regular Course on Power Plant Engg.	US \$ 1000 per week per participant subject to maximum of US \$ 20000 up to 52 weeks duration
2.	Simulator Training	US \$ 2000 per week per participant
3.	Boarding and Lodging in NPTI Hostel	US \$ 800 per week per participant (AC Rooms on single sharing basis)
4.	Specialized need based Tailor made Courses	On Mutual Agreement

FEE STRUCTURE FOR VARIOUS TRAINING PROGRAMS OF NPTI FOR THE YEAR 2017-2018

S.No.	Name of the Course	Duration	Training Fee (Common for all viz. SEBs/PSUs/ Private organisations) (₹)
LONG TERM COURSES (Period 17 to 52 Weeks)			
1	Graduate Engineer (Thermal)*		
	i) Non-sponsored candidates	52 Weeks	2,30,000
	ii) Sponsored candidates	52 Weeks	3,60,000
2	Graduate Engineers (Thermal Condensed)*	26 Weeks	2,00,000
3	Post Graduate Diploma course in Power Plant Engineering*		
	i) Non-sponsored candidates	52 Weeks	2,30,000
	ii) Sponsored candidates	52 Weeks	3,60,000
4	Post Graduate Diploma Course in Hydro Power Plant Engineering*		
	i) Non-sponsored candidates	39 Weeks	1,75,000
	ii) Sponsored candidates	39 Weeks	2,00,000
5	Post Graduate Diploma Course (PGDC) in Sub Transmission & Distribution System*		
	i) Non-sponsored candidates	52 weeks	2,30,000
	ii) Sponsored candidates	52 weeks	3,60,000
6	Post Graduate Diploma Course (PGDC) in Energy Market Management		
	i) Non-sponsored candidates	52 weeks	2,30,000
	ii) Sponsored candidates	52 weeks	3,60,000
7	Post Graduate Diploma Course (PGDC) in Power System Operation		
	i) Non-sponsored candidates	52 weeks	2,30,000
	ii) Sponsored candidates	52 weeks	3,60,000
8	Post Graduate Diploma Course (PGDC) in Renewable Energy and Grid Interface Technologies		
	i) Non-sponsored candidates	52 weeks	2,30,000
	ii) Sponsored candidates	52 weeks	3,60,000
9	Post Graduate Diploma Course (PGDC) in Smart Grid Technologies		
	i) Non-sponsored candidates	52 weeks	2,30,000
	ii) Sponsored candidates	52 weeks	3,60,000
10	Post Graduate Diploma Course in T&D Systems*		
	i) Non-sponsored candidates	26 Weeks	1,45,000
	ii) Sponsored candidates	26 Weeks	1,90,000
11	Post Diploma Course in Thermal Power Plant Engineering*		
	i) Non-sponsored candidates	52 Weeks	1,45,000
	ii) Sponsored candidates	52 Weeks	2,20,000



12	Post Diploma Courses		
	i) Non-sponsored candidates	26 Weeks	80,000
	ii) Sponsored candidates	26 Weeks	1,35,000
MEDIUM TERM COURSE: (Period 5 to 16 Weeks)			
9	Specialized Courses	16 weeks	1,44,000
10	Specialized Courses	15 weeks	1,38,000
11	Specialized Courses	14 weeks	1,32,000
12	Specialized Courses	13 weeks	1,26,000
13	Specialized Courses	12 weeks	1,20,000
14	Specialized Courses	11 weeks	1,14,000
15	Specialized Courses	10 weeks	1,08,000
16	Specialized Courses	9 weeks	1,00,500
17	Specialized Courses	8 weeks	93,500
18	Specialized Courses	7 weeks	86,500
19	Specialized Courses	6 weeks	78,000
20	Specialized Courses	5 weeks	68,500
SHORT TERM COURSES: *(Period 1 to 4 Weeks)			
21	Specialized Courses	4 weeks	57,000
22	Specialized Courses	3 weeks	45,000
23	Specialized Courses	2 weeks	33,000
24	Specialized Courses	1 week	18,000
25	Specialized Courses	4 Days	16,000
26	Specialized Courses	3 Days	13,000
27	Specialized Courses	2 Days	9,000
28	Specialized Courses	1 Day	4,800
29	Training Fees for On-site/On-plant training Programs	1 week	30,000
30	Training Fees for On-site/On-plant training Programs	4 Days	27,500
31	Training Fees for On-site/On-plant training Programs	3 Days	22,000
32	Training Fees for On-site/On-plant training Programs	2 Days	15,500
33	Training Fees for On-site/On-plant training Programs	1 Day	8,500

***Includes Thermal Simulator Training fee of 2 weeks/ CCGT Simulator Training fee of 2 weeks / Hydel Simulator Training fees of 1 week / Power System Training Simulator fee of 1 week as applicable.**

****In respect of short term courses, fee is inclusive of tea/snacks and working lunch. In respect of other courses, fee is exclusive of tea/snacks and working lunch.**

Note: For specialized courses/on-site/on-plant Training Programs minimum no. of participants should be 10. If no. of participants are less than 10, then fee for 10 participants will be charged.

HLTC, BENGALURU REGULAR PROGRAMS – RESIDENTIAL (2017-2018)

S.No.	Name of Course	Duration	*Training fee ₹ Per Participant
1	Live Line Maintenance Techniques(LLMT) using Hot Stick Method	11 weeks	1,75,000
2	Live Line Maintenance Techniques(LLMT) using Bare Hand Method (BHM)	05 weeks	1,38,000
3	Switchgear Maintenance Techniques using LLMT for Linemen/Supervisors	04 weeks	1,08,000
4	Familiarization Training Programme on 400 Kv Cold Lines	04 weeks	86,500
5	One Week Awareness Course for Executives in Hot line Activities	01 week	21,500
6	Live Line Punctured Insulator Detection (PID)	01 week	24,000
7	Live Line Insulator Washing Techniques (LLIW)	04 days	24,000

* Training Fee includes Boarding and Lodging Charges.

SIMULATOR TRAINING FEE FOR THE YEAR 2017-18

Name of Simulator	* Training Fee (₹) / Week / Participant
Thermal Simulator	33,000
Hydel Simulator	20,000
CCGT Simulator	27,500
Power System Simulator	20,000
800 MW Super Critical Simulator	30,000

*Training fee includes Tea/ Snacks and working lunch



RATE OF SIMULATOR (THERMAL/CCGT) TRAINING FEE FOR INTER UNIT PARTICIPANTS OF PGDC, B.E./B.TECH. (POWER) AND PDC STUDENTS ETC.

(Applicable for the Programs commencing during Financial Year 2017-2018)

Inter-unit Participants	Training Fee (₹) Per Participant (For two weeks duration) 2017-18
PGDC	32,500
B. Tech. (Power)	25,000
PDC	20,000

NOTE : Service Tax or any other tax will be levied extra as applicable on various components like Training Fee, Boarding & Lodging Charges, Transportation Charges.



Shri Shri Vishwakarma Puja Celebration at NPTI (CO), Faridabad

1. POST GRADUATE DIPLOMA COURSE IN POWER PLANT ENGINEERING

Objective

To prepare the fresh Graduate Engineers to become Power Station Managers in Operation and Maintenance of Thermal Power Stations. The admission to this course is done through a common entrance test held on all India Basis.

Program Profile

Module No.	Description	Duration
GF-1	Introduction	
GF-2	Power Plant Description	5 weeks
GF-3	Power Plant Scheme Tracing & System Discussion	2 weeks
GF-4	Power Plant Operation	3 weeks
GOJ-1	Power Plant Operation (Manual)	4 weeks
GOJ-2	Power Plant Operation (Supervisory)	4 weeks
GF-5	Performance (Formal)	1 week
GF-6	Safety	1 week
GF-7	Plant training (Practical)	5 weeks
GF-8	Planning & Cost Control	1 week
GOJ-3	Maintenance (Supervisory)	8 weeks
GOJ-4	Performance (On-job)	1 week
GF-9	Chemistry	1 week
GF-10	Basic Welding	½ week
GF-11	Non-Destructive Testing	½ week
GF-12	Protection	1 week
GF-13	Introduction to Management	2 weeks
GF-14	Simulator Training	2 weeks
GF-15	Metallurgy	1 week
GF-16	Computer Applications	1 week
GF-17	Load Dispatch	1 week
GF-18	Control & Instrumentation	2 weeks
GF-19	Maintenance & Inspection	4 weeks
	Appraisal & Valedictory	1 week
Total		52 Weeks

Venue	Duration	Date of Commencement
Faridabad	52 weeks	21-08-2017
Badarpur	52 weeks	21-08-2017
Nangal	52 weeks	21-08-2017
Neyveli	52 weeks	21-08-2017
Durgapur	52 weeks	21-08-2017
NPTI - NER Guwahati	52 weeks	21-08-2017



Nagpur

52 weeks

21-08-2017

Who may attend

B.Tech. / B.E. or its equivalent with minimum 60% marks in Mechanical/Electrical/Electrical & Electronics/Power Engineering and related branches

2. POST GRADUATE DIPLOMA COURSE (PGDC) IN POWER SYSTEMS

Objective

The main objective of the course is to create a technically trained manpower readily available for recruitment by the power companies and electrical service divisions of large industries in the area of Transmission & Distribution of Electrical Power.

This is a **Post Graduate Diploma Course** for those who desire to make a career in the power sector. On successfully undergoing this course the Electrical Graduate Engineers will find immense opportunities and preference in employment with various power companies. The course covers the Syllabus as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2010

Outline

- 1.0 General Introduction, Power Sector scenario
- 2.0 Fundamentals of Electricity, Power Quality, Harmonics & Mitigation
- 3.0 Generation Systems – Thermal, Hydro, Nuclear, CCGT, Diesel Power Plant
- 4.0 RES - Site selection, RE System Sizing, Feasibility reports
- 5.0 Power Electronics Controls, Rectifier, Inverter, Power Control Unit
- 6.0 Solar Photo Voltaic (SPV) Systems
- 7.0 Sub T & D Planning, Optimization, Design & Engineering
- 8.0 Engineering of Transmission and Distribution Sub-stations
- 9.0 HT & LT Switchgears, Battery, Battery Chargers & DCDB, UPS & UPS Batteries
- 10.0 Metering
- 11.0 Power Cables, LT Cables
- 12.0 Engineering of Transmission and Distribution Lines
- 13.0 Inspection of Electrical Installations and IE Safety Regulations
- 14.0 Protective Relays
- 15.0 Sub Transmission and Distribution System Protection
- 16.0 Power System Operation
- 17.0 Flexible AC Transmission Systems
- 18.0 Grid Integration of Distributed Generation
- 19.0 Energy Storage, Scheduling and Despatch
- 20.0 Distribution Automation, SCADA, EMS, PMU and Wide Area Monitoring
- 21.0 Smart Grids
- 22.0 Project Management of T&D Systems

- 23.0 Reliability issues
- 24.0 O&M of T&D Systems
- 25.0 O&M of REPS, Converters, Battery and Control Panel
- 26.0 Service Connections, H R Aspects & CRM
- 27.0 Energy Efficiency and Energy Audit
- 28.0 Demand Side Management
- 29.0 Best Practices in Transmission & Distribution Loss Reduction
- 30.0 Power System Planning, Optimization, Design & Engineering
- 31.0 Power System Protection
- 32.0 General Principles of Live Line Maintenance Techniques (LLMT)
- 33.0 Demo of LLMT on 11 kV and 33 kV systems

Total 52 Weeks

Venue	Duration	Date of Commencement
PSTI Bengaluru	52 weeks	01-08-2017

Who may attend

B.Tech. / B.E. or its equivalent with minimum 60% marks in Mechanical/ Electrical/ Electrical & Electronics / Power Engineering and related branches

Methodology

Lectures, Lab Sessions, Demonstration, Field Visits

3. POST GRADUATE DIPLOMA IN HYDRO POWER PLANT ENGINEERING

Objective

To prepare engineers to become Power Station Managers in Operation and Maintenance of Hydro Power Stations.

Program Profile

Module No.	Description	Duration
1	General Introduction of Hydro Power Plant Engineering	2 Weeks
2	Power plant familiarization of Hydro Power Plant Engineering	3 Weeks
3	Planning & cost control	1 Week
4	Safety & First aid	1 Week
5	Construction activity of a Hydro Power Plants	2 Weeks
6	Electro mechanical equipment using in HYDRO Power Plants	3 Weeks
7	Hydro mechanical equipment Testing Erection & Commissioning	1 Week
8	Welding and NDT	1 Week



9	Control & Instrumentation	2 Weeks
10	Computer application in Hydro Power plant	1 Week
11	Power Plant Protections	2 Weeks
12	Switchyard Equipments	1 Week
13	Power Plant Operation	2 Weeks
14	Load dispatch	1 Week
15	Maintenance of Hydro Power Plant Equipments	1 Week
16	Inspection of Hydro Power Plant Equipments	1 Week
17	Hydro Power Plant Simulator	1 Week
18	Introduction to Management	1 Week
19	Plant Operational Training at Hydro Power Plant (On-JOB)	6 Weeks
20	Plant maintenance Training at Hydro Power Plant (ON-JOB)	5 Week
21	Final assessment & Evaluation	1 Week
Total		39 Weeks

Venue	Duration	Date of Commencement
Nangal	39 weeks	04-09-2017

Who may attend

B.E./B. Tech. or equivalent in Mechanical/Electrical/Electrical & Electronics/Power Engg.

4. POST GRADUATE DIPLOMA COURSE IN TRANSMISSION & DISTRIBUTION SYSTEM

Objective

The main objective of the course is to create technically trained manpower readily available for recruitment to the power companies in the area of Transmission & Distribution of electrical power.

Program Profile	Duration
• General Introduction Power Senerio & General Introduction	1 week
• Power Generation Thermal Power Plant Familiarization	1 week
• Power Transmission Lines Engineering and O&M	2 weeks
• Live Line Maintenance Technique	1 week
• Substation Planning & engineering	1 week
• Substation Operation & Maintenance	1 week
• Load Despatch & Grid Management	2 weeks
• Communications in Power Systems	1 week
• Power Distribution /Distribution Lines/Cables	1week
• Systems Engineering O&M	2 weeks
• Distribution Sub-Stations	1 week
• Distribution Metering	1 week
• Energy Audit and Conservation in Distribution Systems	1 week
• Information Technology Office applications	1 week
• In T & D Power System Planning Studies	1 week

- | | |
|--|--------|
| • Safety, Statutory Safety & Statutory regulations | 1 week |
| • Commercial aspects Commercial aspects in T&D systems | 1 week |
| • Management of Electrical Contract | 1 week |
| • New Technologies Power System Protection | 1 week |
| • High Voltage Testing Power System Equipment | 1 week |
| • HVDC Transmission System | 1 week |
| • Simulator Training/Lab Simulator Training, Relay Testing | 1 week |
| • Appraisal | 1 week |

Total 26 Weeks

Venue	Duration	Date of Commencement
Badarpur	26 weeks	17-04-2017 & 22-01-2018
PSTI Bengaluru	26 weeks	06-03-2017 & 18-09-2017
NPTI-NER Guwahati	26 Weeks	11-10-2017
Nagpur	26 Weeks	25-09-2017 6

Who may attend

B.E./B. Tech. or equivalent in Electrical/Electrical & Electronics/Power Engg.

5. PGDC IN ENERGY MARKET MANAGEMENT

Objective

With a view to build adequate technical capacity and develop economically viable Energy sector and energy efficient systems and compliance of laudable objectives of the GoI, adequate scientific and technical manpower of all levels is a pre-requisite. The main aim of the courses is to create a pool of technically trained manpower readily available for recruitment to the State, Central and Private Power Utilities and allied Industries.

The course focuses on the market structures that exist within the electric energy industry. It includes mechanism of energy markets; comparative market systems; determination of prices under different market structures; electricity market architecture; electricity market design; dispatch and new build decisions; risk and risk management, current and proposed policies on the energy industry etc.

Module No.	Description
1.0	Energy Resources and Electricity Generation Options
2.0	Transmission Networks
3.0	Power System Operation and Management
4.0	Electricity Industry Structure and Regulations



5.0	Overview of Economic Theory
6.0	Commercial Systems & Transmission Pricing
7.0	Electricity Markets Design
8.0	Managerial and Interpersonal Skills
9.0	Communication Skills and Technical Writing
10.0	Visits to IEX/PXIL/RLDC
11.0	Load Dispatch Simulator Training
12.0	Investing in Generation and Transmission
13.0	Ancillary Services Markets
14.0	Operation of Market Oriented Power Systems
15.0	Electricity Storage Technology and Management
16.0	Managing Risk
17.0	Integration of Renewables and Effect on Power Markets
18.0	Introduction to Smart Grids
19.0	Power System Optimisation
20.0	Smart Power Flow Controllers and Intelligent Automation
21.0	Cyber Security in Power Systems
22.0	Climate Change and the impact on Energy Systems
23.0	Power Market Simulation Lab
24.0	Project Presentation

Total 52 Weeks

Note: The students have to select Topics for the Project before commencement of the second semester and complete by the end of second semester.

Venue	Duration	Date of Commencement
Faridabad	52 Weeks	07.08.2017
Durgapur	52 Weeks	07.08.2017
Nagpur	52 Weeks	07.08.2017
PSTI, Bengaluru	52 Weeks	07.08.2017

Who may attend

B.Tech. / B.E. or its equivalent with minimum 60% marks in Electrical /Electrical & Electronics / Power Engineering and related branches

6. PGDC IN POWER SYSTEM OPERATION

Objective

With a view to build adequate technical capacity and develop economically viable Energy sector and energy efficient systems and compliance of laudable objectives of the GoI, adequate scientific and technical manpower of all levels is a pre-requisite. The main aim of the courses is to create a pool of technically trained manpower readily available for recruitment to the State, Central and Private Power Utilities and allied Industries.

To provide the basics of electric power system generation, operation, and control to the students. The emphasis is on power system operation and operating tools

Module No.	Description
1.0	Evolution of Indian Power Systems
2.0	Legislative and Regulatory Framework
3.0	Managerial and Interpersonal Skills
4.0	Communication Skills and Technical Writing
5.0	Elements of Power System
6.0	Principles of Power System Operation
7.0	Power System Stability and Control - I
8.0	Reactive Power Management
9.0	Power System Analysis
10.0	On Job Training and Site Visits to Transmission Substation/ O & M of Substation/ Switchyard/NLDC/ HVDC/FACTS facility
11.0	On Job Training on Load Dispatch Simulator and Power Systems Lab /HV Lab
12.0	Legislative and Regulatory Framework - II
13.0	Commercial Aspects and Contracts Management
14.0	Transmission Pricing
15.0	Power System Stability and Control -II
16.0	Power Systems Planning and New Technologies
17.0	System Security and Reliability
18.0	Smart Power Flow Controllers and Intelligent Automation
19.0	Power Markets
20.0	Ancillary Services Management
21.0	SCADA / EMS and IT & Telecommunication Systems
22.0	Protection Systems
23.0	Power System Operation in emergency
24.0	Power System Restoration
25.0	Optimization Techniques and MATLAB
26.0	Power Markets Simulation Lab.



27.0	Training & visit to RLDC/SCADA facility
28.0	Project Presentation

Total 52 Weeks

Note: The students have to select Topics for the Project before commencement of the second semester and complete by the end of second semester.

Venue	Duration	Date of Commencement
Faridabad	52 Weeks	07.08.2017
Durgapur	52 Weeks	07.08.2017
Nagpur	52 Weeks	07.08.2017
PSTI, Bengaluru	52 Weeks	07.08.2017

Who may attend

B.Tech. / B.E. or its equivalent with minimum 60% marks in Electrical/Electrical & Electronics/Power Engineering and related branches

7. PGDC IN RENEWABLE ENERGY AND GRID INTERFACE TECHNOLOGIES

Objective

With a view to build adequate technical capacity and develop economically viable Energy sector and energy efficient systems and compliance of laudable objectives of the GoI, adequate scientific and technical manpower of all levels is a pre-requisite. The main aim of the courses is to create a pool of technically trained manpower readily available for recruitment to the State, Central and Private Power Utilities and allied Industries.

To equip the student with technologies, economics and policy involving energy systems and supply with Renewable Energy sources. Detail expertise will be offered in Solar energy systems involving photovoltaic as well as thermal energy systems, wind energy, biomass, Geothermal, Tidal and Wave energy, Hydrogen & Fuel cells, Small Hydro along with problems associated with grid integration of all the sources and concept of SMART Grid.

Module No.	Description
1.0	Energy Resources and Conventional Energy Systems
2.0	Applied Heat and Power Technology
3.0	Legislative and Regulatory Framework
4.0	Managerial and Interpersonal Skills
5.0	Energy Economics
6.0	Communication Skills and Technical Writing
7.0	Solar Thermal Systems
8.0	Solar Photo-Voltaic Systems
9.0	Grid Interface Technologies -I
10.0	Tariff and Commercial Aspects
11.0	Contracts Management
12.0	On Job Training / Visits to Solar Thermal/ Solar PV and other RE sites and Laboratory work
13.0	Wind Energy and Small Hydro
14.0	Bio Mass& Bio Energy and Waste to Energy
15.0	Hydrogen and Fuel Cells
16.0	Geo-thermal, Tidal and Wave Energy
17.0	Co-Generation & Hybrid Systems
18.0	Energy Storage Technologies
19.0	Appraisal & Financing of Renewable Energy Projects
20.0	Energy, Environment and Sustainable Development
21.0	Grid Interface Technologies – II
22.0	Smart Power Flow Controllers and Intelligent Automation
23.0	On Job Training/ Visits to RLDC/SCADA facility
24.0	Project Presentation
Total 52 Weeks	

Note: The students have to select Topics for the Project before commencement of the second semester and complete by the end of second semester.

Venue	Duration	Date of Commencement
Faridabad	52 Weeks	07.08.2017
Durgapur	52 Weeks	07.08.2017
Nagpur	52 Weeks	07.08.2017
PSTI, Bengaluru	52 Weeks	07.08.2017

Who may attend

B.Tech. / B.E. or its equivalent with minimum 60% marks in Electrical /Electrical & Electronics /Power Engineering and related branches



8. PGDC IN SMART GRID TECHNOLOGIES

Objective

With a view to build adequate technical capacity and develop economically viable Energy sector and energy efficient systems and compliance of laudable objectives of the GoI, adequate scientific and technical manpower of all levels is a pre-requisite. The main aim of the courses is to create a pool of technically trained manpower readily available for recruitment to the State, Central and Private Power Utilities and allied Industries.

The use of communications and information technologies is likely to cause major shifts in the way energy gets delivered. The objective of this course is to introduce about the smart grid technologies, their applications and control issues covering Smart Generation, Smart Transmission and Smart Distribution.

Module No.	Description
1.0	Evolution of the Indian Power Sector
2.0	Legislative & Regulatory Framework
3.0	Managerial & Interpersonal Skills
4.0	Communication Skills and Technical Writing
5.0	Smart Grid Policy and Regulations
6.0	Introduction to Traditional Power Systems
7.0	Introduction to Smart Grids.
8.0	Smart Grid Control Elements& Internet of Things
9.0	Smart Distribution technologies
10.0	Energy storage, micro-grids, alternative grid designs,
11.0	Demand Side Management & Demand Response
12.0	Integration of Renewable Energy into theGrid -I
13.0	Transmission and Distribution Challenges in Smart Grids
14.0	On Job Training / Visits/ Simulator
15.0	Communications and Interoperability
16.0	Load Forecasting
17.0	Energy Management Systems
18.0	Smart Grid Operations
19.0	Smart Grid Controls & Smart Power Flow controllers and Intelligent Automation
20.0	Smart Grid Applications Layer
21.0	Cyber Security
22.0	Integration of Legacy Systems
23.0	E-mobility
24.0	Integration of RE Sources -II
25.0	Smart Grid as enablers for Smart Cities
26.0	International Benchmarks and Lessons learnt
27.0	Smart Grid Maturity Models

28.0 Pilot Projects/ Case Studies and Business Models for Smart Grids
29.0 Visits/ Lab./Simulation
30.0 Project Presentation

Total 52 Weeks

Note: The students have to select Topics for the Project before commencement of the second semester and complete by the end of second semester.

Venue	Duration	Date of Commencement
Faridabad	52 Weeks	07.08.2017
Durgapur	52 Weeks	07.08.2017
Nagpur	52 Weeks	07.08.2017
PSTI, Bengaluru	52 Weeks	07.08.2017

Who may attend

B.Tech. / B.E. or its equivalent with minimum 60% marks in Electrical /Electrical & Electronics /Electronics & Communication /Computer Science/ Information & Communication Technology and related branches.

9. POST DIPLOMA COURSE IN POWER PLANT ENGG.

Objective

To give the Operators/Supervisors the knowledge and skill of overall operation and maintenance of thermal Power Plants along with specific background in Distribution Engineering.

Program Profile

Module No. Description	Duration
1. General Introduction and Orientation	01 week
2. Environment & Personal Safety	08 week
3. Power Plant Description	06 weeks
4. Power Plant Scheme Description and Tracing	02 weeks
5. Power Plant Operation (Supervisory)	02 weeks
6. Power Plant Chemistry	01 week
7. Power Plant Instrumentation	01 week
8. Power Plant Efficiency Performance	01 week
9. Basic Welding Practice & NDT	01 week
10. Maintenance Planning Inspection and Cost Control	06 weeks
11. Power Plant O&M (On-Job)	10 weeks
12. Introduction to Management	01 week



13. Computer Application	01 week
14. Power System Operation and Electrical Protection	01 week
15. Power Distribution Engineering and Systems	03 weeks
16. Distribution Metering and Techniques of loss minimization	03 week
17. Simulator	02 week
18. Protection	01 week
19. Final Appraisal	01 week

Total 52 Weeks

Venue	Duration	Date of Commencement
Badarpur	52 weeks	18-09-2017
Neyveli	52 Weeks	27-11-2017
Durgapur	52 Weeks	01-09-2017
NPTI-NER Guwahati	52 weeks	17-07-2017
Nagpur	52 Weeks	18-09-2017
PSTI, Bengaluru	52 Weeks	

Who may attend

Diploma or equivalent in Mechanical/Electrical/Electrical & Electronics Engg.

10. POST DIPLOMA COURSE IN HYDRO POWER PLANT ENGINEERING

Objective

To prepare Engineers to become Power Station Managers in Operation and Maintenance of Hydro Power Station

Module No.	Description	Duration
1.	General Introduction & Orientation	0.5 weeks
2.	Concept of Hydro Power Stations, Site Section, Component & Layout	1.5 weeks
3.	Hydro Mechanical Equipments	1 week
4.	Hydro Turbines	1 week
5.	Hydro Generator & Excitation	1 week
6.	Transformers	1 week
7.	Switchyard & GIS	1 week
8.	Working Principles, Characteristics and	1 week

	Operation of Auxiliary System	
9.	Hydro Lab. Practical	1 week
10.	Control & Instrumentation	1 week
11.	C & I Lab. Practical	1 week
12.	Electrical Lab. Practical	1 week
13.	Protection & Interlocks	1 week
14.	Power Plant Operation	1 week
15.	Erection, Testing and Commissioning	1 week
16.	Load Dispatch & SCADA	1 week
17.	Power Plant Safety & Acts	1 week
18.	On Job Training	2 weeks
19.	Mechanical Maintenance	1 week
20.	On Job Training in Mechanical Maintenance	1 week
21.	Electrical Maintenance	1 week
22.	On Job Training in Electrical Maintenance	1 week
23.	Hydro Power Plant Simulator	1 week
24.	Final Evaluation & Project Assessment	2 weeks
		Total 26 Weeks

Venue	Duration	Date of Commencement
Nangal	26 weeks	07.08.2017

Who may attend

Diploma or equivalent in Mechanical/Electrical/Electrical & Electronics Engg.

11. POST DIPLOMA COURSE IN DISTRIBUTION & SUBSTATION MANAGEMENT

Objective

The main objective of the course is to create technically trained manpower readily available for recruitment to the power companies in the area of Transmission & Distribution of electrical power.

Venue	Duration	Date of Commencement
Badarpur	26 weeks	18-09-2017
Durgapur	26 Weeks	01-09-2017
PSTI, Bengaluru	26 Weeks	18-09-2017



Who may attend

Diploma or equivalent in Mechanical/Electrical/Electrical & Electronics Engg.

12. POST DIPLOMA COURSE IN TRANSMISSION LINE MAINTENANCE

Objective

To provide in depth approach and technical knowledge in Live Line Maintenance Techniques.

Venue

HLTC, Bengaluru

Duration

26 weeks

Date of Commencement

07.08.2017

Who may attend

Diploma or equivalent in Mechanical/Electrical/Electrical & Electronics Engg.



Faculty of NPTI display the memento presented by Manav Rachna International University for their conduction of Skill Development program 2016-17

(B). LONG TERM COURSES FOR ENGINEERS/ SUPERVISORS/ OPERATORS (17 WEEKS AND ABOVE)

1. GRADUATE ENGINEERS COURSE (POWER PLANT ENGINEERING)

Objective

To prepare the fresh Graduate Engineers to become Power Station Managers in Operation and Maintenance of Thermal Power Stations.

Program Profile

Module No.	Description	Duration
GF-1	Introduction	
GF-2	Power Plant Description	5 weeks
GF-3	Power Plant Scheme Tracing & System Discussion	2 weeks
GF-4	Power Plant Operation	3 weeks
GOJ-1	Power Plant Operation (Manual)	4 weeks
GOJ-2	Power Plant Operation (Supervisory)	4 weeks
GF-5	Performance (Formal)	1 weeks
GF-6	Safety	1 week
GF-7	Plant training (Practicals)	5 weeks
GF-8	Planning & Cost Control	1 week
GOJ-3	Maintenance (Supervisory)	8 weeks
GOJ-4	Performance (On-job)	1 week
GF-9	Chemistry	1 week
GF-10	Basic Welding	1/2 week
GF-11	Non-Destructive Testing	1/2 week
GF-12	Protection	1 week
GF-13	Introduction to Management	2 weeks
GF-14	Simulator Training	2 weeks
GF-15	Metallurgy	1 week
GF-16	Computer Applications	1 week
GF-17	Load Dispatch	1 week
GF-18	Control & Instrumentation	2 weeks
GF-19	Maintenance & Inspection	4 weeks
	Appraisal & Valedictory	1 week
		Total 52 Weeks
Venue	Duration	Date of Commencement
Badarpur	52 weeks	12-02-2018
Neyveli	52 weeks	19-02-2018
NPTI-NER-Guwahati	52 weeks	18-09-2017



Who may attend

B.E./B. Tech. or equivalent in Mechanical/Electrical/Electrical & Electronics/Power Engg.

2. DISTANCE EDUCATION CERTIFICATE COURSE ON "ELECTRICITY REGULATION & COMMERCIAL ASPECTS" OF INDIAN POWER SECTOR

Objective

Develop an understanding of regulatory & Policy Framework of the Indian Power Sector

Program Profile

Module No.	Description
1.	Overview of Indian Power Sector & Phase-wise Sectoral Reforms
2.	Global Regulatory Frameworks in Power Sector
3.	Electricity Act 2003, Electricity Amendment bill 2014 & Policy Guide lines
4.	Regulatory Institutions in Indian PowerSector & their Functioning
5.	Tariff determination methodology Tariff based bidding for Thermal Projects
6.	Power market Transactions
	Challenges & Way Forward

Venue

NPTI-CO Faridabad

Duration

6 Weeks

Date of Commencement

01

Who may attend

Power Sector Professionals through online admission

3. PGCC IN GIS & REMOTE SENSING

Objective

Awareness on different GIS & RS software and their applications in different sectors

Program Profile

This program will help in acquiring good knowledge and skill on GIS & Remote Sensing by providing the best comprehensive knowledge to professionals & technical officers from the government and private sector organizations. This emphasize the importance and need of GIS & its application in power industry and other sectors

Module No. Description

1. Concept of Remote Sensing:- Elements of Remote Sensing, Satellite Remote Sensing & Sensors
 2. Fundamentals of GIS:- Basics of Geography & Cartography, Map Projections
 3. GIS Data Preparation & Analysis
 4. DIP using ERDAS Images :- Image Interpretation & Analysis
 5. Case Studies of GIS Applications
 6. Application GIS Development, Web based GIS & Open Source GIS
-

Venue	Duration	Date of Commencement
NPTI-Faridabad	26 Weeks	15-06-2017

Who may attend

This Course can be attended by junior and middle level managers'/executives/ officers and sponsored candidates



Prof. (Dr.) Rajendra Kumar Pandey, Director General, NPTI during his visit to NPTI-NER, Guwahati



(C). MEDIUM-TERM COURSES (5 WEEKS TO 16 WEEKS) FOR ENGINEERS/ SUPERVISORS/ OPERATORS

1. LIVE LINE MAINTENANCE TECHNIQUES (LLMT), USING HOT STICK METHOD (HSM)

Learning the Hot Stick Method of training is a basic necessity to execute works Live on Transmission Lines & Switchyard. The course covers the overall features of Hot Line Techniques including awareness about Hot Line Washing, Insulator testing, Switchyard Maintenance, etc. It is intended to enhance the competence level of the participants to handle the maintenance both on transmission lines and Switchyard using Hot Stick Methods. The training programme offers direct benefit to the organizations involved in maintenance of transmission lines/ Switchyards by reducing the number and duration of shutdowns as well.

Objective

- To Provide in-depth approach and technical know-how in live line maintenance
- To highlight the importance of maintenance of HV and EHV Power Transmission lines using Hot Stick Method.
- To give an introduction to Bare Hand Method of Live Line Maintenance

Program Profile

- General Principles of LLMT.
- Introduction to maintenance of Power lines using Hot Stick Method.
- Practical oriented Operation covering various tower configurations.
- Safety aspects and Regulatory requirements.
- Study Tours to Certain Important substations and transmission line locations.
- Hands on training on commercial lines of various configurations up to 220 kv.
- Field testing of insulators - use of analogue and digital methods, demo on the use of Punctured Insulators - use of analogue and digital methods, demo on the use of Punctured Insulator Detector (PID) test kit.
- Introduction to maintenance using Bare Hand Method of Live Line Maintenance and switchyard maintenance using LLMT.

Venue	Duration	Date of Course
HLTC, Bengaluru	11 Weeks	24-07-2017 18-12-2017

Who may attend

Foreman, Lineman, Asst. Linemen, Supervisors, Junior Engineers, Asst. Engineers, etc. actively involved in Line Maintenance activities having physical fitness. It is preferred that one of the nominees from Executive cadre.

2. LIVE LINE MAINTENANCE TECHNIQUES (LLMT) USING BARE HAND METHOD (BHM) ON 400KV LINES

The fast growing HT/EHT/UHT Transmission lines and the rapid addition of 400 KV lines in the country, has made it imperative to upgrade the Live Line Maintenance Technology. The training program offers direct benefit to the organizations involved in maintenance of transmission lines by reducing the number and duration of shutdown. learning the Bare Hand Techniques in essential in order to exploit the full potential of LLMT and it can increase the scope of Maintenance activities.

Objective

- To provide in-depth approach and technical know-how in Live Line Maintenance Techniques.
- To highlight the importance of Operation and Maintenance of HV and EHV Power Transmission Lines using Bare Hand Techniques

Program Profile

- Brief revision on LLMT using HSM
- Introduction to maintenance of Power Lines using Bare Hand Techniques
- Additional Safety aspects and requirements
- Practical Oriented Operation Covering various tower configurations
- Hands-on training on 400 kv commercial lines of various

configurations.

- Field training on testing of Insulators
- Introduction to switchyard maintenance using LLMT
- Study Tours to certain important substations and transmission line locations, if time permits. Major time will be devoted to impart training in the field on 400kv transmission lines as well as on commercial lines of POWERGRID Corporation of India dealing with practical aspects.

Venue	Duration	Date
HLTC Bengaluru	5 weeks	09-10-2017

Who may attend:

Foreman, Linemen, Asst. Linemen, Supervisors Junior Engineers, Asst Engineers etc. actively involved in Line Maintenance activities having physical fitness. It is preferred that one of the nominee be in the rank of Executive cadre. The candidates should have already been trained in Live Line Maintenance Techniques using Hot Stick Method.

3. POST GRADUATE CERTIFICATE COURSE IN POWER PLANT ENGINEERING

Objective

Post Graduate Certificate Course in Thermal Power Plant Engineering for the candidate willing to make a career in the Power Industry. This course is designed for fresh and practicing Graduate Engineers.



Program Profile

- General Introduction: - Concept of Modern Thermal Power Plant, Location /Site Selection, Plant layout & Power Plant Safety.
- Constructional details and basic principles of large pulverized fuel Boiler and auxiliaries.
- Construction and working principles of Turbine and auxiliaries.
- Various types of Valves and Pumps.
- Construction and working principles of Alternators and Excitation Systems, Transformers, Motors, Switchgears, Power Supply System and Switchyard.
- Tariff Calculation.
- Tariff Based Bidding , Concept of UMPPs
- Fuel Handling Plant, Ash Handling

System and Cooling Water System.

- Water Sources and treatment.
- Operation, control and supervision of Boiler, Turbine and Alternator.
- Instrumentation & Control (including DAS & DDC) and Protection system.
- Power Plant Maintenance practices.
- Scheme Tracing/ Plant Visits.
- Simulator Training

Venue	Duration	Date
Faridabad	12 weeks	24-07-2017
		23-10-2017
		22-01-2018

Who may attend

B.Tech., B.E. (Mech.), Electrical, Electronics, Control & Instrumentation and Power Engineering.



13th Batch of PGDC in Transmission & Distribution Systems at NPTI (WR), Nagpur

4. CERTIFICATE COURSE FOR HYDRO POWER PLANT ENGINEERS AND SUPERVISORS

Objective

To prepare Engineers and supervisors to work in Operation and Maintenance of Hydro Power Stations.

Program Profile

- Safety & First aid, General Introduction of Hydro Power Plant
- Power plant familiarization of Hydro Power Plant Engineering
- Construction details of Hydro Power Plant components: Generators, Turbine, Valves, Excitation system, Governing System etc.
- Switchgears, protection in HE station
- Power Plant Operation and function of Load dispatch centre
- Maintenance of Hydro Power Plant Equipment
- Hydro Power Plant Simulator Training
- Plant Operational Training at Hydro Power Plant (On-job)
- Plant maintenance Training at Hydro Power Plant (On-job)
- Final assessment & Evaluation

Venue	Duration	Date
Nangal	12 weeks	01.05.2017

Who may attend

Newly recruited Engineers and supervisors those posted in hydro power stations (Mechanical, Electrical & Instrumentation)

5. SPECIALIZED TRAINING FOR HYDRO POWER PLANT WORKING ENGINEERS AND SUPERVISORS

Objective

To enhance knowledge & skill of working Engineers & Supervisors in O&M of Hydro Power Station

Program Profile

- Concept of modern hydro power station, site selection, Components, layout
- Hydraulic system, reservoir, storage capacity, dams and Barrages, intake, surge tank, power tunnels/channel, fore Bay and penstocks, pressure shaft, surge shaft, tail race and tail race tunnel/channel, protection against water hammer And negative pressure in penstocks and suction head, Dewatering of water conductor systems
- O&M of Hydro Power Plant components; Generator, Turbine, Valve, Excitation system, Governing systems etc.
- Hydro Power Plant Simulator Training
- Plant visits at Hydro Power Plant sites

Venue	Duration	Date
Nangal	6 weeks	05.06.2017

Who may attend

Working Engineers and Supervisors in hydro power station (Mechanical, Electrical & Instrumentation).



**(D). SHORT-TERM COURSES
FOR ENGINEERS /
SUPERVISORS /
OPERATORS
(1 DAY TO 4 WEEKS)**

**1. SPECIALIZED
TRAINING PROGRAMME
ON HYDRO POWER
PLANT ENGINEERING**

Objective

To prepare Engineers to become Power Station Managers in Operation and Maintenance of Hydro Power Stations.

Program Profile

- Class room session
- Concept of modern hydro power plant
- Site selection, components and layout
- Description of Hydro Power plant components & Operational aspects.
- Plant visits at Hydro Power Plant sites
- Hydro Power Plant Simulator

Venue	Duration	Date
Nangal	3 weeks	29.05.2017

Who may attend

Newly recruited and working engineers & supervisors in hydro power station (Mechanical, Electrical & Instrumentation).

**2. TRANSFORMER
MAINTENANCE FOR
FIELD ENGINEERS**

Objective

To enable the participants to carry out maintenance of different types transformers by using correct procedures and tools. After completion of the course the participants will be able to take up the repairs and routine maintenance of transformers independently.

Program Profile

- Transformer construction details.
- Transformer maintenance procedures.

Venue	Duration	Date
Durgapur	1 week	10-07-2017

Who may attend

This course is meant for maintenance technicians with 2-3 years experience in Switchgear and Transformer maintenance.



A Classroom Training Session is in Progress

3. SMART TRANSMISSION & DISTRIBUTION SYSTEM FOR GRADUATE ENGINEERS

Objectives

To familiarize power engineers in the area of Smart Grid & its application.

Programme Profile

It consist of various parameters of smart grid implementation such as economy, design technology options, reliability, quality & pay-back period. It includes various policies for advanced metering infrastructure (AMI) and AMI projects in India.

Outline

- Requirements for AMI infrastructures
- Working of Advanced Metering Infrastructure (AMI)
- Metering Demand
- Meter Data Management Systems (MDMS)
- Virtual and Aggregated Net Metering
- Response (DR), including virtual power plants (VPPs)
- Monitoring (WAMS) using PMU/PDCs

Venue	Duration	Date
Nagpur	1 week	17-04-2017
PSTI	1 week	10-04-2017
Bengaluru		22-01-2018

Who may attend

Engineers, Technicians & personal

working in Transmission & distribution utilities.

4. POWER SYSTEM COMMUNICATION SCADA & EMS

Objectives

To familiarise power engineers with the architecture, functions and advantages of SCADA & EMS

Outline

- Data Acquisition System
- Supervisory Control
- Communication- VSAT, Microwave, Optical Fibre
- Communication networks & protocols
- SCADA in Transmission and Distribution
- EMS Hardware: Control Centre
- EMS Software: SCADA & Database
- EMS Software: Generation applications
- EMS Software: Networking applications
- Field Visits

Venue	Duration	Date
PSTI	1 week	24-04-2017
Bengaluru		11-12-2017

Who may attend

Engineers from State Electricity Boards,



Power Utilities/ Corporations, R & D organizations and Academic institutions.

5. SUBSTATION PLANNING & ENGINEERING

Objective

To familiarize participants with the planning layout, design & engineering of Substation and selection of Substation equipment.

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 Consideration of Substation Equipment and Earthing
- Electrical Clearances and pre-commissioning Inspection
- Over Voltages & Selection of Surge Arrestors
- Engineering of Protection System for Substation
- Cost estimates of Sub-Station and Case Study
- Measurement of Soil Resistivity
- RPC System
- Metering in Sub-Station
 - Sub-station Automation
 - Case Study
- Field visits

Venue	Duration	Date
PSTI	1 week	03-04-2017
Bengaluru		05-02-2018

Who may attend

Engineers from State Electricity Boards,

Power Utilities/ Corporations, R & D organizations, Academic institutions

6. ENERGY EFFICIENCY MANAGEMENT IN POWER SYSTEM

Objective

To acquaint with the existing and emerging technologies in the area of energy efficiency and energy management

Program Profile

- Salient features of power generation, transmission and distribution system equipments and their functioning and monitoring.
- Measurement of performance parameters and energy efficiency calculations.
- Energy efficient technologies.
- Demand side management.
- Investment decisions for enhancement of energy efficiency.

Venue	Duration	Date
Durgapur	3 days	06-11-2017

Who may attend

Engineers working in the area generation, transmission and distribution.

7. AWARENESS PROGRAMME FOR EXECUTIVE IN HOT LINE ACTIVITIES

Objective

The course is meant for spreading awareness about the live Line Maintenance

Techniques (LLMT) amongst executives involved in EHV Line Maintenance in general and intended to highlight the scope of LLMT and Its potential extension to EHV switchyards in particular.

Program Profile

- Introduction to Hot Line Tools, Activities & Maintenance
- Live participation in maintenance operation on 66KV, 220 KV Commercial lines.
- Live insulator Testing methods
- Video and Film shows on Hot Stick Method and Bare Hand Technique
- Introduction to Hot Line Washing (Wet & Dry)
- Extension of LLMT activities to switchyard

Venue	Duration	Date
HLTC	1 week	18-09-2017
Bengaluru		12-02-2018

Who may attend

Executives in the rank of Junior Engineer and above who are not trained in Hot line Activities.

8. VALVE AND PUMP MAINTENANCE

Objective

To acquaint the trainees with correct and modern methods of operation and maintenance of valves and pumps so that at the end of the course the trainees will be able to undertake maintenance of valves and pumps in dependently with confidence

Program Profile

- Description of different types of valves, their construction, operation

and applications

- Correct use to tools, Dismantling
- Identifying the types of valves
- Replacement of worn out or damaged parts
- Description of different types of pumps, their construction, operation and applications.
- Single stage and multi stage centrifugal pump
- Maintenance of BFP & CEP
- Trouble Shooting

Venue	Duration	Date
Badarpur	1 week	20-11-2017
Durgapur	1 week	24-04-2017

Who may attend

Engineers from SEBs/Power Utilities/corporations with 2-3 years of experience in relevant field of power station

9. GAS TURBINE & CCGP REFRESHER COURSE

Objective

To familiarise the Engineers with Gas Turbine and Combined Cycle Power Plants and their role in the Indian Power Scenario, fuel options, efficient operation.

Program Profile

- Philosophy of Gas Turbine and Combined Cycle power Plant
- Fuel Options
- Waste Heat Recovery Boiler
- Steam Turbine and associated auxiliaries
- Operational aspects and efficiency
- Visit to modern Combined Cycle Power Plant.
- Case Studies



Venue	Duration	Date
Badarpur	1 week	24-04-2017
Neyveli	1 week	05-02-2018

Who may attend

Engineers working in Gas Turbine & Combined Cycle Power Plants in the field of design, erection, commissioning and operation & maintenance.

10. PUMPS OPERATION, MAINTENANCE AND PERFORMANCE MONITORING

Objective

To acquaint the participants with the various aspects of pumps and the associated problems in their operation and maintenance

Program Profile

- Different types of pumps, their application & selection criteria for Power Station.
- Theory & working principles of different type of Pumps.
- Design & selection aspects and construction of boiler feed pump.
- CW Pumps (Centrifugal & Propeller)
- Special aspects of positive displacement Pumps.
- Components material selection for pumps installation & commissioning.
- Operation & trouble shooting.
- Maintenance Aspects
- Pump Characteristics on series/parallel operation.
- Performance assessments techniques & Monitoring Case Studies

Venue	Duration	Date
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Badarpur	1 week	04-12-2017
Neyveli	1 week	03-04-2017
Nagpur	1 week	20-11-2017

Who may attend

Engineers of Power Plant & Industry.

11. VALVE ACTUATORS MAINTENANCE

Objective

To train the participants on Actuators and associated gears and maintenance aspects.

Program Profile

- Different types of actuators and their selection.
- Description and working of: Electric, Pneumatic and Hydraulic Actuators.
- Maintenance of seals.
- Gears and Levers
- Setting and checking of actuators.
- Limit switches and torque switches.
- Actuator control equipment including position control.
- Feed back circuits and thyristors.

Venue	Duration	Date
Neyveli	3 days	03-05-2017

Who may attend

Power station technicians working in electrical and C&I maintenance sections.

12. THERMAL POWER STATION OPERATION

Objective

To provide the participants the in-depth knowledge of various operational aspects of thermal power station so that correct, efficient and safe operation is ensured.

Program Profile

- Power Station Schemes
- Boiler and Turbine controls.
- Excitation systems and AVR
- Cold, Warm and hot start-ups.
- Steam Turbine governing and protection systems, trouble shooting.
- Boiler, Turbine, Generator and Integrated unit operation under normal and emergency conditions.
- Unit shut down procedures and safety.
- Performance monitoring.
- Duties and responsibilities of operation engineers.

Venue	Duration	Date
Badarpur	1 week	01-05-2017
Neyveli	1 week	15-05-2017
Durgapur	1 week	05-06-2017
Nagpur	3 days	19-09-2017

Who may attend

Engineers having 1-2 years experience in Thermal Power Stations.

13. POWER PLANT AUTO CONTROL

Objective

To enable participants to line up, test, commission and maintain all control loops along with their hardware components.

Program Profile

- Auto Control Action Theory (PID) and their relevance to process reaction rate and dead time.
- Auto loops in Power Station with their built up action Hardware and Software.
- Selection and application of final

- control elements such as control valves, dampers, etc.
- Feed forward and feed back signal selections.
- Actuators: electric, Pneumatic and Hydraulic; their relative merits and applications.
- Thyristor drives and thyristor controlled drives.
- Limit switches and Torque switches
- Coordinated control concept and applications.
- Microprocessor based programmable logic controllers (PLC's) Distributed Digital Control System concepts.
- Periodical tuning Techniques and tuning requirements.
- Commissioning of Automatic control loops with individual action, tuning techniques on Automatic Control Simulators.

Venue	Duration	Date
Neyveli	1 week	23-10-2017

Who may attend

Engineers with 2-3 years experience in the relevant field.

14. VALVE MAINTENANCE

Objective

To acquaint the trainees with correct and modern methods of operation & maintenance of valves so that at the end of the course the trainees will be able to undertake maintenance of valves independently with confidence.

Program Profile

- Description of different types of valves, their construction, operation and applications.
- Correct use of tools, Dismantling.



- Identifying the types of valves.
- Replacement of worn-out or damaged parts.
- Use of correct lapping discs.
- Overhaul and maintenance of cover joints and bonnet joints.
- Correct method of cutting & jointing.
- Overhauling of valves.
- Hydraulic testing of valves.

Venue	Duration	Date
Neyveli	1 week	12-06-2017
Nagpur	3 days	18-11-2017

Who may attend

The course is for technicians with 2-3 years experience in relevant field of Power Station.

15. FANS & AIR HEATERS

Objective

To acquaint the participants with the various types of fans and airheaters used in thermal power stations and their selection and design engineering aspects.

Program Profile

- Fans: Different types of fans and their applications, engineering, design and selection criteria.
- Construction details and components description for different types of fans.
- Fan operation techniques in series/parallel conditions.
- Fan characteristics and performance monitoring.
- Condition Monitoring: Vibration measurement, rubbing sound measurement and other diagnostic studies.
- Fan maintenance procedures and practices.
- Air Heater: Different types, their design construction and selection

aspects etc.

- Alignment & Adjustment Techniques of seals
- Lubrication
- Problems-Case studies and analysis.

Venue	Duration	Date
Neyveli	3 days	29-05-2017

Who may attend

Engineers with 1-2 years of experience in O&M of Boilers/ auxiliaries in a Thermal Power Station/Industry.

16. SWITCHGEAR & TRANSFORMER MAINTENANCE

Objective

To enable the participants to carry out maintenance of different types of circuit breakers and transformers by using correct procedures and tools. After completion of the course the participants will be able to take up the repairs and routine maintenance of switchgears and transformers independently.

Program Profile

- Introduction to circuit breakers, Arc formation, Arc quenching etc.
- Constructional details of different types and makes of circuit breakers like air circuit breakers, minimum oil circuit breakers, air blast circuit breakers, vacuum circuit breakers, SF6 breakers etc.
- Insulating oil, identification, sampling and testing procedures.
- Oil Testing details for Crackle Testing, Break down testing, Oil filtration.
- Reading of schemes, control and wiring diagrams.
- Transformer construction details.

- Transformer maintenance procedures.

Venue	Duration	Date
Durgapur	1 weeks	01-05-2017 01-07-2017

Who may attend

This course is meant for maintenance technicians with 2-3 years experience in Switchgear and Transformer maintenance.

17. SWITCHYARD MAINTENANCE TECHNIQUES USING LLMT

The fast growing EHT/UHT Transmission lines and the rapid addition of 400 KV lines in the country, has made it imperative to upgrade the Live Line Maintenance Technology. The training program offers direct benefit to the organizations involved in maintenance of sub-stations by reducing the number and duration of shutdown. Learning these Techniques is essential in order to exploit the full potential of LLMT and it can increase the scope of Maintenance activities.

Objective

- Appreciation on maintenance of switchyard equipments.
- To highlight the importance of Live Line maintenance Technology in EHV switchyard.
- Give an introduction to Live Line washing techniques of EHV Substation Insulators.

Program Profile

- Electrical Safety & Safe Clearances.
- General practice of switchyard maintenance
- Practice on climbing towers and

- switchyard structure, precaution at different working positions
- Use of different hardware used in the maintenance works (Ropes, earthing equipment, load handing equipments, etc.)
- Hands on demo/training on live switchyard location using Hot Stick Method (HSM) and using Bare Hand Methods (BHM).
- Use of thermo vision Camera for detection of Hot Spots in Maintenance Works.
- Introduction to live line washing of insulators, video films on LLMT

Venue	Duration	Date
HLTC, Bengaluru	4 weeks	22-05-2017 05-03-2018

Who may attend

Foremen, Linemen, Asstt Linemen, Supervisors, Junior Engineers, asst. Engineers etc. actively involved in EHV Substation Maintenance activities having physical fitness. It is preferred that one of the nominee be from Executive cadre.

18. ELECTRICAL SAFETY AND INSPECTION OF ELECTRICAL INSTALLATIONS UNDER IE RULES

Objective

To familiarize about the mandatory procedures before energizing any electrical equipment from LV to EHV level by consumers/suppliers and the role of electrical inspectors in enforcing IE Rules 1956.

Outline

- Overview & Safety Requirements



- of IE Rules
- Design of Electrical installations
- Earthing System Design
- Circuit Breakers and Protective Relays
- Basic Protection Schemes of Power Equipments
- Inspection procedures for statutory inspection by Electrical inspectors
- Check Point of Electrical inspection
- Pre-commissioning tests of Transformers, Switchgears and Power Cables
- First Aid and Fire Fighting Practices in Industrial Installations/ Substations
- Field Visit

Venue	Duration	Date
PSTI	1 week	17-04-2017
Bengaluru		26-03-2018
NPTI-NER	1 week	21-08-2017
Gawahati		11-12-2017

Who may attend

Industrial/other consumers of electricity, electrical inspectors/ assisting officers, utility representatives, manufacturers/ dealers of electrical equip-ment/power cables/LT/HT switchgear.

19. REACTIVE POWER MANAGEMENT

Objectives

To familiarize the engineers with the design and performance aspects of power system elements so as to have an understanding of reactive power management and control

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,
- Automatic Power Factor Controllers
- Harmonics – cause, measurement and mitigation
- Thyristor Based and Voltage Source Converter Based FACTS Controllers

Venue	Duration	Date
PSTI	1 week	26-02-2018
Bengaluru		

Who may attend

Transmission and Distribution Operating Personnel, Engineers involved in Planning, Design and Testing of Power Control Equipment and Engineers in charge of electrical maintenance.

20. DISTRIBUTION METERING

Objective

To Provide comprehensive view of Distribution metering, rules & regulations and rationalization required.

Outline

- Energy meters: Types & Construction
- Testing, setting and calibration
- Failure analysis
- IE Rules
- Theft/Tampering and Inspection of consumer premises
- Distribution meter reading
- Rationalization and computerization
- Field visits

Venue	Duration	Date
PSTI	1 week	27-06-2017
Bengaluru		

NPTI- NER 1 week 15-05-2017
Guwahati

Who may attend

Engineers from state Electricity Boards/ Power utilities/ Distribution System, R & D organizations, Academic institutions, manufacturers, contractors, consultants etc.

21. OPERATION & MAINTENANCE (O&M) OF TRANSFORMERS AND CIRCUIT BREAKERS

Objective

To give insight into various aspects on operation, maintenance, testing and condition monitoring of Transformers and Circuit breakers

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
- Field visits

Venue	Duration	Date
Badarpur	1 week	03-10-2017
PSTI	1 week	01-05-2017
Bengaluru		12-03-2018

Who may attend

Engineers from state Electricity Boards, Power Utilities/ Corporations, R & D organizations, Academic institutions.

22. POWER QUALITY AND HARMONICS MITIGATION AND REACTIVE POWER MANAGEMENT

Objective

To familiarise the power engineer regarding the power quality and causes, consequences and cures to harmonics in electrical systems/ industry.

Program Profile

- Introduction to power quality
- Power Quality – impacts, manifestations
- Consequences of power quality
- Power quality measurement
- Harmonics – sources, measurements and mitigation
- Filters – Active and passive filters, selection of filters
- Statcoms, custom power devices, Static Var Compensators
- 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
- Case Studies
- Technical Visits

Venue	Duration	Date
PSTI	1 week	22-05-2017
Bengaluru		29-01-2018

Who may attend

Practicing Engineers/ supervisors of industry, Utilities and faculty of educational institutions involved in maintenance of power quality and mitigation of harmonics.

23. BOILER OPERATION/ BOILER & ITS AUXILIARIES OPERATION

Objective

To acquaint the participants with the safe and efficient operation of boiler and its auxiliaries.

Program Profile

- Working principle, function and classification of Boilers
- Description of Boiler components
- Function and working principle of Boilers Auxiliaries-Mills & Feeders, fan, Air pre heaters, soot blowers, etc.

Venue	Duration	Date
Badarpur	1 week	13-11-2017
Neyveli	1 week	24-07-2017
		18-09-2017
Durgapur	1 week	20-11-2017
Nagpur	3 days	16-05-2017

Who may attend

Chemists with minimum five years experience in TPS Laboratory.

24. OPERATION & MAINTENANCE (O&M) HT/LT SWITCHGEAR

Objective

The main objective of the course is to update the Knowledge of plant engineers in the field of switch gear and its erection testing/ commissioning, operation and maintenance.

Program Profile

- Types of Switchgears.
- Selection Criteria for Switchgears.
- Design & Construction Data.
- Erection/Commissioning.
- Check-list and precautions.
- Fault finding.
- Testing procedures & Equipments.
- Case Studies.

Venue	Duration	Date
NPTI-NER	1 week	04-09-2017
Guwahati		

Who may attend

Engineers with 2-3 years experience in switchgear electrical installation of industry.

25. CONTROL & INSTRUMENTATION (C&I) IN POWER STATION (FOR OPERATION ENGINEERS)

Objective

To acquaint the engineers working in Non- C&I areas with working principles of various instruments, the process parameters and with the relative process/ plant behavior.

Program Profile

- General description of Power Station Instrumentation and control and their layout details.
- Basic Principles and working principles of instruments.

- Temperature Measurement.
- Flow Measurement
- Introduction to On-Line Analytical Instrument
- Introduction to Turbovisory Instruments & Vibration Analysis
- Discussion on Protection & Interlocks.
- Introduction to Automatic Control Loops.

Venue	Duration	Date
Badarpur	1 week	18-07-2017
Nagpur	3 days	20-06-2017
Neyveli	1 week	16-10-2017

Who may attend

Engineers with 2-3 years experience in the relevant field.



Skill Development Program organized for Polytechnique Student at NPTI-Southern Region, Neyveli



26. POWER SYSTEM STUDIES

Objective

To familiarize the power system engineers with modeling of power system components and the power system studies software for power flow studies, short circuit studies, stability studies and relay coordination

Outline

- Load flow: Modeling and case studies
- Short circuit studies; Z bus matrix and symmetrical components
- Balanced and unbalanced faults and case studies
- Over current relay coordination-case studies
- Stability studies-modeling case studies
- Laboratory: use of MiPower software
- Field visits

Venue	Duration	Date
PSTI Bengaluru	1 week	04-09-2017

Who may attend

Transmission and distribution engineers involved in system design, planning, protection and control, engineers from R & D organizations and Academic institution

27. POWER SYSTEM OPERATION

Objective

To familiarize the load dispatch engineers to sector set up, system control, market operations, logistics and new technologies. To develop the system

operators for secure operation of power system in India in the scenario of continuous load growth, system expansion and multiplying number of organizations.

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 Centres, Thermal station Layout, startup, shut down and emergency response. New technologies, Smart Grid Operation 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,

remove in feed, mutual induction;
System protection schemes,
Protection for abnormal frequency
and voltages.

06-11-2017

05-02-2018

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 Renewable, 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.

Venue	Duration	Date
PSTI	2 weeks	15-05-2017
Bengaluru		10-07-2017

Who may attend

System operation Engineers from State Electricity utilities/ Distribution Systems, R&D organizations, Academic institutions etc.

Methodology

Lectures, demo sessions, field visits

28. POWER SYSTEM PROTECTION

Objective

To familiarize the power engineers with protection in power systems

Outline

- 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
- Laboratory Sessions
- Tutorials
- Field visits

Venue	Duration	Date
PSTI	2 week	05-06-2017
Bengaluru		23-10-2017

Who may attend

Engineers from state Electricity Boards, Power Utilities/ Corporations, R & D organizations, Academic institutions



29. ADVANCED POWER SYSTEM PROTECTION

Objective

To familiarize the power engineers on the advanced aspects of protection in power systems

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
- Wide Area Protection
- Video Sessions
- Field Visits

Venue	Duration	Date
PSTI Bengaluru	1 week	12-06-2017

Who may attend

Engineers from State Electricity Boards, Power Utilities/ Corporations, R & D organizations, Academic institutions

30. STEAM TURBINE & AUX. OPERATION

Objective

To familiarize the participants with operational procedure of turbine and its associated auxiliaries under various conditions of operation.

Program Profile

- Constructional features of turbine, turbine auxiliaries like condenser, pumps, feed heaters etc.
- Operational procedure of associated systems such as condensate, feed, lube oil, CW etc. On line cleaning system , Operation of boiler feed pump and condensate extraction pump.
- Interlock protection of turbine and its auxiliaries.
- Starting and shutting down of turbine.
- Operation of turbine under normal and emergency conditions.
- Emergencies & case studies.

Venue	Duration	Date
Badarpur	1 week	15-01-2018
Neyveli	1 week	05-06-2017
Durgapur	1 week	08-01-2018
Nagpur	3 days	07-03-2018

Who may attend

Engineers with 3-4 years experience in Thermal Power Station.

31. ELECTROSTATIC PRECIPITATOR

Objective

To impart knowledge on installation, maintenance and operation of ESPs and their control circuits.

Program Profile

- General discussion on pollution.
- Types of ESP & selection aspects.
- Principles of construction & functioning of ESP.
- Corona and Ionization.
- Description of Dust precipitator.

- Installation, Operation and Maintenance of ESP.
- Mechanical Parts Maintenance.
- Electrical control circuit maintenance and checking. Efficiency and performance of ESPs and Factors affecting the performance.

Venue	Duration	Date
Neyveli	3 days	21-06-2017

Who may attend

Engineers engaged in operation and maintenance of power station & process industry with 2-3 years experience.

32. BOILER FIRING SYSTEM & EQUIPMENTS

Objective

To acquaint the participants with the various types of Boiler firing systems, problems faced, rectification and trouble

shooting.

Program Profile

- Combustion of Fuels.
- Different firing systems – tangential firing, wall firing and down shot firing- their requirements and applications Igniters
- Oil atomizers
- Coal Burners
- Burner Management system
- Direct Ignition of Pulverized Coal
- Operation Procedure, Maintenance
- Trouble Shooting in firing system components.

Venue	Duration	Date
Neyveli	1 week	10-07-2017

Who may attend

Operation & Maintenance engineers of Thermal Power Station with 4-5 years experience.



Prof. (Dr.) Rajendra Kumar Pandey, Director General, NPTI during the inauguration of National Retailer Training Program on 'Standards and Labelling on 16th January, 2017 in Kolkata



33. ELECTRICAL PROTECTION SYSTEM

Objective

To enhance the knowledge of in-service engineers involved in commissioning & maintenance of protective relays both in Generation and Transmission wings.

Program Profile

- Requirement of protective system (criteria for selection & choice of protection scheme).
- Instrument transformers, system grounding, fault parameters, fault analysis, sequential recorder & disturbance recorders.
- Generator protection (This topic will be covered in detail with special reference to 210 MW & 500 MW generators).
- Transformers and Bus-bar protection schemes, Transmission line protection (principles of relaying and commissioning).

Venue	Duration	Date
Badarpur	1 week	08-01-2018
Neyveli	3 days	19-07-2017
Durgapur	1 week	22-05-2017
Nagpur	3 days	16-01-2018

Who may attend

In-service Power Station Engineers having 2-3 years experience in the relevant field.

34. DISTRIBUTION ENGINEERING

Objective

To familiarize the participants with various aspects of electricity distribution

engineering

Programme Profile

Growth, Development, Equipment, Standards specification, construction Practice and guidelines, design aspects-testing and installation of Distribution equipment-Layout of Sub-Station.

Venue	Duration	Date
NPTI-NER Guwahati	1 week	05-03-2018

Who may attend

Engineers engaged in distribution of electricity with 2-3 years experience.

35. OPERATION & MAINTENANCE (O&M) OF DISTRIBUTION SYSTEM

Objective

To familiarize power engineers & technicians in the area of power distribution Systems.

Programme Profile

Performance improvement of power distribution systems depends on various factors like voltage rating, area location, method of power distribution, loading, design and technology of various hardwares. It also depends on methods of monitoring, metering and maintenance technique used.

Description

- Various issues & challenges in Distributions management systems
- Types of poles, various hardwares & fittings
- Methods of Monitoring.
- Metering

- Maintenance of distribution line
- Advanced Distribution Operations
- Integration with R-APDRP systems
- Advanced Metering Infrastructure (AMI)
- Better coordination between transmission and distribution (Grid Discipline)
- Types of faults & causes
- Maintenance of distribution lines
- Methods of reduction of AT & C losses

Venue	Duration	Date
Nagpur	1 week	06-11-2017

Who may attend

Engineers, Technicians & personal working in Transmission & distribution utilities.

36. RELIABILITY CENTERED MAINTENANCE OF ROTARY EQUIPMENTS

Objective

The objective of the course is to give a thorough knowledge to the Engineers working in the Maintenance Section, regarding the recent maintenance techniques and systems of the rotary equipments. This special and modern development of maintenance system will also enhance the conventional maintenance skill of the engineers.

Program Profile

- Introduction to Reliability Centered Maintenance (RCM); steps and benefits of RCM.
- First approach to RCM-Functions, failure and significant of Rotary equipments, consequences of failure

as per RCM.

- Reliability centered maintenance tasks for Rotary equipments.
- Condition monitoring of rotary equipments-as an important role for RCM.
- Description of condition monitoring equipments.
- Description of vibration and signature analysis.
- RCM recording systems and documentation system.
- Preventive maintenance techniques of pumps, fans, turbine and other rotary equipments.
- Overhauling job schedule for the above mentioned equipments.
- Trouble shooting and failure diagnosis of rotary equipments.
- Bearings, Lubrication and tribology.
- Balancing and Alignment of rotary equipments.

Venue	Duration	Date
Badarpur	1 week	24-07-2017

Who may attend

Experienced Engineers working in Power Plants, Utility Industries and other Industries.

37. OPERATION & MAINTENANCE (O&M) OF COAL MILLS & FEEDERS

Objective

To acquaint the participants with the latest Milling system, their operation and maintenance techniques so as to reduce the outage in the Thermal Power Stations.



Program Profile

- Description of different types of Mills & Milling system components such as Raw Coal Feeders, Classifiers and variators etc. their design, construction and selection aspects.
- Description of Coal grinding Principles and grinding elements.
- Frequently eroding parts and eroding characteristics analysis.
- Proper maintenance techniques and replacement procedures of eroding parts.
- Driving Mechanisms and their maintenance procedures.
- Lubrication and sealing system.
- Maintenance planning for Milling system.
- Routine Maintenance and Breakdown Maintenance of Milling Plant.
- Overhauling of Milling Plant.
- Preventive measures for stopping erosion of Pulverized Coal lines bends and their proper alignment.

Venue	Duration	Date
Neyveli	3 days	15-11-2017

Who may attend

Engineers with 2-3 years experience in Operation and Maintenance in a Power Station.

38. REDUCTION IN POWER DISTRIBUTION LOSSES

Objective

To assist participants to modify their approach and to treat their feeders as profit centers.

Program Profile

- IE rules
- Source of technical Losses and methods of reducing them
- Application of new Technologies (HVDS&ABC) in distribution System
- Source of commercial Losses
- Setting and checking of actuators and methods of reducing them.
- Legal empowerment to control the menace of power theft
- AT&C Losses
- Role of consumer association and franchises to control commercial losses.

Venue	Duration	Date
Durgapur	3 days	15-05-2017

Who may attend

Engineers from SEBs/ Power Utilities/ corporations with 2-3 years of experience

39. FLEXIBLE AC TRANSMISSION SYSTEM (FACTS)

Objective

To familiarize power engineers about the Flexible AC Transmission devices and their applications in power systems with respect to active/reactive power control.

Outline

- Introduction
- Thyristor Controlled FACTS devices - Static Var Compensator (SVC), Thyristor Controlled Series Capacitor (TCSC), Thyristor Controlled Reactor (TCR)
- Phase Shifting Transformer
- Voltage Source Converter based FACTS controllers- STATCOM, Static

Synchronous Series Compensator (SSSC), Unified Power Flow Controller (UPFC)

- HVDC
- Applications of FACTS
- Tutorials
- Technical Visits

Venue Duration Date

Badarpur 1 week 27-11-2017

PSTI 1 week 03-07-2017

Bengaluru

Who may attend

Practicing engineers involved in planning, design and implementation of FACTS devices.

40. POWER SYSTEM RELIABILITY

Objective

Ensuring reliable and secure power system is the primary responsibility of every system operators. Recent grid incidents of July 2012 have underlined the importance of grid security. As the grid grows in size and complexity, grid security has to be enhanced because the consequences of failure of a large grid are severe.

Therefore capacity building in reliability is essential for all personnel in the power sector. This is recognized as the next step forward in the continued capability enhancement of system operators and an area of specific specialization. Hence, a specialist learning and development programmed and certification exam has been planned on "Power System Reliability". This is a specialist level system operator course on "Power System Reliability" for basic level certified system operators having a minimum of 10 years experience in power sector.

Outline

- **Module 1:** Basics of Power System
 - Basic Concepts
 - EHV AC Transmission and HDVC Transmission
 - Power System Planning
- **Module 2:** Power System Operation and Control
 - System Operation Concepts
 - Load Frequency Control
 - Voltage Control
 - Power System Restoration
- **Module 3:** Power System Analysis
 - Steady State Power Flow Analysis
 - Fault Analysis
 - Power System Stability
 - Power System Protection

Venue Duration Date

PSTI 1 week 18-06-2017

Bengaluru 19-11-2017

Who may attend

Middle level engineers from State Electricity Boards, Power Utilities/Corporations, R&D Organisations, Academic Institutions etc.

41. LOW VOLTAGE POWER DISTRIBUTION SYSTEM DESIGN

Objective

To familiarise the participants from the low voltage power distribution system design including selection and sizing of cables, switchgear, control panels and safety requirements

Outline

- General Rules of Electrical Installation and Design,
- Protection against Electric Shocks
- L V Distribution and Earthing



- schemes,
- Cables, Bus ways & Switchboards,
- LV Switchgear: functions & selection, Understanding the wiring system and Cable sizing,
- Understanding MV/LV installation design by ID Spec Large software & Understanding the LV installation calculation by My Ecodial L Software, Earthing, Electrical safety and accident
- LV Distribution Systems Protection & Technical Visits
- Distribution Systems Earthing Electrical Safety and Accident Prevention Techniques

Venue	Duration	Date
PSTI Bengaluru	1 week	01-08-2017

Who may attend

The medium voltage and low voltage distribution engineers working in utilities and industries and responsible for design installation and maintenance of distribution system.

42. GENERATOR & AUXILIARIES INCLUDING EXCITATION SYSTEM

Objective

To develop proper understanding of the generator and auxiliaries along with the various excitation systems and their characteristics.

Program Profile

- Generator construction and design aspects.
- Generator characteristics,

- synchronization & parallel operation
- Generator protection.
- Excitation & AVR-various types and their selection aspects
- Problems faced.
- Case studies

Venue	Duration	Date
Badarpur	1 week	11-12-2017
Neyveli	1 week	04-12-2017
Durgapur	1 week	07-08-2017
Nagpur	3 days	11-07-2017

Who may attend

Engineers with 2-3 years experience in erection, commissioning operation and maintenance of generator system

43. POWER CABLES AND JOINTING TECHNIQUES

Objective

To familiarize power engineers on the mechanical considerations in the design of cables, application current carrying capacity, insulation strength electrical properties of cables.

Outline

- Design & construction of Power Cables
- Testing of cables
- Testing of cable accessories
- Demo of Cable Jointing
- Failure of cables and case studies
- Condition monitoring of power cables
- Field Visits

Venue	Duration	Date
PSTI Bengaluru	3 days	29-05-2017
PSTI Bengaluru	4 days	20-11-2017

Who may attend

Engineers from State Electricity Boards Power Utilities/ Corporations, R & D organizations, Academic institutions, Power consumers, consultants/ contractors etc.

44. HIGH VOLTAGE TESTING OF POWER SYSTEM EQUIPMENT

Objective

To give insight into all the facets of High Voltage Testing of Power system equipment

Outline

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

Venue	Duration	Date
PSTI	1 week	28-08-2017
Bengaluru		19-03-2018

Who may attend

Engineers involved in procurement, installation and testing of power system equipments.

45. VIBRATIONAL ANALYSIS

Objectives

To impart expertise and to give latest information regarding different methods of vibration measurement, their analysis, diagnosis and recommended remedial actions

Programme Profile

- Definition and description of vibration
- Terms and Units in vibration measurement
- Characteristics of vibration
- Basic vibration modes of measurement
- Vibration transducers different types and selection criteria
- Selection criteria of vibration mode for measurement
- Vibration diagnostics and fault analysis
- Dynamic Balancing using portable Vibration Analysers
- Scheduling of condition monitoring and condition based maintenance

Venue	Duration	Date
Durgapur	3 days	12-06-2017

Who may attend

Engineers with atleast 5 years experience in operation and maintenance of Power Station Industry.

46. REGULATORY FRAMEWORK IN POWER SECTOR

Objective

To familiarise the participants from the low voltage power distribution system



design including selection and sizing of cables, switchgear, control panels and safety requirements

Programe Profile

- CEA Regulations-connectivity, metering, construction of electrical plant and electrical lines, Implementation of case I & case II bid route projects for generation capacity addition, drafting petitions and case studies
- Electricity Act 2003
- Legal framework, electricity policy and tariff policy
- Indian Electricity Grid Code Regulations & Grid Standards Regulations – 2010
- Energy conservation act – 2001
- Sharing of Inter State Transmission Charges and Losses Regulations – 2010 (Technical & Commercial Aspects)
- Grant of Regulatory Approval for execution of Inter State Transmission Scheme to Central Transmission Utility Regulations 2010
- Procedure, Terms and Conditions for grant of Transmission License and other related matters
- Deviation settlement mechanism – Regulations 2014
- Measures to relieve congestion in real time operation – Regulations 2014
- Regulations of power supply
- Terms and conditions of tariff regulations for 2014-19
- Connectivity, LTA & MTOA – Regulations
- Short term open access – Regulations
- Terms and conditions for recognition

and issuance of REC for Renewable Energy Generation Regulations – 2015

- Renewable energy scheduling, despatch & deviation settlement – Regulations 2015

Venue	Duration	Date
PSTI	1 week	04-09-2017
Bengaluru		05-03-2018

Who may attend

System Operators and from SEBs, power utilities/corporations, PSUs, R&D Organisations, Academic Institutions.

47. POWER SYSTEM LOGISTICS

Objective

To familiarize the young engineers with the nuances of the electrical industry and the contracts involved

Outline

- Communication – VSAT, Microwave,
- Net work communication protocols,
- Data Acquisition systems,
- Supervisory controls in power systems
- Sub – station Automation
- Distribution SCADA
- DISTRIBUTION AUTOMATION
- Automation in distribution management
- Control centre hard ware
- SCADA/ EMS- software
- Control centre data base management
- EMS Software – Generation applications,
- Visit to LDC/ Substation
- EMS Software – Net working applications

- Test

Venue	Duration	Date
PSTI	1 week	07-08-2017
Bengaluru		12-03-2018

Who may attend

Electrical graduates fresh as well as practising who require exposure regarding electrical industry and contracts, in particular in distribution system

48. NON DESTRUCTIVE TESTING & WELDING DEFECTS

Objective

Objective of the course is to create technically trained manpower and to make working Engineers aware of the various NDT procedures being adopted for inspection of welding joints & other materials.

Program Profile

- Introduction to Non Destructive

Testing Procedures

- Welding defects and associated Non Destructive Testing Methods.
- Types of material defects
- Various NDT Techniques and their Applications
- Dye Penetrant Test
- Magnetic Participle Test
- Ultrasonic NDT Methods
- Ultrasonic Flaw Detectors
- Eddy Currents Non Destructive Testing
- Radiography & Test Applications
- Applicable ASTM Standards
- Various Types of weldings Defects & Preparation of Welding Procedures in various positions as per AWS

Venue	Duration	Date
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Badarpur	1 Week	28-08-2017
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Who may attend

Engineers/Supervisors with one or two years relevant experience may attend



Observation of Vigilance Awareness Week at NPTI Corporate Office, Faridabad



49. THERMAL PP EFFICIENCY & PERFORMANCE MONITORING

Objective

To acquaint the trainees with the latest techniques of monitoring and testing of unit performance, analysing data and suggesting ways and means for performance improvement.

Program Profile

- Steam cycle theory and optimization.
- To identify and record the factors and data needed for monitoring efficiency and performance.
- Analysis of the performance of different systems and equipments like station heatbalance, mill performance, condenser performance, feed heaters performance, boiler efficiency, turbine efficiency etc.
- Corelation among different systems and their effect on performance.
- Application of computer for performance calculation and analysis.
- Improvement of plant availability through efficiency and performance monitoring.
- Plant on-job/practicals.

Venue	Duration	Date
Neyveli	1 week	07-08-2017
Durgapur	1 week	31-07-2017
Nagpur	3 days	07-02-2018

Who may attend

Power Station Engineers having 2-3 years experience in operation and maintenance.

50. OPERATION & MAINTENANCE (O&M) OF TRANSMISSION LINES & SUB-STATION

Objective

To update knowledge of the participants in various operational & Maintenance aspects of Transmission line & Sub-Station.

Program Profile

- Transmission and Distribution - a business mission.
- Operation Procedures and practices of Transmission line and Sub-Station.
- Equipment inspection and Selection aspects.
- Equipment Failure analysis and its maintenance.
- Maintenance of Sub-Station equipments.
- Hot line Maintenance and ERS of Transmission line.
- Routine, Preventive and breakdown Maintenance.
- Protection System and its equipment.
- Safety aspects and fire protection devices.

Venue	Duration	Date
Durgapur	1 week	19-06-2017
PSTI Bengaluru	1 week	01-01-2018

Who may attend

Engineers with minimum 2-3 years experience in O&M of Transmission and Distribution or Power Station.

51. RELAY MAINTENANCE

Objective

To make the technicians understand and identify various types of relays, their applications, maintenance and calibration requirements.

Program Profile

- Basic protection requirements.
- Basic relay terminology.
- Different types of relays.
- Fault discrimination methods.
- Relay characteristics and setting, testing etc.

Venue	Duration	Date
Neyveli	3 days	16-08-2017

Who may attend

Technicians having 2-3 years experience in the relevant field.

52. POWER PLANT CHEMISTRY FOR OPERATION ENGINEERS

Objective

To provide understanding and knowledge to the Operation Engineers on various techniques of chemical controls and their effect on-plant performance and failure. The program will help the Operation Engineers in day-to-day for decision making and also in emergencies.

Program Profile

- Corrosion/depositions in Boiler, Steam Turbine condensers and their prevention techniques.
- Acid cleaning of boiler/condensers etc.
- Unit preservation during idle time.
- Characterization of coal for the

- power plant.
- Optimization of combustion.

Venue	Duration	Date
Badarpur	1 week	04-09-2017
Durgapur	1 week	24-07-2017
Nagpur	3 days	14-11-2017

Who may attend

Operation Engineers with experience as Shift In-charge Engineers/ Operation Engineer.

53. BOILER TUBE FAILURE AND CASE STUDIES

Objective

To appraise the participants regarding the causes of boiler tube failure and to impart the knowledge of tube failure analysis, locating tube failure, job involvement after tube failure etc. to the Power Plant Engineers.

Program Profile

- Types of Boiler Tube Failure and their classification.
- Causes of different types of tube fails and their analysis.
- Understanding and locating tube failure by operational parameters at running condition.
- Job involvement for physically locating the tube failure at shut down condition.
- Tube failure rectification.
- Control of boiler tube failures.
- Different case studies.

Venue	Duration	Date
Durgapur	1 week	10-07-2017
Neyveli	02 days	01-06-2017

Who may attend

Engineers working in Thermal Power



Plant & other industries who deal with boiler (either operation or maintenance or both).

54. TRAINING PROGRAM ON COLD LINES

Objective

The course is meant exclusively for the personnel working on cold lines from different power utilities; spreading awareness about general line maintenance techniques on uncharged lines amongst supervisors and technicians involved in Line Maintenance. The training program has been organized with the objective of giving appreciation about EHV Lines, highlight importance of maintenance and give a brief introduction to live line maintenance techniques.

Program Profile

- Electrical Safety, First Aid and Fire fighting
- Safety precaution at different working positions
- Tower climbing practices
- Use of different hardware used in maintenance works (Ropes, earthing equipment, load handling equipment etc)
- General Practice of Maintenance work on Transmission Line.
- Introduction to Live Line Maintenance Techniques

Venue	Duration	Date
HLTC Bengaluru	4 weeks	13-11-2017

Who may attend

Supervisors in the rank of Junior Engineer and ITI qualified Technicians

who had undergone their basic/Induction level course after recruitment.

55. MANAGEMENT OF ELECTRICAL CONTRACTS

Objective

To familiarize the young engineers with the nuances of the electrical industry and the contract involved.

Program Profile

- Types of Contracts.
- General & Special Conditions of Contracts
- Erection Conditions of Contracts.
- Project Managements & Execution.
- Measurement of works completion, Invoicing & Billing
- Market survey of electrical systems.
- Estimation & bidding for electrical works
- Electricity: Generation, transmission & distribution.
- Principle of operation of electrical equipment.
- Codes & practices in electrical systems.
- Indian Electricity Act, IEEE codes & ISO standards.
- Design of electrical lay outs.
- Installation of electrical equipments.
- Procedure for availing electrical supply from Electric Supply Company.
- Statuary requirements from Electrical Inspectorate to carryout Business.
- Labour act, workmen compensation acts, Insurance & Provident Fund.
- Fire Fighting & Requirement of Fire Extinguishers.
- First aid & Artificial Respiration.

Venue	Duration	Date
PSTI Bengaluru	4 days	21-08-2017

Who may attend

Electrical graduates fresh as well as practicing who require exposure regarding electrical industry and contracts, in particular in distribution system.

56. POWER SYSTEM ENERGY LOSSES

Objective

To acquaint the participants with the sources of power system losses in transmission and distribution network and possible remedies.

Program Profile

- Growth of power system in India.
- Transmission Losses.
- Distribution losses/transformer losses.
- HT metering.
- Remedial measures to minimize various system losses.
- Energy management system, Flattening of load demand, Energy auditing and reporting techniques.
- Power System Planning, economic operation, maintenance to minimize losses.
- Computer application in power system.

Venue	Duration	Date
Neyveli	1 week	04-09-2017

Who may attend

Assistant Engineers/ Executive Engineers/Superintending Engineers working in transmission & distribution.

57. ENERGY EFFICIENCY IN ELECTRICAL UTILITIES

Objective

To familiarize the engineers with the energy efficiency opportunities available in the various electrical equipments and to help them to prepare better for the BEE certified Energy Manager Exam.

Outline

- General Introduction- Electrical Systems
- Electric motor
- Compresses Air System
- HVAC & Refrigeration System
- Power quality, Harmonics, manifestation measurement, migration
- Fans & Blowers
- Pumps & Pumping System
- Cooling tower, Lighting system, Diesel Generating System
- Energy efficient technologies in Electrical Systems
- Compressed Air Systems
- Tutorials, Case Studies, Labs and Technical Visits- This complies with the syllabus of BEE's Energy manager - paper- III

Venue	Duration	Date
PSTI Bengaluru	1 week	18-09-2017

Who may attend

Engineers form State Electricity Boards, Power Utilities/ Corporations, PSUs, R & D organizations, Academic institutions, entrepreneurs and consultants/ contractors involved in energy audit and energy conservation projects.



58. ISSUES RELATED TO SUPERCRITICAL TECHNOLOGY

Objective

To familiarize the participants with super critical boilers and related issues

Program Profile

- Introduction to supercritical technology, advantages-World scenario in super critical technology.
- Arrangement of super critical boilers.
- Comparison between spiral water wall circulating and vertical tubing.
- Special alloys for super critical boilers and welding techniques.

Venue	Duration	Date
Neyveli	2 days	22-01-2018

Who may attend

Engineers working in Power Stations.

59. BURNER MANAGEMENT SYSTEM/FSSS

Objective

To build up skills and knowledge required to maintain the Burner Management System of modern boilers with solid state relay logic control components.

Program Profile

- Flame sensors; their types, selection, application and installation techniques.
- Flame scanning intelligence.
- logics and logic circuit built around solid state relay devices for working out permissive.
- Fuel sequencing, fuel cut off and boiler trip protections.

- Logics and logic circuits for sequential start up and shut off procedures.

Venue	Duration	Date
Neyveli	3 days	13-12-2017

Who may attend

Fresh Engineers engaged in Control and Instrumentation.

60. POWER SYSTEM STUDIES & LOAD DESPATCH

Objective

To acquaint the participants with the various aspect of Pumps and the associated problems in their O&M.

Program Profile

- Growth of power system in India.
- Representation of power system components.
- Characteristics & performance of power transmission lines.
- Load flow studies and problems.
- Different types of faults and their analysis by computer methods.
- Power system protection devices.
- Power system stability
- Load Despatch and its computerization

Venue	Duration	Date
Neyveli	1 week	22-05-2017

Who may attend

Engineers of Power Sector engaged in power system and load dispatch centres.

61. BATTERY MAINTENANCE

Objective

To make the participants understand different types of storage batteries, their applications, maintenance procedures and requirements. They will also acquire the knowledge of battery testing and test equipment etc.

Program Profile

- Introduction and constructional details of batteries,
- D.C. supply system.
- Charging and discharging of batteries.
- Preparation of electrolytes.
- Battery plate assembly and dismantling practices.
- Care & maintenance of batteries.

Venue	Duration	Date
Neyveli	3 days	04-10-2017

Who may attend

Technicians working in Power Stations with 2-3 years experience

62. LARGE CAPACITY CFBC BOILERS

Objective

To familiarize the advantages of large capacity CFBC boilers

Program Profile

- Introduction to CFBC Technology Advantages, Scope, Fuel flexibility, etc.
- Description of various components of CFBC Boiler
- Environmental benefits
- Limitations, major concerns in the O&M of CFBC Boilers.
- Visit to CFBC Boilers.

Venue	Duration	Date
Neyveli	3 days	01-11-2017



A Board Room Meeting with the Japanese delegation



Who may attend

Engineers working in Power Stations.

63. MOTOR MAINTENANCE

Objective

To acquaint the trainees with the correct and modern methods of maintenance of electrical motors. At the end of the course the trainees will be able to undertake maintenance of motors with confidence.

Program Profile

- Theory of different types of motors.
- Constructional details of different types of motors.
- Terminal connections and terminal box.
- Mounting/Enclosures, insulation material used in motors.
- Stripping down & inspections of motors.
- Cleaning and inspection.
- Bearings used in motors.
- Assembling, testing and commissioning.
- Problems of motor-case studies.

Venue	Duration	Date
Neyveli	3 days	22-11-2017

Who may attend

Maintenance technicians with 2-3 years experience with basic knowledge of electricity upto ITI Standard.

64. ENERGY CONSERVATION AND ENERGY AUDIT (FOR GENERATION SECTOR)

Objective

To infuse the energy saving consciousness of the participants highlighting the energy losses in the power industry that are usually unnoticed in the various areas of operations and acquainting them with the energy saving methods and the benefits achieved.

Program Profile

- Potential areas in the Power Industries for energy saving.
- Energy Saving methods with typical examples and exercises for power stations.
- Ways to minimise losses in power transmission & distribution system.
- Better use of electrical energy.
- Proper storage and use of fuel.
- Waste Heat areas and their utilization.
- Co-generation techniques for energy boosting.
- Energy Management System, energy Auditing and their implementation techniques for power industries.

Venue	Duration	Date
Neyveli	1 week	05-03-2017
NPTI- NER Guwahati	1 week	17-07-2017
Nagpur	3 Days	07-11-2017
PSTI	1 week	30-10-2017
Bengaluru		19-02-2018

Who may attend

Engineers with 3-4 years experience in Thermal Power Stations.

65. OPERATION & MAINTENANCE (O&M) OF TRANSFORMER

Objective

To update the knowledge of Plant technicians in the field of Transformers and its erection, testing/Commissioning, operation and maintenance.

Program Profile

- Standardisation and Specification of Transformers used in the Power station
- Commissioning of Transformers
- Types and Causes of Transformer failure
- Testing of Solid dielectric
- Transformer Oil-Its analysis, sampling and testing procedure
- Transformer Maintenance Practices
- Dissolved gas Analysis Techniques
- Case Studies

Venue	Duration	Date
NPTI- NER Guwahati	1 week	05-02-2018

Who may attend

This course is meant for operation and Maintenance Technicians with 2-3 years experience in relevant field.

66. HVDC TRANSMISSION SYSTEMS

Objective

To familiarize the engineers with the HVDC technology and its importance in system operation

Program Profile

- Introduction to HVDC.
- Principles of HVDC Conversion.

- HVDC Lines.
- HVDC Sub Stations.
- Reactive Power Management in HVDC Stations.
- AC & DC harmonics and filtering.
- HVDC System operation, Insulation Coordination, Emergencies and case studies.
- HVDC System operation Control and maintenance
- Field Visits.

Venue	Duration	Date
PSTI Bengaluru	1 week	09-10-2017

Who may attend

Practicing engineers from generation, transmission, distributed systems, industrial and other consumers of electricity, electrical inspectors and electrical consultants.

67. OPERATION & MAINTENANCE (O&M) HVDC TRANSMISSION SYSTEMS

Objective

To familiarize power engineers & technicians in the area of HVAC transmission systems.

Program Profile

Performance improvement of HVAC Transmission Systems depends on various factors like voltage rating, area location, type of tower, loading, design and technology of various hardware. It also depends on methods of monitoring and maintenance technique used.

Description

- Various issues & challenges in



- Transmission systems
- Types of Tower, various hardwares & fittings
- Methods of Monitoring.
- Types of faults & causes
- Thermo-scanning, etc
- Improved Transmission Monitoring (WAMS) using PMU/PDCs
- Better coordination between transmission and distribution (Grid Discipline)
- Maintenance of transmission line
- Live/hot line insulator cleaning and replacement
- FACTS devices
- Methods of reduction of AT & C losses

Venue	Duration	Date
Nagpur	1 week	11-09-2017

Who may attend

Engineers, Technicians & personal working in Transmission & distribution utilities.

68. WELDING PRACTICES

Objective

To improve the skill of the personnel engaged in the field of welding both in construction and maintenance areas.

Program Profile

- Different types of welding and their processes.
- Gas welding – techniques, equipments used, choice of flames, flux & filler metals, gas welding joints.
- Oxy-fuel Gas Cutting-Process, techniques and equipments used.
- Shielded (Coated) Metal Arc Welding (SMAW) techniques machines & equipments used, joints design,

classification and proper selection of electrodes.

- High Pressure Welding-TIG welding and its techniques, power sources & equipments used.
- MIG/MAG Welding—Techniques, equipments, accessories, shielding gases, filler rods.
- Welding Techniques for ferrous and nonferrous metals.
- Welding Defects, NDT, Heat Treatments

Venue	Duration	Date
Durgapur	1 week	18-09-2017

Who may attend

Operator working in Thermal Power Station with 3-4 years experience.

69. TROUBLE SHOOTING OF STEAM TURBINE

Objective

To impart latest information about the techniques of trouble shooting of turbine and its remedial action

Program Profile

- Details of Steam Turbine, bearing and its Lubrication
- Turbine dynamics and vibration theory
- Causes of Vibration in Turbine and Case Studies
- Measurement and interpretation of vibration signatures
- Condition Monitoring and Performance Monitoring.
- Types of turbine Failure and its remedy

Venue	Duration	Date
Durgapur	3 days	11-09-2017 15-01-2018

Who may attend

Engineers from SEBs/Power Utilities/corporations with 2-3 years of experience

70. SMALL, MINI AND MICRO HYDRO POWER GENERATION

Objective

To provide in-depth approach and technical know-how for different Hydro Power Generations

Program Profile

- General Principles & Theory
- Introduction of small, mini and hydro power generations
- Hydrology and estimation of water potential
- Basic features of hydro Turbines
- Plant visit

Venue	Duration	Date
HPTC Nangal	3 Days	04-12-2017

Who may attend

Engineers working in Hydro Power Plants

71. FAN & AIR HEATERS MAINTENANCE

Objective

To expose the technicians to various maintenance requirements and procedures, develop necessary skill to carry out the maintenance and the safe use of special tools and tackles.

Program Profile

- Classification of Fans and Air heaters and their applications in thermal power stations.

- Constructional details, operation and maintenance techniques of different Fans & Air Heaters.
- Causes of erosion, corrosion, vibration and their remedies. Load regulating system of Fans.
- Problems of Fan & Air heaters – Case Studies.

Venue	Duration	Date
Badarpur	1 week	05-06-2017

Who may attend

Technicians working in power station with 2-3 years experience.

72. FIRE PREVENTION, PROTECTION & SAFETY

Objective

To make the trainees aware of the causes of fire hazards in Power Station industry and the prevention/protection system necessary to be installed.

Program Profile

- Different types of fire hazards in Power Plant and Industry.
- Plant design & layout with respect to fire hazards and prevention.
- Classification of fire and various methods to combat fire.
- Fire fighting arrangement in different areas of Power Plant and Industry.
- Safety connected with fire hazards in Electrical Installations.
- Application of different safety rules in Industry.
- Management of fire fighting & First Aids.

Venue	Duration	Date
Nagpur	3 days	06-12-2017



Who may attend

Engineers and Senior Supervisor of Thermal Power Station and process industries.

73. BEARING MAINTENANCE AND SHAFT ALIGNMENT

Objective

To enable the participants to carry out maintenance of bearings and shaft alignment with modern techniques using tools and procedures correctly. After completion of course, trainees will be in a position to carry out their maintenance jobs independently.

Program Profile

- Classification of Bearings.
- Inspection of Bearings.
- Bearing materials.
- Friction and its effect on bearing performance.
- Top side gaps adjustments of sleeve/ bearings/ journal grooving on plain bearings, scrapping of journal bearings selection of bearing lubrications and their purification.
- Handling and Storage of bearings.
- Care and maintenance of plain bearings, Anti friction bearings.
- Types of coupling and their uses.

Venue	Duration	Date
Badarpur	1 week	08-05-2017
Neyveli	1 week	12-03-2018
Nagpur	4 days	19-12-2017

Who may attend

Maintenance technicians with 2-3 years experience in the relevant field

74. SWITCHGEAR MAINTENANCE

Objective

To update knowledge of plant technicians in the field of switchgear and its erection, testing/commissioning, operation and maintenance.

Program profile

- Introduction to circuit breakers, Arc formation, Arc quenching etc. Constructional details of different types and makes of circuit breakers like air circuit breakers, minimum oil circuit breakers, air blast circuit breakers, vacuum circuit breakers, SF6 breakers etc.
- Selection Criteria for switchgear.
- Design & Construction Data.
- Erection/Commissioning
- Check-list and precautions.
- Maintenance & Testing procedures & Equipments.
- Case studies.

Venue	Duration	Date
Neyveli	2 days	27-04-2017

Who may attend

This course is meant for maintenance technicians with 2-3 years experience in Switchgear maintenance

75. TRANSFORMER MAINTENANCE

Objective

To update knowledge of plant technicians in the field of Transformers and its erection, testing/commissioning, operation and maintenance

Program Profile

- Standardization & specifications of transformers used in Power Station
- Selection of transformer, erection/ commissioning
- Testing & causes Transformers failures
- Testing of solid dielectric
- Insulating oil, identification, sampling and testing procedures.
- Transformers maintenance procedures.
- Dissolved gas analysis techniques
- Case studies.
- Drying of Transformer

Venue	Duration	Date
Neyveli	3 days	20-12-2017

Who may attend

This course is meant for maintenance technicians with 2-3 years experience in Transformer maintenance.

76. TRANSFORMERS

Objective

To acquaint the participants with various problems faced in transformer failures, prediction failure analysis with case studies.

Program Profile

- Standardization & Specifications of transformers used in Power station.
- Selection of transformer, protection & schemes of protection and testing.
- Types & causes of Transformer failures
- Testing of solid dielectric
- Testing of liquid dielectric, standards
- Predictive maintenance of failures
- Dissolved gas analysis techniques.

- Case studies on transformer breakdown
- Drying of Transformers.

Venue	Duration	Date
Neyveli	1 week	08-01-2018

Who may attend

Engineers with 3-4 years experience in the relevant field.

77. PUMP MAINTENANCE

Objective

To acquaint the trainees with correct and modern methods of operations & maintenance of pumps so that at the end of course the trainees will be able to undertake maintenance of pumps independently.

Program Profile

- Description of different types of pumps, their construction, operation and applications.
- Single stage horizontal.
- Double stage vertical, Multi stage horizontal.
- Gear pump: Description of associated parts (fixed and movable)
- To acquaint the trainees with essential maintenance procedures like: Gland packing.
- Bearing removal and inspection, coupling design.
- Clearance and renovation of wear-rings impellers.
- Correct use of tools.
- Inspection of parts for wear and tear.
- Inspection of parts for wear and tear.
- Use of measuring instruments.
- Producing a joint for replacement.

Venue	Duration	Date
Neyveli	1 week	12-02-2018
Nagpur	3 days	09-01-2018



Who may attend

Maintenance Technicians with 2-3 years experience in the relevant field.

78. OPERATION & MAINTENANCE (O&M) OF POWER & DISTRIBUTION TRANSFORMERS

Objectives

To discuss maintenance aspects of power and distribution transformers

Outline

- State of the art of Transformers
- Tests to check the adequacy of Transformers
- Insulation co-ordination of Transformers
- Earthing, Loading, Maintenance & protection of Transformers
- Failure, Failure analysis & condition monitoring of Transformers
- Condition Monitoring of Transformer Oil
- Diagnostic Monitoring by DGA with case histories
- RLA of Paper Insulation by Furan analysis
- Field visits

Venue	Duration	Date
PSTI Bengaluru	1 week	18-12-2017

Who may attend

Engineers involved in the Operation, Maintenance and Testing of Transformer from state Electricity Boards, Power Utilities, R & D organizations, Academic Institutions, Transformer manufactures transformer Oil processors and servicing organizations etc.

79. DATA ACQUISITION & DISTRIBUTED DIGITAL CONTROL SYSTEM IN THERMAL POWER STATION

Objective

To familiarize the power station personnel on the new technology of plant control, monitoring and management which will soon replace the old conventional system and will apply in new units.

Program Profile

- Introduction to Data Acquisition system Hardware & Software configuration.
- Introduction to Distributed Digital Control.
- Hardware & Software Configuration.
- Advantages of Distributed Control System.
- Configuration of single loop and multi loop Controller.

Venue	Duration	Date
Nagpur	3 days	03-01-2018

Who may attend

Engineers working in Power station with 3-7 years experience.

80. RENEWABLE ENERGY TECHNOLOGIES - SOLAR

Objectives

Renewable Energy Technologies are now fundamental to growing global effort to combat climate change. The objective of the courses is to understand the domain of Renewable Energy in a relevant manner.

Outline

- Introduction to JNNISM
- Solar PV
- Solar Thermal
- Wind Power
- Bio-Mass Power
- Waste to energy

Venue	Duration	Date
Durgapur	3 Days	05-03-2018

Who may attend

Engineers with 2-3 years experience.

81. CONDITION BASED MAINTENANCE

Objective

To appraise of the participants about the predictive means of maintenance for optimum and reliable equipment performance.

Program Profile

- Requirement of CBM
- Statistical techniques of trouble shooting

- Concepts of predictive and reliability based equipment monitoring.
- Condition monitoring equipments and application

Venue	Duration	Date
Durgapur	1 week	04-12-2017

82. ENERGY AUDIT & DEMAND SIDE MANAGEMENT IN POWER UTILITIES

Objective

To acquaint the participants with techniques and methodologies of energy audit & Demand Side Management in Power Utilities.

Program Profile

- Energy Scenario in the country and scope of energy conservation.
- Energy Losses—An Integrated optimal strategy for reduction of T&D Losses.
- Demand forecasting techniques



Inauguration of One-Day National Retailers Training Program on 'Standards & Labelling'
Organized in Hyderabad on 3rd January, 2017



- EMS & LMS and Role of Energy Managers
- DSM Techniques
- DSM Methodologies
- DSM through Loss Reduction in Primary and Secondary Distribution System.
- Need for Energy Audit and Audit Procedures.
- Energy Audit – Macro Level & Micro Level
- HT - Metering & Metering Technique.

Venue	Duration	Date
Neyveli	1 week	19-02-2018

Who may attend

Engineers with 3-4 years experience in Thermal Power Station.

83. ENVIRONMENTAL POLLUTION & POLLUTION CONTROL RELATED WITH POWER PLANTS ENGINEERING

Objective

To give concise ideas about various Pollutants in power stations and measurement & control of pollution.

Program Profile

- General description of different types of Industrial Pollution.
- Introduction to air, Water and Noise Pollution.
- Nature of Air Pollutants.
- Water quality and health.
- Role of air and Noise Pollution control in modern society.
- Pollution control theory.
- Noise & Air Pollution Measurement & Equipment, the role of waste water treatment and the removal

of Toxic Pollutants.

- Sewage and sludge treatment.
- Effects of pollutants in the Aquatic environment.
- Evaluation Pollution Effects on Plant Productivity.
- Legislation and the control of Air, Noise and Water Pollution.

Venue	Duration	Date
Badarpur	1 week	10-07-2017
Nagpur	3 days	14-02-2018

Who may attend

Engineers/Chemists working in process Industry/Power Stations.

84. POWER PLANT INSTRUMENTATION

Objective

To acquaint the Power Plant Professionals with theory and working principles of different types of instruments used in the power plant and their applications.

Program Profile

- General Description of Power Plant Instrumentation and control and their layout details
- Working principles of Instruments
- Temperature/Flow/Level and Pressure measurement
- Control valves and actuators.
- Programmable Logic Controllers (PLC), their applications
- Introduction to Distributed digital control system Hardware and Software configuration

Venue	Duration	Date
Durgapur	1 week	18-12-2017

Who may attend

Engineers from SEBs/Power Utilities/



हिन्दी कार्यशाला का प्रमाण-पत्र वितरण समारोह

corporations with 2-3 years of experience

85. MANAGEMENT DEVELOPMENT PROGRAM

Objective

To provide basic know-how of management

Program profile

- Introduction of Management Skills
- Effective Communication
- Motivation
- Quality Leadership
- Team Building
- Case Studies

Venue	Duration	Date
Nangal	1 week	10-07-2017

Who may attend

Officers/Engineers working in Power Sectors and allied industries with 2- 3 years of experience

86. RENEWABLE ENERGY SOURCES & GRID INTEGRATION

Objective

To investigate the impact of Renewable Source & their integration with the grid.

Program Profile

- Overview of power scenario and important of renewable energy
- Solar energy
- Wind energy
- Bio-Mass Energy
- Renewable purchase of obligations
- Tarrieff regulations related to Renewable Energy
- Renewable Energy power evacuation issues
- Net Metering and grid connectivity for renewables
- Role of Smart Grid in integration of renewable energy and DSM
- Renewable Energy Certificates



Inauguration of 3-Weeks Program on 'Operation and Maintenance of Hydro Power Plant - SALMA DAM, Afghanistan' organized at NPTI Corporate Office, Faridabad

- Grid Operation and balancing of renewable energy power
- Inter Connection standards of distribution generation.
- Field visits

Venue	Duration	Date
PSTI	1 week	11-09-2017
Bengaluru		08-01-2018

Who may attend

Engineers from State Electricity Boards/ Power Utilities/ Distribution Systems, R&D organizations, involved in implementation of renewable source and their integration.

87. RENEWABLE ENERGY TECHNOLOGIES - HYDRAULIC

Objectives

Renewable energy Technologies are now fundamental to the growing global effort to combat damaging climate change. The objective of course is to understand the domain of Renewable energy in a relevant manner.

Program Profile

- Overview of Hydro Power Plant of India

- Investigation for small Hydro power
- Flow Duration Curve and Water Power Studies
- Different Selection of Turbines
- Design and construction of Different Component of Hydro power.

Venue **Duration** **Date**
Durgapur 3 Days 05-02-2018

Who may attend

Engineers with 2-3 years experience

88. CHANGE MANAGEMENT

Objectives

To familiarize the participants with change management concept which is an approach to shifting/transitioning individuals, teams and organization from a current state to a desired future state.

Program Profile

- Change management process
- Readiness assessments
- Communication and communication planning
- Training and employee training development

- Resistance management
- Data collection, feedback analysis and corrective action
- Celebrating and recognizing success
- Changing the attitudes and behaviors of personnel

Venue **Duration** **Date**
Durgapur 3 Days 12-02-2018

Who may attend

Executives with 2-3 years experience

89. SAFETY IN HYDRO POWER STATION

Objectives

To acquaint the participants with the safety aspects of Hydro Power Station

Program Profile

Safety: General safety precaution, treatment of electrical or acid/alkali burns, permit to work, first aid, protective gear/clothing, safety in movement and storage of materials, safety aspects of switchyard. Fire safety procedure. Fire protection of generator. Firefighting and emulsifier type protection.



Observation of Constitution Day at NPTI Southern Region, Neyveli



Venue	Duration	Date
Nangal	3 day	08.05.2017

Who may attend

Engineers/Shift Engineers/Operators working in Hydro Power Plant

90. HYDRO POWER PLANT OPERATION

Objective

To Provide in-depth knowledge in Hydro Power Plant Operation

Program Profile

General principals of Hydro machine start and stop procedure and sequence. Operation of modern Hydro power station & features of pumps storage plant. Generator-Synchronizing, loading, parallel operation, active and reactive power sharing and frequency control, operation during emergency conditions. Declared capacity, scheduling & ABT based system UI, CI etc.

Venue	Duration	Date
Nangal	1 week	12.06.2017

Who may attend

Engineers/Shift Engineers/Operators working in Hydro Power Plant

91. VALVES & PUMPS IN POWER PLANTS ENGINEERING

Objective

To acquaint in trainees with modern methods of operation and maintenance of Pumps and Valves at Thermal Power Plant, so that at the end the course the trainees will be able to understand the importance of Pumps and Valves.

Programme Profile

Description of different types of Pumps and their construction, Selection & Operational aspect.

Venue	Duration	Date
Nangal	3 days	24.04.2017

Who may attend

Operators/Technicians working in Thermal Power Plant

92. HYDRO GENERATOR & ITS EXCITATION SYSTEMS

Objective

To provide the in-depth knowledge of Hydro Generator & its Excitation systems.

Programme Profile

Constructional details and working principles of Generator and excitation systems. Types of Excitation systems and their components main and pilot exciters, Thyristor, FCB & AVR

Venue	Duration	Date
Nangal	1 week	04.09.2017

Who may attend

Engineers/Sr. Engineers working in Hydro Power Plant.

93. VALVES & PUMPS IN HYDRO POWER PLANTS

Objective

To give acquaint the trainees in-depth knowledge of operation and maintenance of Pumps and Valves at Hydro Power Plant.

Programme Profile

Hydro plant valves: Constructional

details and features of valves and their types (Butterfly, Spherical, Needle etc).

Hydro plant Pumps: Constructional details and working principals of various types of pumps used in H.E. stations and their operation & control system.

Venue	Duration	Date
Nangal	3 days	14.08.2017

Who may attend

Working professionals from hydro power station.

94. AUXILIARIES IN HYDRO POWER PLANTS

Objective

To acquaint the trainees with the hydro power station auxiliaries & equipments.

Program Profile

Electrical auxillaies: station lighting and automatic changeover. Station batteries and charging methods. Station emergency lighting arrangements, Elevator/lifts, Ventilation system, EOT cranes and hoists, Compressed air system, Dewatering and drainage system, Communication systems etc.

Mechanical auxillaries: Oil pressure units, Lubrication principles and their characteristics, HP lubrication system, Braking and jacking system, Central release lubrication system, Carbon dust collection system for slip rings, exciters and brake pads, Cooling water system etc.

Venue	Duration	Date
Nangal	3 days	18.09.2017

Who may attend

Engineers/Shift Engineers/Operators

working in hydro power plant.

95. HYDRO TURBINES, GOVERNING & ITS PROTECTION SYSTEMS.

Objective

To provide in-depth technical know-how for governing system and its protections for safe ladling & operation of HE plant.

Program Profile

General Principles and description of different type of governing systems

Speed control devices and wicket gate operation

Venue	Duration	Date
Nangal	1week	20.11.2017

Who may attend

Engineers working in Hydro Power plants.

96. ROLE OF SMART GRIDS IN THE INDIAN POWER SECTOR : CURRENT DEVELOPMENTS, CHALLENGES AND WAY FORWARD

Objective

To acquaint the participants with the current development in the field of smart grid and the challenges in the field.

Program Profile

- India's energy realities and emerging needs
- Smart Grids- Concept and application areas
- Global developments
- Developments in India



- One model of mini grid
- Integration of mini grid to smart grid
- How to make mini grid to smart grid
- Challenges to accelerated deployment
- Case study
- Way forward

Venue **Duration** **Date**
Badarpur 02 days 05-02-2018

Who may attend

Engineers working in Transmission & Distribution sector.

97. TRANSMISSION LINE MAINTENANCE AND INTRODUCTION TO LIVE LINE MAINTENANCE TECHNIQUES.

Program Profile

- Substation maintenance philosophy and guidelines

- Work permits, line clear procedure, maintenance of log books, records etc.
- Maintenance schedules : Routine, preventive, predictive, breakdown and emergency maintenance schedules.
- Transformer, switchgear and reactor maintenance
- Transformer oil testing and dissolved gas analysis
- Introduction Live line maintenance techniques
- Type of tools used in live line maintenance
- Live insulator testing methods & introduction to hotline washing (wet & dry)
- Case study
- Audio visual shows on hot stick-methods and bare hand techniques

Venue **Duration** **Date**
Badarpur 01 week 26-02-2018

Who may attend

Executives in the rank of Jr. Engineers and above working in transmission line maintenance.



Hotline Training Centre (HLTC), Bengaluru



3-Weeks Program on 'Operation and Maintenance of Hydro Power Plant'
organized at NPTI Corporate Office, Faridabad

98. OPERATION AND MAINTENANCE (O&M) OF SUB-STATION.

Objective

To impart knowledge to the trainees about installation, commissioning, operation and maintenance of substation.

Program Profile

- Introduction to Substation.
- Types of Substation, Layout etc.
- Selection of Equipments and inspection Procedures.
- Civil foundation for main equipments, tower, grounds work etc.
- Earthing, cable trench and cable

tray.

- Transformers, isolators specification & their characteristics.
- Safety aspects of Substations & Equipment Protection.
- Switchyard compressors, lightning arrester DC supply system
- General practices of EHV/HV/LV substation operation & maintenance.

Venue	Duration	Date
NPTI-NER	01 week	05-06-2017
Guwahati		21-11-2017

Who may attend

Engineers with 2-3 years of experience in operation and maintenance of substation.



99. OPERATION AND MAINTENANCE (O&M) OF SUB-STATION

Objective

To familiarize power engineers & technicians in power Substation Systems.

Programme Profile

Performance improvement of power Transmission & distribution depends on healthiness of substation & various equipments in substation. Performance of substation depends on various equipments like Transformer, C.B, relays, C.T. & P.T. Lightning Arrestors, Neutral earthling. Substation equipments condition monitoring techniques & testing decides the maintenance to be scheduled.

Description

- Switchyard Operating Procedures
- Equipments in Switchyard & their functions.
- Methods of Monitoring /Thermo-scanning, etc
- Types of faults in substation.
- Methods of Inspection. Testing & Monitoring of various Switchyard equipments & its schedule
- Procedures of substation & line maintenance
- Methods of substation Maintenance
- GIS, Substation.
- Substation Automation

Venue	Duration	Date
Nagpur	1 week	12-02-2018

Who May Attend

Engineers, Technicians & personal working in Transmission & distribution utilities

100. LIVE LINE PUNCTURED INSULATOR DETECTION (PID) ON EHV LINES

Objective

The course is meant for training on Testing of Insulator String of Suspension, Tension and 'V' String configuration on Live Condition of EHV Transmission Lines.

Program Profile

- Testing of Live Insulator string using software based Positron PID kit
- Downloading of stored result from Memory of kit to PC.
- Analysis of results (Graphical & Analytical Method).
- Preparing Test Report.

Venue	Duration	Date
HLTC-Bengaluru	1 week	15-05-2017

Who may attend

Supervisors in the rank of Jr. Engineers and ITI qualified technicians who had undergone their basic/induction level course after recruitment.

101. AUTOMATION SYSTEM (PLC & SCADA) FOR POWER PLANT

Objective

To enhance the knowledge of automation system in power plant

Program Profile

- Interactive course with hands on practice with automation
- Systems (PLC & SCADA) & issues faced on working with
- Automation system

Venue	Duration	Date
Nagpur	3 days	09-01-2018

Who may attend

Working professionals, Engineers, Supervisors and Technicians associated/engaged with power plant.

102. POWER SYSTEM & LOAD DESPATCH

Objective

To make participants understand the function and responsibilities of load dispatch centre

Program Profile

- Growth of power system in India
- Objectives & functions of LD Centre
- Organization of LD centre
- Reactive power management
- Power quality
- Computerization of load dispatch

Venue	Duration	Date
Nagpur	3 days	26.09.2017

Who may attend

Engineers engaged in power sector and local load dispatch centre

103. TRAINING FOR TRAINERS

Objective

To enable the trainers in Power Sector to increase their knowledge and skill

to impart training in operation and maintenance of power station.

Program Profile

- Fundamentals of learning process
- Group communication
- Motivation and transactional analysis
- Identification of training program
- Design of training program
- Training resource development
- Training programs co-ordination technique
- Instructional techniques
- New techniques
- On-job, On-site methodologies
- Evaluation, validation and record keeping
- Feed-back technique

Venue	Duration	Date
Badarpur	1 week	03-07-2017

Who may attend

Engineers as well as non technical managers involved in human resource development

104. MANAGEMENT OF RENEWABLE ENERGY (SOLAR ENERGY IN PARTICULAR); FINANCE AND ECONOMICS OF RENEWABLE ENERGY

Objective

- Understanding Management of Renewable Energy Integration with Grid, Solar Energy in Particular, and Techniques for Grid Balancing,
- Understanding Policies and



Finances i.r.o. Renewable Energy

Programme Profile

- Introduction to various forms of Renewable Energy Generation, Solar Energy in Particular.
- Managing Integrity of Renewable Energy to the Grid, Balancing of Grid, Concept of Smart Grid.
- Design aspects of installation of mini/micro Grid Solar Power Plant, Technical & Administrative Issues.
- Introduction to Renewable Energy Finance.
- Tariff Support Schemes.
- Project Finance Calculations.
- Basic Technical Calculations.
- Government Policy and Support Schemes.
- Project Finance Examples with Case Studies.

Venue	Duration	Date
NPTI-NER Guwahati	2 week	04-09-2017

Who May Attend

Individuals considering a consultancy job and/or those who have to evaluate the benefits of adopting renewable energy technology. Industrialists/ Entrepreneurs intending to invest in the Renewable Energy Sector. Working Technical Executives from various Power Sector Stake-Holders and Load Dispatch Centres.

105. POWER MARKET SPECIALIST

Objective

The introduction of open access in the transmission system and gradually in the distribution systems is creating

opportunity as well as challenges for the system operator to optimally utilize the resources and despatch the system efficiently.

Added to these things the proportion of renewable sources in the system is increasing by the day thereby making the system operation more complex. In this backdrop the system operator has specialized in market operations with due regard to the reliable and optimal operation of the system. A specialist level course of "Power Market Specialist" is being introduced to achieve this objective of efficient market operations with due regard to the regulations and optimal operations

Programme Profile

- 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
- Balancing of Capacity & Energy Market
- 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

Venue	Duration	Date
PSTI	1 week	05-06-2017
Bengaluru		04-09-2017

Who May Attend

System operation, Engineers from State electricity utilities/ Distribution Systems, R&D organisations, Academic institutions etc.

106. DESIGN AND OPERATION AND MAINTENANCE(O&M) OF LED LIGHTING

Objective

To familiarize the power engineers with Design and O&M of LED Lighting

Programme Profile

- Fundamentals of Electricity Markets
- Introduction to LED Street lights
- Energy Efficiency Aspects of LED Lights
- Advantages over Conventional Street Lights
- Modules o LED Street Light
- Installation of LED Street Light and electrical safety
- Hands on Practice
- Overview of CCMS
- O& M aspects of LED Street Light
- Hands on Practice

Venue	Duration	Date
PSTI Bengaluru	3 days	01-11-2017

Who May Attend

Engineers from State Electricity Boards, Power Utilities /Corporations, R & D organizations, Academic institutions.

107. RLA & LE OF SUBSTATION EQUIPMENT

Objective

To familiarize the power engineers with RLA & LE of Substation Equipment

Outline

- RLA –Objective and Methods
- Testing procedures and Methodologies
- RLA of Oil filled transformers
- RLA of Instrument Transformers
- RLA of circuit breakers
- RLA of other sub station switchgear
- RLA of power cables
- Testing and calibration of substation meters
- Field Visits

Venue	Duration	Date
PSTI Bengaluru	1 week	13-11-2017

Who may attend

Engineers from State Electricity Boards, Power Utilities /Corporations, R & D organizations, Academic institutions.



108. SWITCHGEAR AND TRANSFORMER MAINTENANCE

Objective

To familiarize the power engineers with Switchgear and Transformer Maintenance.

Outline

- Introduction of circuit breakers, Arc formation, Arc quenching etc.
- Constructional details of different types and makes of circuit breakers like air circuit breakers, minimum oil circuit breakers, air blast circuit breakers, vacuum circuit breakers, SF6 breakers etc.

- Insulating oil, identification, sampling and testing procedures
- Oil Testing details for crackle testing, break down testing, oil filtration
- Reading of schemes, control and wiring diagrams
- Transformer construction details
- Transformer maintenance procedures

Venue	Duration	Date
PSTI Bengaluru	4 days	27-11-2017

Who may attend

Engineers from State Electricity Boards, Power Utilities /Corporations, R & D organizations, Academic institutions



2-Days Residential Training Program on 'Protection of Consumer Interest' organized at NPTI Corporate Office, Faridabad on 17th-18th November, 2016

(E) SIMULATOR TRAINING PROGRAMS

1. 210 MW FOSSIL FUEL POWER PLANT SIMULATOR TRAINING

Objective

To train fresh engineers on a full scope replica simulator in all aspects of operation as well as for developing suitable response to malfunctions and emergency situations by Hands-on-Practice in all the phase of operation from start-up to shut-down.

Program Profile

- Cold start, up to 100% load.
- Partial load to full load and back to partial load.
- Manoeuvring of different auxiliaries.
- Hot start/warm start to full load.
- Planned shut down.
- Over-rides and alarms during

different exercises.

- A few malfunctions.

Venue

Nagpur

Duration

2 weeks

Date of Commencement

03-04-2017	17-04-2017	01-05-2017
15-05-2017	05-06-2017	19-06-2017
03-07-2017	17-07-2017	31-07-2017
21-08-2017	04-09-2017	18-09-2017
23-10-2017	06-11-2017	20-11-2017
04-12-2017	18-12-2017	08-01-2018
22-01-2018	05-02-2018	19-02-2018
05-03-2018	19-03-2018	

Who may attend

Shift Charge Engineers/ Operation Engineers/Desk Controllers engaged in operation of Thermal Power Station and also fresh graduate engineers who had undergone training in O&M of power station/ posted in Thermal Power Stations.



2-Weeks Training Program on 'High Pressure Boiler Designs for Biogases Based Co-Generation Project' for participants from Boiler Manufacturers of Pakistan on 14-15 March, 2017 organized at NPTI Corporate Office, Faridabad



USAID, SARI/EI - Training Program on 'Techno Economic Hydro Power Project' is in progress

2. 500 MW FOSSIL FUEL POWER PLANT SIMULATOR TRAINING

Objective

To train engineers on full scope replica simulator of 500 MW thermal power station, in all aspects of operation and helping them to make better judgement calls/responses to malfunctions and emergent situations by imparting them hands on practice in:

- a) Full Scope/Conventional Panel Operation Mode**
- b) CRT –Keyboard Based Operation Mode**

Program profile

- Cold start and up to 100% load
- Partial to full load and back
- Hot start / Warm start to full load
- Planned Shutdown

- Maneuvering of different auxiliaries
- Operation under emergency conditions

Venue

Faridabad

Duration

2 weeks

Date of Commencement

03-04-2017	17-04-2017	01-05-2017
15-05-2017	29-05-2017	12-06-2017
26-06-2017	10-07-2017	24-07-2017
07-08-2017	21-08-2017	04-09-2017
18-09-2017	03-10-2017	16-10-2017
30-10-2017	20-11-2017	04-12-2017
08-01-2018	22-01-2018	05-02-2018
19-02-2018	05-03-2018	19-03-2018

Who may attend

Shift charge Engineers/ Operation Engineers/ Desk controllers working in Thermal Power Station and also fresh Engineers posted in Thermal power stations.

3. COMBINED CYCLE GAS TURBINE POWER PLANT SIMULATOR TRAINING

Objective

To train engineers on full scope replica simulator of 2x143+1x44 MW CCGT power station, in all aspects of operation and helping them to make better judgement calls/ responses to malfunctions and emergent situations by imparting them hands on practice.

Program Profile

- Cold start and up to 100% load
- Partial to full load and back
- Hot start / Warm start to full load
- Planned Shutdown
- Manoeuvring of different auxiliaries
- Stand aline Operation of Gas Turbine
- Operation under emergency conditions
- Operation of Gas turbine in open Cycle mode

Venue

Faridabad

Duration

2 weeks

Date of Commencement

03-04-2017	17-04-2017	01-05-2017
15-05-2017	29-05-2017	12-06-2017
26-06-2017	10-07-2017	24-07-2017
07-08-2017	21-08-2017	04-09-2017
18-09-2017	03-10-2017	16-10-2017
30-10-2017	20-11-2017	04-12-2017
08-01-2018	22-01-2018	05-02-2018
19-02-2018	05-03-2018	19-03-2018

Who may attend

Shift charge Engineers/ Operation Engineers/Desktop controllers working in

Combined Cycle Gas Turbine Power Station and also fresh Engineers posted in Combined Cycle Gas Turbine Power Station.

4. 250 MW HYDRO SIMULATOR TRAINING

Objective

To train the engineers on a full scope replica simulator in all aspects of operation as well as for developing suitable response to malfunctions and emergency situations by Hands-on – Practice in all the phase of operation from start-up to shut-down.

Program Profile

- Start-up of M/c & load up to 100%.
- Partial load to full load and back to partial load.
- Maneuvering of different auxiliaries.
- Planned shutdown.
- Operation under emergency
- Over-rides and alarms during different exercises.
- Few malfunctions & its trends.

Venue

HPTC, Nangal

Duration

1 week

Date of Commencement

03-04-2017	24-04-2017	08-05-2017
22-05-2017	12-06-2017	10-07-2017
14-08-2017	28-08-2017	11-09-2017
25-09-2017	09-10-2017	06-11-2017
18-12-2017	08-01-2018	29-01-2018
12-02-2018	05-03-2018	

Who may attend

Shift charge Engineers/Operation Engineers/Desktop controllers engaged in operation of Hydro power station & also



Prof. (Dr.) Rajendra Kumar Pandey, Director General, NPTI meeting with the Participants from Afghanistan at NPTI Corporate Office, Faridabad

fresh graduates engineers who had undergone training in O&M of Hydro power station / posted in Hydro power stations

5. DISPATCHER TRAINING SIMULATOR

Objective

To practice the Normal and emergency Operation of Power System, Active and Reactive Power Control and Advanced Applications using Dispatcher Training Simulator (DTS)

Program Profile

- Dispatcher training Simulator

Overview

- Active and Reactive Power Control
- Indian National Network including HVDC Lines
- Prime mover Dynamics (Hydro, Thermal, Gas and Pumped Storage units)
- Load Shedding schemes
- Islanding schemes
- SCADA Operation
- Automatic Generation Control
- Islanding and Integrated Operation
- System Occurrence and Restoration
- System Stability
- Voltage Control and Voltage Collapse simulation
- Prevention of Grid Disturbance

Venue

PSTI, Bengaluru

Duration

2 Weeks

Dates of Commencement

19-02-2018 05-03-2018 19-03-2018

Who May Attend

Persons involved in System Operation and Control i.e. Generating Station, Transmission, Load Dispatch Centre, Sub-Station and Distribution Personnel

6. 800 MW SUPER CRITICAL THERMAL POWER PLANT TRAINING SIMULATOR

Objective

To train engineers on full scope replica simulator of 800 MW, Super critical coal fired power station in all aspects of operation and helping them to make better judgement calls/responses to malfunctions and

emergent situations by imparting them hands on practice.

Program Profile

- Cold start up to 100% load Hot start/ warm start up to full load
- Planned shut down
- Auto/manual control of parameters
- Operation under emergency conditions.

Venue

Faridabad

Duration

2 weeks

Date of Commencement

03-07-2017 17-07-2017 21-08-2017
28-08-2017 04-09-2017 18-09-2017
09-10-2017 23-10-2017 06-11-2017
27-11-2017 04-12-2017 18-12-2017
01-01-2018 15-01-2018 05-02-2018
19-02-2018 05-03-2018 19-03-2018

Methodology

Lectures, Video session, Hands on and Demo Session on Simulator and Case Studies



100th Batch participants of 'Live Line Maintenance Techniques' at HLTC, Bengaluru



Following program can be conducted/offered to National as well as International organization on request /demand basis on applicable terms and conditions at different NPTI Institutes

(F) MEDIUM TERM COURSES FOR ENGINEERS (5 WEEKS TO 16 WEEKS)

1. DISTRIBUTION ENGINEERING

Objective

To familiarize the participants with various aspects of electricity distribution engineering.

Program Profile

- Distribution engineering—Growth, Developments, Equipment, Standards specification, construction Practice and guidelines, design aspects—testing and installation of Distribution equipment— Lay out of Sub-Station.
- Safety, Protection, DSM and energy Audit/Metering— Safety Aspects, I.E. Rules and Regulation, Compliance, First Aid, Fire Safety.
- Energy Audit and DSM application in Distribution /Engineering—Energy Audit— need, Objective and Methodology, types, application & techniques, DSM— Methodology and Techniques, Loss reduction—Voltage control, Var control, Reactive Power Compensation.
- Metering— Metering techniques, various types—LT meters and its application, Installation Testing and Commissioning of LT meters, defects

and remedies—HT metering techniques.

- Billing, Power System Study, Distribution Planning Trends and Development— Billing system, Computer application in billing system, Distribution planning, Optimization of capacity and location of Distribution Transformers— Power System study flow, fault analysis, relay co-ordination, Reactive Power compensation—Load Forecast techniques, recent trends & developments in Distribution Automation, Automatic Meter Reading.

Who may attend

Engineers engaged in distribution of electricity with 2-3 years experience. The course can be conducted at New Delhi, Nagpur, Durgapur, Neyveli or Bengaluru Institute

Duration

6 weeks

2. CONTROL & INSTRUMENTATION FOR SUPERVISORS/ TECHNICIANS

Objective

To impart knowledge of theory and working principles of instruments and improve the skill of Instrumentation Supervisors Technicians in the field of Instrument Maintenance.

Program Profile

- Concept of instrumentation in Thermal Power Station
- Instrumentation layout
- Basic Science, Basic electricity and

- Basic Electronics
- Pressure, Level, Low and Temperature measurement
- Air supplies, pneumatic Instruments and drives
- Telemetry
- Introduction to Automatic Control System
- DAS/DDC
- Turbovisory instruments and Analytical Instruments
- Practicals/Demonstrations.

Duration **6 weeks**

Who may attend

Instrumentation Supervisors/Technicians working in Thermal Power Station/ process Industry.

3. TRAINING PROGRAMME FOR SUPERVISOR/ MANAGERIAL PERSON DEPLOYED IN POWER INDUSTRY

Objective

To impart Supervisory/Managerial skills to Middle level persons who are working in Power supply Industry

Program Profile

- Personality Development – Skills, Attitudinal Development, Leadership, Team Building, Value & Ethics.
- Business Communication skills, Negotiation
- Man Power Planning (MPP)
- Quality of work Life (QWL)
- Career Planning & Quality Circles
- Financial Management & Overview
- Performance Appraisal
- Man Power Audit

- Human Resource Development
- Case Studies

Venue

Faridabad

Duration

6 weeks

Who may attend the program

Staff deployed in power station/Industry with experience of 5 to 10 years.

4. NEW AND RENEWABLE SOURCES AND GRID INTEGRATION IN INDIA

Objective

To renewable energy program gives the participant a solid foundation in the theory, sign, installation and grid interfacing techniques required to work with new and renewable energy systems and technologies.

Program Profile

- Energy Sector Reforms, Regulations Environment and RE.
- Wind Energy Systems
- Solar thermal power systems
- Direct energy Conversation – Solar Photovoltaic, Fuel Cells.
- Waste to Energy.
- Solar passive Architecture.
- Biomass Energy Systems.
- Bio-Fuels
- RE and Grids Integration
- Economic Viability
- Case studies

Duration

6 weeks

Who may attend

Graduate engineers having 3-4 years experience in Thermal Power Stations.



5. EXECUTIVE DEVELOPMENT PROGRAM FOR THE SUPERVISORY STAFF WORKING IN FINANCE & ACCOUNTS DEPARTMENT

Objective

To impart knowledge of Supervisory Finance personnel working in Power Supply Industry.

Program Profile

- Status & Responsibilities of Financial Executives: Development of Managerial Skills
- Personality Development, Business Communication Skills, Negotiation Skills, Leadership, Team Building,

Values & Ethics etc.

- Financial Management & Planning
- Computer Awareness for finance personnel
- Capital Budgeting, Costing & decisions
- Operating & Financial Leverage Analysis
- Dividend issues, policy & Decisions
- Budgeting & Accounting
- Foreign Exchange, Taxation Rules & Regulations
- Financial Performance Evaluation & Risk Management
- Cash Flow Management

Venue

Faridabad

Duration

6 weeks

Who may attend the program

Supervisory staff working in Power Stations/Industry with to 10 year of experience.



MBA (Power) Management Students

(G) SHORT-TERM COURSE FOR ENGINEERS (1 DAY TO 4 WEEKS)

6. MAINTENANCE PLANNING & COST CONTROL

Objective

To enable the participants to understand and apply the modern planning and cost control techniques in maintenance programs.

Program Profile

- Aims and objective of maintenance efficient, service, high plant availability, maintenance and planning engineer's duties.
- Integration of maintenance with operational requirements, plant reliability, plant outages and daily

work programs.

- Preventive maintenance of running units.
- Planning of major plant overhauls during shut downs.
- Planning techniques-critical path analysis, charting systems etc.
- Purchasing and stores control-standards, cost codes, control of stores and store records.
- Cost control, Direct costs, indirect costs, outage costs, budgeting and costing works, budgetary control.
- Contract procedures, Conditions of contract, project evaluation, interest and depreciation charges.
- use of computers in maintenance planning.

Duration

1 week

Who may attend:

Engineers/Officers working in Power Stations/ Industries with 5-10 years experience.



PGDC Batch at NPTI Corporate Office, Faridabad



Director General, NPTI addressing the Participants of 2-Days Residential Training Program on 'Legal Aspects of Regulations' held at NPTI Corporate Office, Faridabad on 12th-13th January, 2017

7. TRAINING OF TRAINERS

Objective

To enable the trainers in Power Sector to increase their knowledge and skill to impart training in operation and maintenance of power station.

Program Profile

- Fundamentals of learning process.
- Group communication.
- Motivation and transactional analysis.
- Identification of training program.
- Design of Training Program.
- Training Resource Development.
- Training Programs co-ordination technique
- Instructional techniques.

- New techniques.
- On-job, On-site methodologies.
- Evaluation, validation and record keeping.
- Feed-back techniques.

Duration

1 week

Who may attend

Engineers as well as nontechnical managers involved in human resource development

8. OPERATION & MAINTENANCE OF EHV SUB-STATION

Objective

To impart knowledge to the trainees about the installation, commissioning,



Valedictory function of '100th batch of 'Live Line Maintenance Techniques' at HLTC, Bengaluru

operation and maintenance of Sub-Station.

Program Profile

- Introduction to sub-station
- Types of layout etc.
- Soil testing and site selection.
- Equipment inspection & selection aspects.
- Civil foundation for main equipments, tower, ground work.
- Structure and tower erection and fabrication alignment.
- Earthing, cable trench, cable tray.
- Protection system & its equipment.
- Design and erection.
- Switchyard HV equipments erection.
- Switchyard, compressor, lightening arrestors.
- Different safety aspects, fire

protection devices, erection and commissioning

Duration

2 weeks

Who may attend

Engineers with 2-3 years experience in electrical operation and maintenance of Power Station and transmission & Distribution.

9. MICRO PROCESSORS

Objective

To acquaint the participants with microprocessors and their applications in Thermal Power Station.

Program Profile

- Microprocessor structure and organization



- Information Representation
- Microprocessor Instruction set
- Assembly Language Programming
- Peripherals input/output units
- Microprocessor interfacing with other devices
- Application programs and case studies.

Duration **1week/2 weeks**

Who may attend

Graduate Engineers having sufficient knowledge in Control system of Thermal Power Stations.

10. VIBRATION ANALYSIS

Objective

To impart expertise and to give latest information regarding different methods of vibration measurement, their analysis, diagnosis and recommended remedial actions.

Program Profile

- Definition and description of vibration.
- Terms and Units in vibration measurement.
- Characteristics of vibration.
- Basic vibration modes of measurement.
- Vibration transducers-different types and selection criteria.
- Selection criteria of vibration mode for measurement.
- Vibration diagnostics and fault analysis.
- Dynamic Balancing using portable Vibration Analysers.
- Scheduling of condition monitoring

and condition based maintenance.

Venue

Durgapur

Duration

3 days

Who may attend

Engineers with at least 5 years experience in operation and maintenance of Power Station Industry.

11. RENOVATION & MODERNIZATION OF THERMAL POWER PLANT/STATION

Objective

To familiarize and spread awareness amongst the Working Managers Engineers of Thermal Power Stations to enable them to take timely action for renovation & Modernization of their Thermal Power Station for further life extension.

Program Profile

- Norms for renovation & Thermal Power Station & Funds allocation.
- Scope of renovation & area of renovation.
- Renewal life Assessment Techniques for Turbine, Boilers and generator.
- Life extension studies and techniques for Thermal Power Station auxiliary.
- Stress Analysis and data interpretation
- Case Studies

Duration

1 week

Who may attend

Middle Level Managers/ Working Engineers with 2 to 3 years experience.

12. REGENERATIVE FEED HEATING SYSTEM

Objective

To familiarize and impart knowledge regarding operational procedure system with confidence and safety.

Program Profile

- Different types of heater – H.P. & L.P.
- Theory of heating, construction of HP & LP heaters
- System of steam extraction.
- layout of system – various considerations.
- Operation of the individual components.
- Cutting in and cutting out procedures of heaters.
- Performance monitoring of heaters and identification in the system.
- Various interlocks and protections and Automatic systems.

Duration **1 week**

Who may attend

Operators working in Thermal Power Station with 3-4 years experience.

13. TRANSMISSION DISTRIBUTION EQUIPMENT MAINTENANCE

Objective

To improve the skill of personnel engaged in the field of Transmission & Distribution equipment maintenance.

Program Profile

- Transmission and distribution system familiarisation.

- Maintenance involved during erection and commissioning of T&D equipment
- Transmission and distribution system and equipment maintenance procedure.
- Preventive and predictive maintenance program & schedule.

Venue

Badarpur

Duration

1 week

Who may attend

Maintenance technicians with 2-3 years experience in the field.

14. BALANCING AND ALIGNMENT TECHNIQUES

Objective

Trainees will learn about practical procedure of balancing and alignment techniques of heavy duty rotary machines, relevant to Thermal Power Plants.

Program Profile

- Causes of vibrations and types of balancing requirements.
- Static and dynamic balancing techniques.
- Identification technique of misalignment
- Hot alignment and tolerance in alignment for various applications.

Duration

3 days

15. ELECTRICITY ACT AND REGULATION

Objective

To appraise of the participants about



the conceptual reorientation in IEA-2003 related to generation, transmission, distribution along commercial implication.

Program Profile

- Over view of IEA-2003
- Electricity Grid code
- Status of deregulation and power tariff
- Open access and ABT

Duration **3 days**

16. BASIC ELECTRONICS

Objective

To impart knowledge of basic concept of semiconductors, their properties and application in various fields.

Program Profile

- Basic theoretical knowledge of semiconductor materials diodes, transistors, rectifiers, transformers,

amplifiers, oscillators, introduction to IC's.

- Digital Electronics - logic gates, Flip Flops & their applications.
- Practical session:
- Making circuits and their testing, Fault finding techniques of electronics circuits.

Duration **1week**

Who may attend

Power station technicians working in electricals and C&I maintenance sections.

17. TRAINING FOR ASSISTANT LEVEL PERSONS/ PERSONNEL STAFF

Objective

To impart skills to personnel staff working in Power Supply Industry



3-Days Training Program on 'Solar and Wind Energy' organized at NPTI Corporate Office, Faridabad from 9th to 11th January, 2017

Program Profile

- General Administration Rules & Regulations
- Office Procedure, Etiquettes, Management of official records, Noting & Drafting
- Practice of stenography and test at qualifying speed of 80 WPM
- Basic of computers, typing on computers with a qualifying speed of 40 WPM
- Hands-on practice on computers with Word, Excel and other basics
- Communication and Communication skills
- Time Management and Stress Management

Venue

Faridabad

Duration

1 weeks

Who may attend the program

Personnel staff working in Power Stations/Industry with 2 to 6 years of experience.

18. HUMAN RESOURCE DEVELOPMENT PROGRAM FOR FINANCE OFFICER/MANAGER

Objective

To develop Human resources deployed in finance wing who are working in Power supply Industry

Program Profile

- Personality Development – Skills,
- Attitudinal Development, Leadership, Team Building, Value & Ethics

- Business Communication skills, Nego-tiation
- Man Power Planning (MPP)
- Beyond the Present Role: Potential Systems
- Quality of work Life (QWL)

Venue

Faridabad

Duration

1 week

Who may attend the program

Finance persons working in Power Stations/Industry with 5 to 10 years of experience.

19. DEVELOPMENT OF FINANCE MANAGERS

Objective

To impart in-depth knowledge to Finance Officers in Budgeting & Financial Statement Analysis Industry working in Power Supply Industry

Program Profile

- Status & Responsibilities of Finance Executives – Development of Managerial Skills.
- Capital Investment decisions; strategic Considerations.
- Budgeting & Accounting (Accounting Statements and records).
- Financial Statement Analysis.
- Taxation – Rules & Regulations.

Venue

Faridabad

Duration

1 week

Who may attend the program

Finance Officer working in Power Stations/Industry with 5 to 10 years of experience.



20. LIVE LINE INSULATOR WASHING TECHNIQUES ON EHV SWITCHYARD/ LINES AT ONSIDE

Objective

The course is meant for Training on Insulator Maintenance Techniques on cold/charged systems amongst Supervisors and Technicians involved in EHV Line/Switchyard Maintenance. The Training Program covers appreciation about Pollution on insulators of EHV systems, equipment etc. and to highlight the importance of care & maintenance on various types of insulators.

Program Profile

- Types and effect of Pollution of performance, its prevention and solutions.
- Safety aspects in Line/Hot Line Washing.
- Hot Line Washing Equipment set up and its operating procedures.
- Safety aspects in Hot Line Washing of line and substation insulators.
- Care and methods of Washing on sub station equipment line Circuit Breakers, Current Transformers and Potential Transformers etc.
- Practice of Hot Line Washing on Live Lines at Tension Point, Suspension Point Post Insulators etc.
- Introduction on Dry Washing and Hot Spray Systems.

Venue

HLTC, Bengaluru

Duration

4 days

Who may attend the program

It is preferred that only those who had worked in the relevant field and associated with some of the EHV line maintenance activities quite some time, say, 2 to 3 years, after completing their entry level (Induction level) training course on cold lines may only be sponsored so that many of the techniques need not have to be repeated. It is preferred that the participants of the course should have been exposed to some of the Live Line Maintenance jobs at least a couple of years before they are sponsored for this training this will enable the trainer to ease his efforts by simply recalling those techniques and concentrate more on the techniques relevant to actual line situation that are needed.

Supervisors in the rank of Junior Engineers and ITI qualified Technicians may be considered for this course.

21. DESIGN AND VERIFICATION OF ELECTRICAL INSTALLATIONS

Objective

To develop the essential, up-to-date knowledge and techniques needed to professionally design and install or inspect and test electrical systems. The ability to design is required before new installations are constructed and also when additions or alterations to existing installations are required. This may be ideal for qualified electricians wishing to expand or update their professional knowledge and skills and who are

working with minimal or no supervision. It can be intended for personnel in electrical contracting companies who have responsibility for the quality of the design, specification, installation and testing process.

Programme Profile

Theory and Practical sessions and examples of how electrical installations should be designed are to be incorporated to this proposed Course. The course should consist of design exercises for the candidates to carry out, which evaluate and explore the process of design in terms of general characteristics, protection for safety, selection, erection and testing.

Awareness on Electrical Safety and Related Statutory Provisions with exposure through State/Central Inspectorate of Electricity.

Overview on "The Central Electricity Authority (Measures Relating to Safety & Electric Supply) Regulations, 2010".

Venue	Duration	Date
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NPTI- NER	1 Weeks	
Guwahati		

Who May Attend

This may be ideal for qualified Electricians wishing to expand or update their professional knowledge and skills and who are working with minimal or no supervision. It can be intended for Personnel in electrical contracting companies who have responsibility for the quality of the design, specification, installation and testing processes.

22. TRAINING MIND FOR EXCELLENCY

23. EXECUTIVE/MANAGEMENT DEVELOPMENT PROGRAMS

FOR EXECUTIVES & SUPERVISORS

24. EXECUTIVE DEVELOPMENT PROGRAM FOR LAW STREAM

25. SUPERVISORY DEVELOPMENT PROGRAMS

26. HR FOR NON-HR EXECUTIVES

27. EXECUTIVE DEVELOPMENT FOR SUPERVISORY STAFF WORKING IN FINANCE AND ACCOUNTS

28. ENVIRONMENTAL MANAGEMENT

29. BUSINESS COMMUNICATIONS & PRESENTATIONS SKILLS

30. GENERAL INTRODUCTION TO HYDRO POWER PLANT

31. HYDRO POWER PLANT SCHEMES & SYSTEMS DISCUSSIONS

32. HYDRO POWER PLANT OPERATION & PUMP STORAGE OPTIONS TO GOVERNING

33. HYDROPOWER PLANT PROTECTIONS

34. MAINTENANCE (ON-JOB) IN HYDEL PLANT

35. PLANNING AND COST CONTROL OF HYDRO ELECTRIC POWER STATION

36. CONTROL & INSTRUMENTATION OF



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|---|--|
| HYDRO ELECTRIC POWER STATION | ON ISO-14001 |
| 37. SITE SELECTIONS OF HYDRO ELECTRIC PLANTS, GEOLOGY, HYDROLOGY | 51. HR ISSUES IN POWER SECTOR |
| 38. TUNNELS & CHANNELS, PENSTOCKS, SURGE SHAFT, SPILLWAYS | 52. TIME MANAGEMENT |
| 39. VALVES IN HYDRO POWER PLANTS | 53. STRESS MANAGEMENT |
| 40. CONSTRUCTION EQUIPMENT OF HYDRO ELECTRIC PLANTS | 54. LEAD AUDITORS PROGRAM ON ISO 9000 |
| 41. ENVIRONMENTAL IMPACT ASSESSMENTS | 55. LEADERSHIP SKILLS |
| 42. MATERIAL HANDLING AND TRANSPORTATION | 56. PROJECT MANAGEMENT |
| 43. SAFETY IN HYDRO POWER PLANTS | 57. CUSTOMER RELATIONSHIP MANAGEMENT |
| 44. PUMPS IN HYDRO POWER PLANTS | 58. FINANCE FOR NON-FINANCE EXECUTIVES |
| 45. TRANSFORMERS & ELECTRICAL EQUIPMENT IN HYDROPOWER PLANTS | 59. ABT, POWER TRADING |
| 46. CONSTRUCTIONAL DETAILS OF HYDRO TURBINES & GENERATORS | 60. ELECTRICITY ACT 2003 & CERC, SERC |
| 47. ELECTRICAL AUXILIARIES OF HYDRO POWER PLANTS | 61. FINANCIAL MANAGEMENT IN POWER SECTOR |
| 48. ERECTIONS OF HYDRO TURBINES, GENERATORS AND AUXILIARIES | 62. CURRENT HR PROBLEMS IN POWER SECTOR |
| 49. TYPES OF DAMS & THEIR CONSTRUCTIONAL DETAILS | 63. FIRST – AID FOR TECHNICAL PERSONS |
| 50. LEAD AUDITORS PROGRAM | 64. TOTAL PRODUCTIVE MAINTENANCE |
| | 65. RETIREMENT MANAGEMENT |
| | 66. CHANGE IN ATTITUDE |
| | 67. CUSTOMER ORIENTATION |
| | 68. CONTRACT MANAGEMENT |
| | 69. COMPUTER APPRECIATION PROGRAM |
| | 70. O & M OF MOTORS |

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| 71. POWER SYSTEM STUDIES & LOAD DISPATCH | OPERATION |
| 72. VALVE MAINTENANCE | 88. MATERIAL MANAGEMENT |
| 73. MAINTENANCE OF PUMPS | 89. FLUIDISED BED COMBUSTION BOILERS |
| 74. IT APPLICATION IN POWER SYSTEM | 90. REVIEWABLE ENERGY SOURCE & GRID INTEGRATION |
| 75. PUMP STORAGE HYDRO POWER STATION | 91. SYSTEM OPERATOR TRAINING |
| 76. MANAGEMENT DEVELOPMENT PROGRAM | 92. ADVANCES IN POWER PLANT CHEMISTRY FOR CHEMISTS |
| 77. PERFORMANCE IN TESTING OF HYDRO POWER SYSTEM | 93. BOILER & AUXILIARIES |
| 78. GIS/GPS FOR POWER UTILITIES | 94. ELECTRICAL MOTORS FOR POWER PLANTS |
| 79. MANAGING CARBON CREDIT OF TPS THROUGH CDM ROUTE | 95. SWITCHGEAR FOR POWER PLANT |
| 80. ENERGY EFFICIENCY IN THERMAL UTILITIES | 96. HIGH VOLTAGE DIRECT CURRENT (HVDC) TRANSMISSION |
| 81. IT APPLICATION IN POWER UTILITIES | 97. HYDRO POWER PLANT ENGINEERING |
| 82. ENERGY EFFICIENCY IN ELECTRICAL UTILITIES | 98. INSULATOR WASHING TECHNIQUE (ON-SITE) |
| 83. POWER DISTRIBUTION MANAGEMENT | 99. DISTRIBUTION FRANCHISE |
| 84. STEAM TURBINE ITS AUXILIARIES OPERATION | 100. GRID MANAGEMENT |
| 85. ADVANCE MECHANICAL MAINTENANCE PRACTICES | 101. MAINTENANCE PUMPS AND VALVES |
| 86. O & M OF GENERATORS & EXCITATION SYSTEM FOR SUPERVISORS | 102. POWER EXCHANGE AND POWER TRAINING |
| 87. FUEL (COAL & OIL) HANDLING SYSTEM | 103. POWER BUSINESS TARRIF AND REGULATIONS |



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| 104. INDIAN ELECTRICITY
ACT AND RULES &
DE-REGULATION | 110. POWER MARKET
REGULATIONS |
| 105. O&M EHV TRANSMISSION
LINES | 111. CONTROL &
INSTRUMENTATION |
| 106. GOVERNING SYSTEM &
HYDRO POWER GENERATION | 112. SMART GRID |
| 107. PROJECT MANAGEMENT
FOR POWER SYSTEM
ENGINEERS | 113. REGULATORY FRAMEWORK
IN POWER SECTOR |
| 108. POWER AND TELE-
COMMUNICATION (PTCC) | 114. COAL MILL/ MILLING
SYSTEM MAINTENANCE
(CASE STUDIES) |
| 109. ADVANCE POWER
GENERATION PROTECTION &
CONTROL | 115. MAINTAINANCE OF
BOILER ROTATARY
MACHINE |
| | 116. INDUSTRIAL SAFETY |



6-Weeks Training Program on 'Thermal and Gas Turbine & Combine Cycle Power Plant Familiarization' for the Engineers of M/s Mitsubishi Hitachi Power Systems, Bengaluru organized by NPTI (Southern Region), Neyveli



राष्ट्रीय विद्वत् प्रशिक्षण प्रतिष्ठान की पुस्तक 'पम्प अनुरक्षण' को प्रथम पुरस्कार ('क'क्षेत्र) से सम्मानित किया गया



FACULTIES BIODATA NPTI-CORPORATE OFFICE, FARIDABAD

Name/Designation



Prof.(Dr.) Rajendra Kumar Pandey
Director General

Dr. Rajendra Kumar Pandey, Professor, Department of Electrical Engineering, Indian Institute of Technology (BHU), Varanasi has assumed the charge of Director General, National Power Training Institute (NPTI) on 11.07.2016.

Prof. Pandey holds Ph. D. in Electrical Engineering from IIT Kanpur in 1992. He is professionally active Senior Member of IEEE having Membership of Power and Energy Society (PES), Smart Grid Community (SGC), Communication Society. He has a long working experience in the field of High Voltage Direct Current (HVDC) Transmission Technology and Flexible AC Transmission Systems (FACTS) Devices Control, Intelligent Power Control along with the Operation of Power System in Open Access since last 32 years. He visited various countries like USA, UK, China, Canada, Hongkong etc., in connection with different Projects/Conferences/Invited Talks etc.

Presently holding the position of Director General, NPTI, Shri Pandey is also the Chairman of High Power Committee of BHU constituted for executing the Solar Energy Project (Grid Connected mode). He is also Principal Investigator of Smart Grid Project namely "Design and Development of a Smart Energy Grid Architecture with Energy Storage" funded by Department of Science & Technology, Govt. of India.

He has published more than 130 peer reviewed papers in both national, international journals & conferences of repute.

Name/Designation

Educational Qualification

Experience & Specialization

Member/ Association/ Training



Sh. J. S. S. Rao
Principal Director

B. Tech. (Electrical) JNTU, Kakinada M.E. (Power System) Andhra University Visakhapatnam, 1982

More than 36 years of work experience in various positions in NPTI. Integrated Unit Operations Faculty on 210 MW & 500 MW Thermal Power Plant Control Room Simulators. Active team member of Concept to Commissioning of 500 MW Thermal Power Plant Control Room Operation area Simulator. Program Director for the 2-year full-time MBA program in Power Management for nearly a decade.

- 1) Simulator instructors course in CEGB-UK in 1985
- 2) Simulator Modelling GSE Systems INC., USA
- 3) Simulator Instructor GSE Systems INC., USA



Dr. S. K. Choudhary
Principal Director

B.Sc. (Engg.) 1979, Electronics & Communication, Ph.D.(Management Stream-2014), MHRM – 2002, MBA(Fin). – 2006

More than 36 years of work experience in Power Plant O&M, Human Resource Development

Specialization:

Power Sector Reforms, Consultancy Services in HRM, Faculty for Power Sector Reforms & Issues Strategic Management Investment.

CEGB, UK. – 12 Weeks, Lead Auditor ISO 9001;, One year Training in Power Station O&M NLP Trainer.

NPTI-CORPORATE OFFICE, FARIDABAD

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 Sh. R. K. Mishra <i>Director</i>	<p>B.Sc. Engg.(Elect.) from U.C.E. BURLA Sambalpur University Odisha.(Now VSSUT) in 1985 MBA, PGDIM PGDHRM from IGNOU, New Delhi in 2003.</p>	<p>More than 30 years of experience in the fields of Teaching, Power Industry and Training in REC (Now NIT) Rourkela, Talcher Thermal Power Station and NPTI respectively.</p>	<p>Specialization: Operation & Mtce. of Thermal Power Station, Power Plant Automation 24 weeks training on Control& Instrumentation at POWERGEN, U.K 1991.</p>
 Mrs. Manju Mam <i>Director</i>	<p>B.E. (E & C) from NIT Srinagar, M.S. (Software Systems) from BITS Pilani, MBA (HR) from IGNOU, New Delhi</p>	<p>More than 29 years experience in the field of Teaching and Training in the various positions in NPTI. Program Director for the 2-year MBA in Power Management.</p> <p>Specialization: HR, IT, GIS</p>	<p>Member of Institute of Electronics and Telecommunication Engineers.</p>



NPTI (NR), BADARPUR

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 Sh. J. S. S. Rao <i>Principal Director</i>	<p>B. Tech. (Electrical) JNTU, Kakinada M.E. (Power System) Andhra University Visakhapatnam, 1982</p>	<p>More than 36 years of work experience in various positions in NPTI. Integrated Unit Operations Faculty on 210 MW & 500 MW Thermal Power Plant Control Room Simulators. Active team member of Concept to Commissioning of 500 MW Thermal Power Plant Control Room Operation area Simulator. Program Director for the 2-year full-time MBA program in Power Management for nearly a decade.</p>	<ol style="list-style-type: none"> 1) Simulator instructors course in CEGB-UK in 1985 2) Simulator Modelling GSE Systems INC., USA 3) Simulator Instructor GSE Systems INC., USA
 Sh. Vijay Kumar Gupta <i>Associate Professor</i>	<p>B.Sc. (Engg.) (Mechanical) from Delhi College of Engg. Delhi in 1977.</p>	<p>Specialization: Operation & Efficiency aspect of large Thermal Power Plants 38½ Years in DVC & NTPI:-</p> <ul style="list-style-type: none"> • 6 Years in Design & Operation of large Thermal Plants • 28 years in Training of Power Engineers as faculty , Design and Conduct of Training Programs including On-site & On-Job Program. <p>Training</p> <ol style="list-style-type: none"> 1. 12 weeks Operation of large plants (DCPL Calcutta 1980 2. 22 weeks Senior Operation Instructor's Training in CEGB, United Kingdom in 	<ol style="list-style-type: none"> 1986. 3. 2 weeks TPS Commissioning (NPTI-CEGB Delhi 1985 4. 2 weeks Power Plants Performance and Monitoring (NPTI-CEGB) Delhi 1985 5. 1 weeks Power Plants Performance and Monitoring (NPTI-CEGB) Nagpur 1988 6. 1 weeks Management of Training (ISTM) Delhi-1999 7. 3 Days Finance Management in Govt. with Financial & Administrative Power (CTSR) Delhi 2010 8. 1 week Finance for Non-Finance Executive (NPTI) Faridabad-2011
 Sh. M. V. Pande <i>Director</i>	<p>B.E. Mechanical Engg. from Shivaji University Koulapur (M.S), Diploma in Business Management, Nagpur University M. Tech Nagpur University. Energy Auditor B.E.E., New Delhi</p>	<p>Total 37 years experience in various position in MSEB & NPTI</p> <p>Specialization: Steam Turbine Governing & Protection TPS Operation hands on Training in 210 MW Simulator. Steam Turbine Operation. Power Plant Maintenance (Turbine, Pumps, Bearing, Valves)</p>	<p>Member Associates Training Energy Management at Audit Undergone simulator Instructor Training at S 3 Technologies USA in 1995 Undergone one month Training in Japan in the area Energy Conservation Techniques for India conducted by JICA.</p>

NPTI (NR), BADARPUR

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 Sh. Giriraj Kishore <i>Director</i>	<p>B.E. (Mechanical) from Aligarh Muslim University Diploma in PC, Networking Director, 3D Max and VJ++</p>	<p>More than 34 years experience in different organization like Panchsheel Brothers, Delhi Administration, Ministry of Defence, Arya Bhatt Polytechnic, Central Electricity Authority and now in NPTI.</p>	
 Mrs. Meena Kumari <i>Director</i>	<p>B.E. (Elct.) Delhi College of Engineering, Delhi MBA (IT) - IASE Deemed University Rajasthan</p>	<p>28 years of service including number of years service in Bhutan. Worked in Royal Government of Bhutan as an Assistant Engineer for 4 years. Worked in CBT Section for Developing Multimedia CBTs. Worked in Combined Cycle Gas Turbine (CCGT) Simulator as instructor in-charge of CCGT. Worked as Nodal Officer (AMR) for implementing IONS at NPTI. Gained knowledge in 500 MW Simulator (Fossil Fuel Fired) as instructor.</p>	<p>Undergone 12 weeks training in UK on Tools for developing multimedia softwares, under Colombo plan.</p> <ul style="list-style-type: none"> - Undergone 2 weeks training in USA for learning tools & techniques for development of CCGT Simulator. - Attended various training program in India. - Went to LAGU, Negeria as an expert faculty for conducting 2 weeks workshop. - Member - Institute of Engineers - Lifetime Membership - SESI, India (Solar Energy Society of India) - Developed many nos. of CBTs while working CBT section. - Coordinated / delivered lectures in short term & long term program.
 Sh. Ravinder Singh <i>Director</i>	<p>B. E. (Electronics & Communications), MBA (IT), M. Phil. (Management), Pursuing Ph. D. (Management)</p>	<p>About 27 years of experience of working in ITI Ltd., and NPTI.</p> <p>Specialization:</p> <p>Design & Development of Multimedia Computer Based Training Packages,</p> <p>Procurement & Maintenance of IT hardwares & softwares, EPABX System, Wi-Fi and LAN Networks, Virtual Private Server (VPS), Projection Systems, Website development & updation etc.</p>	<p>Undergone 12 weeks training on development of "Computer Based Training" Packages at United Kingdom under Colombo plan and two weeks training on "Geographical Information System" at ESRI, Washington, USA.</p>




NPTI-HYDRO POWER TRAINING CENTRE, NANGAL

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 <p>Sh. S. K. Sinha <i>Head of the Institute</i></p>	<p>B.E. (Electrical) Bihar Institute of Technology, Sindri in 1980. M. Phill. Computer Science in 1982 JNU New Delhi</p>	<p>More than 32 years Experience in NPTI.</p> <p>Specialization: Computer & simulator</p>	
 <p>Sh. G. V. Harshe <i>Director</i></p>	<p>B.E. (Mech.), 1980 Walchand College of Engg. Sangli Shivaji University Kolhapur (M.S)</p>	<p>Total 35 years experience in Power Industry, Eight B.E. (Mech.), 1980 Walchand College of Engg. Sangli Shivaji University Kolhapur (M.S)</p> <p>Total 30 years experience in Power Industry, Eight years experience in O&M of Thermal Power Station. experience in O&M of Thermal Power Station.</p> <p>More than 22 years experience in Training & Development including faculty for B.E. (Power Engg.)</p>	<p>Member of Institute of Engineers India. 10 weeks Sr. Instructor Course in U.K. under B.E.I in the year 1990.</p>


NPTI-PSTI BENGALURU

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 <p>Sh. M. N. Murthy <i>Head of the Institute</i></p>	<p>B. Tech. (EEE) JNT University A.P., 1979 M.E. (High Voltage Engg.) IIS, Bengaluru, 1981</p>	<p>More than 32 Years experience in various position in CEA & NPTI.</p> <p>Specialization: Power System Studies Operation, Simulation & Protection</p>	<p>12 Weeks simulator Software course training in Energy System Computer Application USA, 1990</p>

HOT LINE TRAINING CENTRE, BENGALURU

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 Sh. K. S. Venu Babu <i>Head of the Institute</i>	<p>B. Tech. (Mechanical), JNT University, AP, 1982.</p> <p>M. Tech (Prodn. Engg.), IIT, Delhi in 1989.</p> <p>M.B.A. (Marketing), IGNOU, New Delhi in 2000.</p>	<p>More than 33 years experience in Pressteels & Fabrications Pvt. Ltd., Hyderabad, CEA & NPTI.</p> <p>Specialization:</p> <p>Contracting, Engineering of Thermal Power Plant equipment, Teaching in Mechanical Maintenance of power plant equipment & Live Line Maintenance techniques up to 400 KV Lines & switch yards.</p>	

NPTI-SR, NEYVELI

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 Sh. J. Jayasamraj <i>Director</i>	<p>B.E. (Computer Technology & Information) from Government College of Technology, Coimbatore, Tamil Nadu, 1989.</p>	<p>More than 24 years of experience in various positions in ITI, Bangalore and NPTI.</p>	<p>Computer Technology & Control Systems</p>



NPTI-ER, DURGAPUR

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
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Sh. Atish Banerjee
Head of the Institute

B.E. (Electrical) from Jadavpur University 1976
M.E. (Electrical) from Jadavpur University 1982
M.I.E. 1990

More than 36 Years experience in different positions in CEA and NPTI

Specialization:
Electrical machines and Systems of TPS

22 Weeks Sr. Instructor course CEG, UK, 1986

NPTI –NER, GUWAHATI

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
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Sh. Sanjay. V. Malpe
Director

B.E. (Mechanical) Visvesvaraya National Institute of Technology in 1982, M.E. (Mechanical) from Victoria Jubilee Technical Institute Mumbai in 1985, Certified Energy Auditor.

Specialization:

More than 34 years experience in various position in private sector and NPTI. About 24 years experience in training and development. Developed CBT Packages on

1. Steam Turbine Construction.
2. Gas Turbine for Power Generation.
3. Coal to Electricity for non technical Executives
4. Cooling towers.

Lead Faculty for Indo German seminars on "Draft Guidelines for Energy Audit of Thermal Power Station"

10 weeks simulator instructor training in CEGB UK in 1991.

Training:

Simulator Instructor course GSE Systems Inc USA in 1995, various training Programs in India in Power industry.

NPTI-WR, NAGPUR

Name/Designation	Educational Qualification	Experience & Specialization	Member/ Association/ Training
 Dr. D. M. Lokhande <i>Head of the Institute</i>	<p>B.E. (Electrical) VRCE (VNIT) Nagpur, 1980.</p> <p>MBA (Production & Personnel) Nagpur University 1984.</p> <p>Ph.D in Management from RTM Nagpur University, Nagpur - 2015</p>	<p>Total 35 years of experience in power industry. About 6 years experience in O&M of thermal power plant. About 24 years of experience in training & development including 210 MW simulator project & operation, training etc.</p>	<ol style="list-style-type: none"> 1. 10 weeks senior instructor training in CEGB UK in 1990 2. Simulator Modelling Training of GSE Systems INC USA in 1994 3. Simulator Instructor course GSE Systems INC USA (5 weeks) in 1995 4. Various trg programs in India in power industry areas.
 Sh. V. K. Sinha <i>Associate Professor</i>	<p>B.E. (Mechanical) from VNIT Nagpur, 1980.</p> <p>M.Tech. (Heat Power Engg.) from VNIT, Nagpur 2002</p>	<p>More than 35 Years of experience in various positions in Private Sector, MSEB and NPTI</p> <p>Specialization:</p> <p>Training in various areas of Power Sector.</p> <p>Worked in Operation, Maintenance and Commissioning of 210 MW TPS under MSEB, Koradi Thermal Power Station.</p> <p>Worked as I/C of Computer Based Training Section at NPTI Faridabad.</p> <p>Developed CBT Packages on</p> <ol style="list-style-type: none"> 1. Drum & Drum internal 2. Super-heater, Re-heater & De-superheater <p>Co-ordinated On-job training programs</p> <p>Co-ordinated and delivered lectures in long term and short programs.</p>	<ol style="list-style-type: none"> 1. 6 weeks training in Training Resource Unit conducted by CEGB, U.K. 2. 3 weeks study tour regarding "Development and implementation of Computer Based Training in Power Sector" in U.K.
 Sh. N.C. Moharil <i>Director</i>	<p>B.E. (Mechanical), VRCE (VNIT) Nagpur, 1983</p> <p>MBA, Department of Business Management, Nagpur University, 1986</p> <p>Certified Energy Auditor</p>	<p>31 years experience:</p> <ul style="list-style-type: none"> - 5 years experience in Thermal Power Plant Operation - 23 years at NPTI in Training and Teaching including Simulator Training 	<p>Simulator Instructor Course GSE</p> <p>Systems Inc. USA (2 weeks) in 1995</p> <p>Various Training Programs in Power Sector India.</p>





हिन्दी कार्यशाला के प्रतिभागी



हिन्दी कार्यशाला का समापन समारोह



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5	Thermal Power Plant Operation	600	30
6	Thermal Power Plant Metallurgy	175	9
7	Ash Handling	250	13
8	Fuel Handling System Operation (Hindi)	250	13
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Inauguration of Post Diploma Course at NPTI (SR), Neyveli



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TRAINING CALENDAR 2017-2018

S. No.	Name of Course	Duration (Years/ weeks/ days)	Faridabad	Badampur	Nangal	PSTI Bengaluru	HLTC Bengaluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
A. TRAINING COURSES												
1	Post Graduate Diploma Course (PGDC) in Power Plant Engineering	52 weeks	21-Aug-17	21-Aug-17	21-Aug-17			21-Aug-17	21-Aug-17	21-Aug-17	21-Aug-17	2,30,000 per annum non sponsored 3,60,000 per annum sponsored
2	Post Graduate Diploma Course (PGDC) in Power Systems	52 weeks			21-Aug-17	07-Aug-17						2,30,000 non sponsored 3,60,000 sponsored
3	Post Graduate Diploma Course (PGDC) in Hydro Power Plant Engineering	39 weeks			04-Sep-17							1,75,000 non sponsored 2,00,000 sponsored
4	Post Graduate Diploma Course (PGDC) in Transmission & Distribution System	26 weeks		22-Jan-18		18-Sept-17 06-Mar-18				11-Oct-17	25-Sept-17	1,45,000 non sponsored 1,90,000 sponsored
5	Post Graduate Diploma Course in Energy Market Management	52 weeks	07-Aug-17			07-Aug-17			07-Aug-17		07-Aug-17	1,45,000 non sponsored 2,20,000 sponsored
6	Post Graduate Diploma Course in Power System Operation	52 weeks	07-Aug-17			07-Aug-17			07-Aug-17		07-Aug-17	80,000 non sponsored 1,35,000 sponsored
7	Post Graduate Diploma Course in Renewable Energy and Grid Interface Technologies	52 weeks	07-Aug-17			07-Aug-17			07-Aug-17		07-Aug-17	2,30,000 per annum non sponsored 3,60,000 per annum sponsored
8	Post Graduate Diploma Course in Smart Grid Technologies	52 weeks	07-Aug-17			07-Aug-17			07-Aug-17		07-Aug-17	2,30,000 per annum non sponsored 3,60,000 per annum sponsored
9	Post Diploma Course in Power Plant Engineering	52 weeks		18-Sept-17				27-Nov-17	01-Sept-17	17-Jul-17	18-Sept-17	2,30,000 per annum non sponsored 3,60,000 per annum sponsored
10	Post Diploma Course in Hydro Power Plant Engineering	26 weeks			07-Aug-17							80,000 per annum non sponsored 1,35,000 per annum sponsored
11	Post Diploma Course in Distribution & Sub-Station Management	26 weeks		18-Sept-17		18-Sept-17			01-Sept-17			80,000 per annum non sponsored 1,35,000 per annum sponsored
12	Post Diploma Course in Transmission Line Maintenance	26 weeks					07-Aug-17					80,000 per annum non sponsored 1,35,000 per annum sponsored
B. LONG TERM COURSES (17 weeks and above)												
1	Graduate Engineers Course in Thermal Power Plant Engineering	52 weeks		12-Feb-18				19-Feb-18		18-Sept-17		2,30,000 per annum non sponsored 3,60,000 per annum sponsored
2	Distance Education Certificate Course on Electricity Regulation & Commercial Aspects of Indian Power Sector	26 weeks	07-Aug-17									80,000 per annum non sponsored 1,35,000 per annum sponsored
3	PGCC in GIS & Remote Sensing	26 weeks	15-Jun-17									80,000 per annum non sponsored 1,35,000 per annum sponsored
C. MEDIUM TERM COURSES (5 weeks to 16 weeks)												
1	Live line maintenance Techniques (LLMT), using Hot Stick Method (HSM)	11 weeks					24-Jul-17 18-Dec-17					1,75,000
2	Live line maintenance Techniques (LLMT) using Bare and methods (BHM)	5 weeks					09-Oct-17					1,38,000
3.	Post Graduate Certificate Course in Thermal Power Plant Engineering	12 weeks										1,86,000

TRAINING CALENDAR 2017-2018

S. No.	Name of Course	Duration (Years/ weeks/ days)	Faridabad	Badarpur	Nangal	PSTI Bengaluru	HLTC Bengaluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
4.	Certificate Course for Hydro Power Plant Engineers and Supervisor	12 weeks			01-May-17							1,20,000
5.	Specialized Training for Hydro Power Plant working Engg. and Supervisor	6 weeks			05-Jun-17							78,000
D. SHORT TERM COURSES (One Day to 4 weeks)												
1.	Specialized Training Programme on Hydro Power Plant Engineering	3 weeks			29-May-17							45,000
2..	Transformer Maintenance for Field Engineers	1 week							10-July-17			16,000
3.	Smart Transmission & Distribution System for Graduate Engineers	1 week				10-Apr-17 22-Jan-18					17-Apr-17	18,000
4.	Power Systems Communication SCADA & EMS	1 week				24-Apr-17		11-Dec-17				18,000
5.	Substation Planning & Engineering	1 week				03-Apr-17 05-Feb-18						18,000
6.	Energy Efficiency Management in Power System	3 Days							06-Nov-17			13,000
7.	Awareness Programme for Executive in Hot Line activities	1 week					18-Sept-17 12-Feb-18					21,500
8.	Valve and Pump Maintenance	1 week		20-Nov-17					24-Apr-17			18,000
9.	Gas Turbine & CCPP (Refresher Course)	1 week		24-Apr-17				05-Feb-18				18,000
10.	Pumps Operation, Maintenance and Performance Monitoring	1 week + 3 Days		04-Dec-17				03-Apr-17			20-Nov-17	18,000 13,000
11.	Valve Actuator Maintenance	3 Days						03-May-17				13,000
12.	Thermal Power Station Operation	1 week + 3 Days		01-May-17				15-May-17	05-Jun-17		19-Sep-17	18,000 13,000
13.	Power Plant Auto Control	1 week						23-Oct-17				18,000
14.	Valve Maintenance	1 week +3 Days						12-Jun-17			18-Nov-17	18,000 13,000
15.	Fans & Air Heaters	3 Days						29-May-17				13,000



TRAINING CALENDAR 2017-2018												
S. No.	Name of Course	Duration (Years/ weeks/ days)	Fardabad	Badapur	Nangal	PSTI Bengaluru	HLTC Bengaluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
16.	Switchgear and Transformer Maintenance	1 week							01-May-17			18,000
17.	Switchyard Maintenance Technique using LLMT	4 weeks					22-May-17 05-Mar-18					1,08,000
18.	Electrical Safety and Inspection of Electrical Installation Under IE Rules	1 week				17-Apr-17 26-Mar-18				21-Aug-17 11-Dec-17		18,000
19.	Reactive Power Management	5 Days				26-Feb-18						18,000
20.	Distribution Metering	1 week				27-Jun-17				15-May-17		18,000
21.	Operation & Maintenance of Transformer and Circuit Breakers	1 week		03-Oct-17		01-May-17 12-Mar-18						18,000
22.	Power Quality and Harmonics Mitigation and Reactive Power Management	1 week				22-May-17 29-Jan-18						18,000
23.	Boiler Operation/ Boiler & its Auxiliaries Operations	1 week		13-Nov-17				24-Jul-17 18-Sep-17	20-Nov-17			18,000
		3 Days									16-May-17	13,000
24.	Operation & Maintenance (O & M) of HT/ LT Switchgear	1 week								04-Sep-17		18,000
25	Control & Instrumentation (C & I) in Power Station (for operation Engineers)	1 week		18-Jul-17				16-Oct-17				18,000
		+ 3 Days									20-Jun-17	13,000
26	Power System Studies	1 week				04-Sept-17						18,000
27	Power System Operation	2 weeks				15-May-17 10-Jul-17 06-Nov-17 05-Feb-18						33,000
28	Power System Protection	2 weeks				05-Jun-17 23-Oct-17						33,000
29	Advanced Power System Protection	1 week				12-Jun-17						18,000
30	Steam Turbine & Aux. Operation	1 week		15-Jan-18				05-Jun-17	08-Jan-18			18,000
		+ 3 Days									07-Mar-18	13,000
31	Electrostatic Precipitator	3 Days						21-Jun-17				13,000

TRAINING CALENDAR 2017-2018

S. No.	Name of Course	Duration (Years/ weeks/ days)	Faridabad	Badapur	Nangal	PSTI Bengaluru	HLTC Bengaluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
32	Boiler Firing System & Equipments	1 week						10-Jul-17				18,000
33	Electrical Protection System	1 week		08-Jan-18					22-May-17			18,000
		3 Days						19-Jul-17			16-Jan-18	13,000
34	Distribution Engineering	1 week								05-Mar-18		18,000
35	Operation & Maintenance (O & M) of Distribution System	1 week									06-Nov-17	18,000
36	Reliability Centered maintenance of Rotary Equipment	1 week		27-Jul-17								18,000
37	Operation & Maintenance (O & M) of coal mill Feeder	3 Days						15-Nov-17				13,000
38	Reduction in Power Distribution Losses	3 Days							15-May-17			13,000
39	Flexible AC Transmission system (FACTS)	1 week		27-Nov-17		03-Jul-17						18,000
40	Power System Reliability	1 week				18-Jun-17 19-Nov-17						18,000
41	Low Voltage Power Distribution System Design	1 week				01-Aug-17						18,000
42	Generator & Auxiliaries including Excitation System	1 week		11-Dec-17				04-Dec-17	07-Aug-17			18,000
		+ 3 Days									11-Jul-17	13,000
43	Power Cables & Jointing Techniques	3 Days				29-May-17						13,000
		4 Days				20-Nov-17						16,000
44	High Voltage Testing of Power System Equipment	1 week				28-Aug-17						18,000
45	Vibrational Analysis	3 Days				19-Mar-18			12-Jun-17			18,000
46	Regulatory Framework in Power Sector	1 week				04-Sept-17						18,000
						05-Mar-18						18,000
47	Power Systems Logistics	1 week				07-Aug-17						18,000
						12-Mar-18						18,000
48	Non Destructive Testing & Welding Defects	1 week		28-Aug-17								18,000
49	Thermal PP Efficiency & Performance Monitoring	1 week						07-Aug-17	31-Jul-17			18,000
		+ 3 Days									07-Feb-18	13,000



TRAINING CALENDAR 2017-2018												
S. No.	Name of Course	Duration (Years/ weeks/ days)	Fardabad	Badarpur	Nangal	PSTI Bengaluru	HLTC Bengaluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
50	Operation & Maintenance (O & M) of Transmission lines & Sub-Station	1 week				01-Jan-18			19-Jun-17			18,000
51	Relay Maintenance	3 Days						16-Aug-17				13,000
52	Power Plant Chemistry for operation Engineers	1 week		04-Sep-17					24-July-17			18,000
		+ 3 Days									14-Nov-17	13,000
53	Boiler Tube Failure & Case Studies	1 week							10-Jul-17			18,000
		2 Days						01-Jun-17				9,000
54	Familiarization Training Program on 400 kv Cold Lines	4 weeks					13-Nov-17					86,500
55	Management of Electrical Contacts	4 Days				21-Aug-17						16,000
56	Power System Energy Losses	1 week						04-Sep-17				18,000
57	Energy Efficiency in Electrical Utility	1 week				18-Sep-17						18,000
58	Issues Related to Super-Critical Technology	2 Days						22-Jan-18				9,000
59	Burner Management System/ FSSS	3 Days						13-Dec-17				13,000
60	Power Systems Studies Load Dispatch	1 week						22-May-17				18,000
61	Battery Maintenance	3 Days						04-Oct-17				13,000
62	Large Capacity CFBC Boilers	3 Days						01-Nov-17				13,000
63	Motor Maintenance	3 Days						22-Nov-17				13,000
64	Energy Conservation & Energy Audit Generation Sector	1 week				30-Oct-17 19-Feb-18		05-Mar-18		17-Jul-17		18,000
		3 Days									11-Nov-17	13,000
65	Operation & Maintenance (O & M) of Transformer	1 week								05-Feb-18		18,000
66	HVDC Transmission System	1 week				09-Oct-17						18,000
67	Operation & Maintenance (O&M) of HVDC Transmission Systems	1 week									11-Sep-17	18,000
68	Welding Practices	1 week							18-Sep-17			18,000
69	Trouble shooting of Steam Turbines	3 Days							11-Sept-17 15-Jan-18			13,000

TRAINING CALENDAR 2017-2018

S. No.	Name of Course	Duration (Years/ weeks/ days)	Faridabad	Badarpur	Nangal	PSTI Bengaluru	HLTC Bengaluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
70	Small, Mini & Micro Hydro Power Generation	3 Days			04-Dec-17							13,000
71	Fan & Air Heaters Maintenance	1 week		05-Jun-17								18,000
72	Fire Prevention, Protection & Safety	3 Days									06-Dec-17	13,000
73	Bearing Maintenance and Shaft Alignment	1 week		08-May-17				12-Mar-18				18,000
		+ 4 Days									19-Dec-17	16,000
74	Switchgear Maintenance	2 Days						27-Apr-17				9,000
75	Transformer Maintenance	3 Days						20-Dec-17				13,000
76	Transformers	1 week						08-Jan-18				18,000
77	Pump Maintenance	1 week						12-Feb-18				18,000
		3 Days									09-Jan-18	13,000
78	Operation & Maintenance (O & M) of Power & Distribution Transformers	1 week				18-Dec-17						18,000
79	Data Acquisition & Distributed Digital Control System in Thermal Power Station	3 Days									03-Jan-18	13,000
80	Renewable Energy Technologies - Solar	3 Days							05-Mar-18			13,000
81	Condition Bases Maintenance	1 week							04-Dec-17			18,000
82	Energy Audit & Demand side Management in power Utilities	1 week						19-Feb-18				18,000
83	Environment Pollution & Pollution Control Related with Thermal Power Plants	1 week		10-Jul-17								18,000
		+ 3 Days									14-Feb-18	13,000
84	Power Plant Instrumentation	1 week							18-Dec-17			18,000
85	Management Development Program	1 week			10-Jun-17							18,000
86	Renewable Energy Source & Grid Integration	1 week				11-Sep-17 08-Jan-18						18,000
87	Renewable Energy Technology Hydraulic	3 Days							05-Feb-18			13,000
88	Change Management	3 Days							12-Feb-18			13,000
89	Safety in Hydro Power Station	3 Days			08-May-17							13,000
90	Hydro Power Plant Operation	1 week			12-Jun-17							18,000
91	Valve & Pumps in Thermal Power Plants	3 Days			24-Apr-17							13,000



TRAINING CALENDAR 2017-2018												
S. No.	Name of Course	Duration (Years/ weeks/ days)	Faridabad	Badapur	Nangal	PSTI Bengaluru	HLTC Bengaluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
92	Hydro Generator & its Excitation System	1 week			04-Sep-17							18,000
93	Valve & Pumps in Hydro Power Plant	3 Days			14-Aug-17							13,000
94	Auxiliaries in Hydro Power Plants	3 Days			18-Sep-17							13,000
95	Hydro Turbine Governing & its Protection System	1 week			20-Nov-17							18,000
96	Role of Smart Grids in the Indian Power Sector : Current Developments Challenges and Way Forward	2 Days		05-Feb-18								9,000
97	Transmission Line Maintenance & Introduction to Live Line Maintenance Tech.	1 week		26-Feb-18								18,000
98	Operation & Maintenance (O & M) of Sub-Station.	1 week								05-Jun-17 20-Nov-17		18,000
99	Operation & Maintenance (O & M) of Sub-Station.	1 week									12-Feb-18	18,000
100	Live Line Punctured Insulator Detection (PID)	1 week					15-May-17 11-Dec-17					24,000
101	Automation System (PLC & SCADA) For Power Plant	3 Days									09-Jan-18	13,000
102	Power System & Load Despatch	3 Days									26-Sept-17	13,000
103	Training For Trainers	1 week		03-Jul-17								18,000
104	Management of Renewable Energy (Solar Energy in Particular) Finance and Economics of Renewable Energy	2 week							04-Sep-17			33,000
105	Power Market Specialist	1 week				05-Jun-17 04-Dec-17						18,000
106	Design and Operation and Maintenance of LED Lighting	3 Days				01-Nov-17						13,000
107	RLA & LE of Substation Equipment	1 week				13-Nov-17						18,000
108	Switchgear and Transformer Maintenance	4 Days				27-Nov-17						16,000

TRAINING CALENDAR 2017-2018							
E. SIMULATOR TRAINING PROGRAMS	Duration (weeks)	Faridabad	HPTC Nangal	PSTI Bengaluru	Nagpur	Ttg. Fees (₹)	
1 210 MW FOSSIL FUEL POWER PLANT SIMULATOR TRAINING	2 weeks	03-04-2017 17-04-2017 15-05-2017 29-05-2017 26-06-2017 10-07-2017 07-08-2017 21-08-2017 18-09-2017 02-10-2017 16-11-2017 30-11-2017 04-12-2017 08-01-2018 22-01-2018 19-02-2018 05-03-2018	01-05-2017 12-06-2017 24-07-2017 04-08-2017 30-10-2017 04-12-2017 05-02-2018 19-03-2018		03-04-2017 17-04-2017 15-05-2017 05-06-2017 03-07-2017 17-07-2017 21-08-2017 04-09-2017 23-10-2017 06-11-2017 20-11-2017 04-12-2017 18-12-2017 08-01-2018 22-01-2018 05-02-2018 19-03-2018	33,000	
2 500 MW FOSSIL FUEL POWER PLANT SIMULATOR TRAINING	2 weeks	03-04-2017 17-04-2017 15-05-2017 29-05-2017 26-06-2017 10-07-2017 07-08-2017 21-08-2017 18-09-2017 02-10-2017 16-11-2017 30-11-2017 04-12-2017 08-01-2018 22-01-2018 19-02-2018 05-03-2018	01-05-2017 12-06-2017 24-07-2017 04-08-2017 30-10-2017 04-12-2017 05-02-2018 19-03-2018			33,000	
3 COMBINED CYCLE GAS TURBINE PLANT SIMULATOR TRAINING	2 weeks	03-04-2017 17-04-2017 15-05-2017 29-05-2017 26-06-2017 10-07-2017 07-08-2017 21-08-2017 18-09-2017 02-10-2017 16-11-2017 30-11-2017 04-12-2017 08-01-2018 22-01-2018 19-02-2018 05-03-2018	01-05-2017 12-06-2017 24-07-2017 04-08-2017 30-10-2017 04-12-2017 05-02-2018 19-03-2018			33,000	
4 250 MW HYDRO SIMULATOR TRAINING	1 week	03-04-2017 17-04-2017 15-05-2017 29-05-2017 26-06-2017 10-07-2017 07-08-2017 21-08-2017 18-09-2017 02-10-2017 16-11-2017 30-11-2017 04-12-2017 08-01-2018 22-01-2018 19-02-2018 05-03-2018	01-05-2017 12-06-2017 24-07-2017 04-08-2017 30-10-2017 04-12-2017 05-02-2018 19-03-2018	03-04-2017 08-05-2017 12-06-2017 14-08-2017 11-09-2017 09-10-2017 18-12-2017 29-01-2018 05-03-2018	24-04-2017 22-05-2017 10-07-2017 28-08-2017 25-09-2017 06-11-2017 08-01-2018 12-02-2018	24,000	
5 DISPATCH TRAINING SIMULATOR	2 weeks					33,000	17-07-2017 11-12-2017 12-02-2018
6 800 MW SUPER CRITICAL THERMAL POWER PLANT TRAINING SIMULATOR	2 weeks	03-07-2017 28-08-2017 09-10-2017 23-10-2017 27-11-2017 04-12-2017 01-01-2018 19-02-2018	21-08-2017 18-09-2017 06-11-2017 18-12-2017 05-02-2018 19-03-2018			33,000	



TRAINING CALENDAR 2017-2018												
S. No	Name of Course	Duration (years/weeks /days)	Faridabad	Badarpur	Nangal	PSTI Bngluru	HLTC Bngluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
Following program can be conducted/offered for national as well as international organization on request / demand basis at different Institutes of NPTI												
A. MEDIUM TERM COURSES FOR ENGINEERS (6 WEEKS - 16 WEEKS)												
1	Distribution Engineering	6 weeks										
2	Control and Instrumentation for Supervisors/Technicians	6 weeks										
3	Training program for Supervisors/Managerial Person deployed in Power Plant	6 weeks										
4	New and Renewable sources and grid integration in India	6 weeks										
5	Executive Development Program the supervisory staff working in Finance and Accounts Department	6 weeks										
B. SHORT TERM COURSES FOR ENGINEERS (1 day - 4 WEEKS)												
6	Maintenance Planning and Cost Control	1 week										
7	Training of Trainers	1 week										
8	Operation and Maintenance of EHV Sub Station	2 weeks										
9	Microprocessors	1 week/ 2 weeks										
10	Vibration Analysis	3 Days										
11	Renovation and modernisation of Thermal Power Plant/Station	1 week										
12	Regenerative Feed Heating System	1 week										
13	Transmission Distribution Equipment Maintenance	1 week										
14	Balancing and Alignment Techniques	3 Days										
15	Electricity Act and Regulation	3 Days										
16	Basic Electronics	1 week										
17	Training for Assistant Level Persons/Personal Staff	1 week										
18	Human Resources Development Program for Finance Officer/Manager	1 week										
19	Development of Finance Managers	1 week										
20	Liveline Insulator											
21	Design Verification of Electrical Installed											
22	Training mind or Excellency											
23	Executive/Management Development Programs for Executives & Supervisors											
24	Executive Development Program for Law Stream											
25	Supervisory Development Programs											
26	HR for Non-HR Executive											

TRAINING CALENDAR 2017-2018												
S. No	Name of Course	Duration (years/weeks /days)	Fardabad	Badarpur	Nangal	PSTI Bengluru	HLTC Bengluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
27	Executive Development for Supervisory Staff Working in Finance and Accounts											
28	Environment Management											
29	Business Communications & presentations skills											
30	General Introduction to Hydro Power Plant											
31	Hydro Power Plant Schemes & System Discussions											
32	Hydro Power Plant Operation & Pump Storage Options to Governing											
33	Hydro Power Plant Protection											
34	Maintenance (On-Job) in Hydel Plant											
35	Planning and Cost Control of Hydro Electric Power Station											
36	Control & Instrumentation of Hydro Electric Power Station											
37	Site Station of Hydro Electric Plants, Geology, Hydrology etc.											
38	Tunnels & Channels, Penstocks, Surge shaft, Spillways											
39	Valves in Hydro Power Plants											
40	Construction equipment of Hydro Electric Plants											
41	Environmental Impact Assessment											
42	Material Handling and Transportation											
43	Safety in Hydro Power Plants											
44	Pumps in Hydro Power Plants											
45	Transformers & Electrical Equipments in Hydro Power Plants											
46	Constructional Details of Hydro Turbines & Generators											
47	Electrical Auxiliaries of Hydro Power Plants											
48	Erection of Hydro Turbines, Generators and Auxiliaries											
49	Types of Dams & Their Constructional Details											
50	Lead Auditors Program on ISO-14001											
51	HR issues in Power Sector											
52	Time Management											
53	Stress Management											
54	Lead Auditors Program ISO 9000											
55	Leadership Skills											
56	Project Management											



TRAINING CALENDAR 2017-2018												
S. No	Name of Course	Duration (years/weeks /days)	Faridabad	Badapur	Nangal	PSTI Bngluru	HLTC Bngluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
57	Customer Relationship Management											
58	Finance for Non-Finance Executive											
59	ABT, Power Trading											
60	Electricity Act 2003 & CERC, SERC											
61	Financial Management in Power Sector											
62	Current HR Problems in Power Sector											
63	First – Aid for Technical Persons											
64	Total Production Maintenance											
65	Retirement Management											
66	Change in Attitude											
67	Customer Orientation											
68	Contact Management											
69	Computer Appreciation Program											
70	O & M of Motors											
71	Power System Studies & Load Dispatch											
72	Valve Maintenance											
73	Maintenance of pumps											
74	IT Application in Power System											
75	Pump Storage Hydro Power Station											
76	Management Development Program											
77	Performance in Testing of Hydro Power System											
78	GIS/GPS for Power Utilities											
79	Managing Carbon Credit of TPS through CDM Route											
80	Energy Efficiency in Thermal Utilities											
81	IT Application in Power Utilities											
82	Energy Efficiency in Electrical Utilities											
83	Power Distribution Management											
84	Steam Turbine its Auxiliaries Operation											
85	Advance Mechanical Maintenance Practices											
86	O & M of Generators & Excitation System for Supervisors											

TRAINING CALENDAR 2017-2018												
S. No	Name of Course	Duration (years/weeks /days)	Fardabad	Badarpur	Nangal	PSTI Bengluru	HLTC Bengluru	Neyveli	Durgapur	Guwahati	Nagpur	Trg. Fee (₹) per participants
87	Fuel (Coal & Oil) Handling System Operation											
88	Material Management											
89	Fluidised Bed Combustion Boilers											
90	Reviewable Energy Source & Grid Integration											
91	System Operator Training											
92	Advances in Power Plant Chemistry for Chemists											
93	Boiler & Auxiliaries											
94	Electrical Motors for Power Plants											
95	Switchgear for Power Plant											
96	High Voltage Direct Current (HVDC) Transmission											
97	Hydro Power Plant Engineering											
98	Insulator Washing Techniquwa (On-Site)											
99	Distribution Franchise											
100	Grid Management											
101	Maintenance Pumps and Valves											
102	Power Exchange and Power Training											
103	Power Business Tariff and Regulations											
104	Indian Electricity Act and Rules & De-regulation											
105	O&M EHV Transmission Lines											
106	Governing System & Hydro Power Generation											
107	Project Management for Power System Engineers											
108	Power and Tele-Communication (PTCC)											
109	Advance Power Generation Protection & Control											
110	Power Market Regulations											
111	Control & Instrumentation											
112	Smart Grid											
113	Regulatory Frame Work in Power Sector											
114	Coal Mill/Milling System Maintenance (Case Study)											
115	Maintenance of Boiler Rotary Machines											
116	Industrial Safety											



TRAINING CALENDAR 2017-2018																
FARIDABAD																
S. No.	Names of Course	Batch	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
A. TRAINING COURSES																
1	MBA IN POWER MANAGEMENT	2015-17 2016-18	2 years		↕ ↕ ↕			↕ ↕ ↕								↕ ↕ ↕
2	Post Graduate Diploma Course in Power Plant Engg.	2016-17 2017-18	52 weeks	21-08-2017	↕				21-08-2017							↕ ↕ ↕
3	Post Graduate Diploma Course in Energy Market Management	2017-18	52 weeks	07-08-2017					07-08-2017							↕ ↕ ↕
4	Post Graduate Diploma Course in Power System Operation	2017-18	52 weeks	07-08-2017					07-08-2017							↕ ↕ ↕
5	Post Graduate Diploma Course in Renewable Energy and Grid Interface Technologies	2017-18	52 weeks	07-08-2017					07-08-2017							↕ ↕ ↕
6	Post Graduate Diploma Course in Smart Grid Technologies	2017-18	52 weeks	07-08-2017					07-08-2017							↕ ↕ ↕
7	Distance Education Certificate Course in Electricity Regulation & Commercial Aspects	2017-18	26 weeks	07-08-2017					07-08-2017						↕ ↕ ↕	
8	PGDC IN GIS REMOTE SENSING	2017-18	26 weeks	15-06-2017			15-06-2017	↕ ↕ ↕								
9	POST GRADUATE CERTIFICATE COURSE IN THERMAL POWER PLANT ENGINEERING	12 weeks	24-07-17 23-10-17 22-01-18						24-07 -18 — 23-10-17					23-10-17 — 22-01-18		22-01-18 —21-03-2018

Legend :

- Courses started in previous year(s).
- Courses started in current year.

TRAINING CALENDAR 2017-2018																
FARIDABAD																
S. No.	Names of Course	Batch	Duration (Years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
B. SIMULATOR TRAINING																
1	500 MW FOSSIL FUEL POWER PLANT SIMULATOR TRAINING	2 weeks	03-04-17, 17-04-17 01-05-17, 15-05-17 29-05-17, 12-06-17 26-06-17, 10-07-17 24-07-17, 07-08-17 21-08-17, 04-09-17 18-09-17, 03-10-17 16-10-17, 30-10-17 20-11-17, 20-11-17 04-12-17, 08-01-18 22-01-18, 05-02-18 19-02-18, 05-03-18 19-03-2018	03-04-17 17-04-17	01-05-17 15-05-17 29-05-17	12-06-17 26-06-17	10-07-17 24-07-17	07-08-17 21-08-17	04-09-17 18-09-17	03-10-17 16-10-17 30-10-17	20-11-17	04-12-17	08-01-18 22-01-18	05-02-18 19-02-18	05-03-18 19-03-18	
2	COMBINED CYCLE GAS TURBINE POWER PLANT SIMULATOR TRAINING	2 weeks	03-04-17, 17-04-17 01-05-17, 15-05-17 29-05-17, 26-06-17 10-07-17, 24-07-17 07-08-17, 21-08-17 04-09-17, 18-09-17 02-10-17, 16-10-17 30-10-17, 20-11-17 04-12-17, 08-01-18 22-01-18, 05-02-18 19-02-18, 05-03-18 19-03-18	03-04-17 17-04-17	01-05-17 15-05-17 29-05-17	12-06-17 26-06-17	10-07-17 24-07-17	07-08-17 21-08-17	04-09-17 18-09-17	02-10-17 16-10-17 30-10-17	20-11-17	04-12-17	08-01-18 22-01-18	05-02-18 19-02-18	05-03-18 19-03-18	
3	800 MW SUPER CRITICAL THERMAL POWER PLANT TRAINING SIMULATOR	1 weeks	03-07-17, 17-07-17 07-08-17, 21-08-17 28-08-17, 04-09-17 18-09-17, 09-10-17 23-10-17, 06-11-17 27-11-17, 04-12-17 18-12-17, 01-01-18 15-01-18, 05-02-18 19-02-18, 05-03-18 19-03-18				03-07-17 17-07-17	21-08-17 28-08-17	04-09-17 18-09-17	09-10-17 23-10-17	06-11-17 27-11-17	04-12-17 18-12-17	01-01-18 15-01-18	05-02-18 19-02-18	05-03-18 19-03-18	



TRAINING CALENDAR 2017-2018												
BADARPUR												
S. No.	Names of Course	Batch	Duration (Years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November
A. TRAINING COURSES												
1	B.Tech in Power Engineering	2013-17 2014-18 2015-19 2016-20	4 years									
2	Post Graduate Diploma Course in Power Plant Engg.	2016-17 2017-18	52 weeks	21-08-2017								
3	Post Diploma Course in Power Plant Engg.	2016-17 2017-18	52 weeks	18-09-2017								
4	Graduate Engineers Course in Thermal Power Plant Engineering	2016-17 2017-18	52 weeks	12-02-2018								
5	Post Graduate Diploma Course in Transmission & Distribution System	2016-17 2017-18	26 weeks	22-01-2018								
B. SHORT TERM COURSES (One Day to 4 weeks)												
1	Gas Turbine & CCGP		1 week	24-04-2017	24-28							
2	Bearing Maintenance and Shaft Alignment		1 week	08-05-2017	08-12							
3	Thermal Power Station Operation		1 week	01-05-2017	01-05							
4	Fans and Air Heaters Maintenance		1 week	05-06-2017			05-09					

TRAINING CALENDAR 2017-2018															
BADARPUR															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
5	Training for Trainers	1 week	03-07-2017				03-07								
6	Environment pollution & pollution control related to thermal power plant	1 week	10-07-2017				10-14								
7	Reliability Centered Maintenance of Rotary Equipment	1 week	24-07-2017					24-28							
8	Non Destructive Testing & Welding Defects	1 week	28-08-2017					28-01							
9	Power Plant Chemistry for Engineers	1 week	04-09-2017						04-08						
10	Control & Instrumentation (C & I) in Power Station (for Operation Engineers)	1 week	18-09-2017						18-22						
11	Operation & Maintenance (O & M) Transformer and Circuit Breakers	1 week	03-10-2017							03-06					
12	Boilers and Boilers Aux. Operation Circuit Breakers	1 week	13-11-2017							13-17					
13	Valve & Pump Maintenance	1 week	20-11-2017								20-24				
14	Flexible AC Transmission System (FACTS)	1 week	27-11-2017								27-01				
15	Pumps Operation Maintenance of Performance Monitoring	1 week	04-12-2017									04-08			
16	Generator & Auxiliaries including Excitation System	1 week	11-12-2017									11-15			
17	Electrical Protection System	1 week	08-01-2018										08-12		
18	Steam Turbine and its Auxiliaries Operation including Governing System	1 week	15-01-2018										15-19		
19	Role of Smart Grids with Indian power sector- Current developments and Challenges and way forward.	2 days	05-02-2018											05-06	
20	Transmission line maintenance and Introduction to live line Maintenance Techniques	1 week	26-02-2018											26-02	

Legend :

- █ Courses started in previous year(s).
- █ Courses started in current year.



TRAINING CALENDAR 2017-2018												
HPTC NANGAL												
S. No.	Names of Course	Batch	Duration (Years/Weeks/Days)	Dates	April	May	June	July	August	September	October	November
A. TRAINING COURSES												
1	Post Graduate Diploma Course in Power Plant Engg.	2016-2017 2017-2018	52 weeks	21-08-2017	←				21-08-2017			
2	Post Graduate Diploma Course in Hydro Power Plant Engg.	2016-2017 2017-2018	39 weeks	04-09-2017	←					04-09-2017		
3	Post Diploma Course in Hydro Power Plant Engg.	2016-2017 2017-2018	26 weeks	07-08-2017	←				07-08-2017			
B. MEDIUM TERM COURSES (5 Weeks to 16 Weeks)												
1	Certificate Course for Hydro Power Plant Engg. & Supp.	2017-2018	12 weeks	01-05-2017								
2	Specialised Training course for Hydro Power Plant Engg. & Supp.	2017-2018	6 weeks	05-06-2017								
C. SHORT TERM COURSES (One Day to 4 Weeks)												
1.	Valves & Pumps in Thermal Power Plants		3 Days	24-26								
2.	Safety in Hydro Power Station		3 Days	08-10								
3.	Hydro Power Plant Operation		1 week	12-16								
4.	Specialized Training Program on Hydro Power Plant Engineers		3 weeks	29-05-17 to 16-06-17								
5.	Management Development Program		1 week	10-14								
6.	Valves & Pumps in Hydro Power Plants		3 Days	14-16								
7.	Hydro Generation & its Excitation Systems		1 week	04-08								
8.	Auxiliaries in Hydro Power Plants		3 Days	18-09-2017								
9.	Hydro Turbines, Governing & its Protection System		1 week	20-11-2017								
10.	Small, Mini & Micro Hydro Power Generation		3 Days	04-12-2017								04-06

TRAINING CALENDAR 2017-2018																
HPTC NANGAL																
S. No.	Names of Course	Batch	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
D. SIMULATOR TRAINING																
1	250 MW HYDRO SIMULATOR TRAINING		1 week	03-04-17 24-04-17 08-05-17 22-05-17 12-06-17 10-07-17 14-08-17 28-08-17 11-09-17 25-09-17 09-10-17 06-11-17 18-12-17 08-01-18 29-01-18 12-02-18 05-03-18	02-04-17 24-04-17	08-05-17 22-05-17	12-06-17	10-07-17	14-08-17 28-08-17	11-09-17 25-09-17	09-10-17	06-11-17	18-12-17	08-01-18 29-01-18	12-02-18	05-03-18

Legend :

- Courses started in previous year(s).
- Courses started in current year.



TRAINING CALENDAR 2017-2018																
PSTI Bengaluru																
S. No.	Names of Course	Batch	Duration (Years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
A. TRAINING COURSES																
1	Post Graduate Diploma Course in T&D System	2016-17	26 weeks													
		2017-18		06-03-2018												
2	PGDC in Sub-Transmission & Distribution System	2016-17	52 weeks							18-09-2017						
		2017-18							01-08-2017							
3	Post Graduate Diploma Course in Energy Market Management	2017-18	52 weeks						07-08-2017							
4	Post Graduate Diploma Course in Power System Operation	2017-18	52 weeks						07-08-2017							
5	Post Graduate Diploma Course in Renewable Energy and Grid Interface Technologies	2017-18	52 weeks						07-08-2017							
6	Post Graduate Diploma Course in Smart Grid Technologies	2017-18	52 weeks						07-08-2017							
7	Post Graduate Diploma Course in Distribution & Sub Station Management	2017-18	26 weeks							18-09-2017						
B. SHORT TERM COURSES (One Day to 4 Weeks)																
1	Smart T&D System for Graduate Engineers		1 week	10-04-17	10-13											
2	Substation Planning & Engineering		1 week	22-01-18										22-26		
3	Electrical Safety & Inspection of Electrical Installations under IE, Rules		1 week	03-04-17	03-07											

TRAINING CALENDAR 2017-2018
PSTI Bengluru

S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
4	Power System Communication, SCADA & EMS	1 week	24-04-17	24-28											
5	Operation & Maintenance (O&M) of Transformers and Circuit Breakers	1 week	01-05-17		01-05										
6	Power System Operation	2 weeks	15-05-17		15-27										
7	Power Quality and Harmonics Mitigation and Reactive Power Management	1 week	22-05-17		22-26										
8	Power Cables and jointing techniques	3 days	29-05-17		29-31										
9	Power Market Specialist	1 week	05-06-17			05-10									
10	Power System Protection	2 weeks	05-06-17			05-16									
11	Advanced Power System Protection	1 week	12-06-17			12-16									
12	Power System Reliability	1 week	18-06-17			18-23									
13	Distribution Metering	4 days	27-06-17			27-30									
14	Flexible AC Transmission Systems (FACTS)	1 week	03-07-17				03-07								
15	Power System Operation	2 weeks	10-07-17				10-22								
16	Low Voltage Power Distribution System Design	4 days	01-08-17					01-04							
17	Power System Logistics	1 week	07-08-17					07-12							
18	Management of Electrical Contracts	4 Days	21-08-17					21-24							
19	High Voltage Testing of Power System Equipment	1 week	28-08-17					28-01							
20	Power System Studies	1 week	04-09-17						04-08						
21	Regulatory Frame Work in Power Sector	1 week	04-09-17						04-09						
22	Renewable Energy Sources & Grid Integration	1 week	11-09-17						11-16						
23	Energy Efficiency in Electrical Utilities	1 week	18-09-17						18-22						



TRAINING CALENDAR 2017-2018															
PSTI Bengluru															
S. No.	Names of Course	Duration (Years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
24	HVDC Transmission Systems	1 week	09-10-18							09-13					
25	Power System Protection	4 Days	23-10-17							23-26					
26	Energy Conservation and Energy Audit	1 week	30-10-17							30-03					
27	Design & Operation & Maintenance (O&M) of LED Lighting	3 Days	01-11-17								01-03				
28	Power System Operation	2 weeks	06-11-17								06-18				
29	RLA & LE of Substation Equipment	1 week	13-11-17								13-17				
30	Power System Reliability	1 week	19-11-17								19-24				
31	Power Cables and Jointing Techniques	4 Days	20-11-17								20-23				
32	Switchgear and Transformer Maintenance	4 Days	27-11-17								27-30				
33	Power Market Specialist	1 week	04-12-17									04-09			
34	Power System Communication SCADA	1 week	11-12-17									11-15			
35	Operation & Maintenance (O&M of Power & Distribution Transformers	1 week	18-12-17									18-22			
36	Operation & Maintenance (O&M) of Transmission Lines and Sub-station	1 week	01-01-18										01-05		
37	Renewable Energy Sources & Grid Integration	1 week	08-01-18										08-13		
38	Transformer Maintenance for field Engineers	4 Days	22-01-18										22-25		
39	Power Quality and Harmonics Mitigation and Reactive Power Management	1 week	29-01-18										29-02		
40	Power System Operation	2 weeks	05-02-18											05-17	
41	Substation Planning & Engineering	1 week	05-02-18											05-09	
42	Energy Conservation and Energy Audit	1 week	19-02-18											19-23	
43	Reactive Power Management	1 week	26-02-18											26-02	

TRAINING CALENDAR 2017-2018															
PSTI Bengaluru															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
44	Regulatory Framework in Power Sector	1 week	05-03-18												05-10
45	Operation & Maintenance (O&M) of Transformers and Circuit Breakers	1 week	12-03-18												12-16
46	Power System Logistics	1 week	12-03-18												12-17
47	High Voltage Testing of Power System Equipment	1 week	19-03-18												19-23
48	Electrical Safety and Inspection of Electrical Installations under IE Rules	1 week	26-03-18												26-30
C. SIMULATOR TRAINING															
1	Dispatcher Training Simulator	2 weeks	17-07-17 11-12-17 12-02-18				17-28					11-22		12-23	

Legend :

— Courses started in previous year(s).

— Courses started in current year.



TRAINING CALENDAR 2017-2018																
HLTC Bengaluru																
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March	
A. LONG TERM COURSES (17 weeks and above)																
1	Post Diploma Course in Transmission Line Maintenance	26 weeks	07-08-2017								07-08-17 to 06-02-18					
B. MEDIUM TERM COURSES (5 weeks to 16 week)																
1	Live Line Maintenance Technique (LLMT) using Hot Stick Method (HSM)	11 weeks	24-07-2017						24-07-17 to 06-10-17				18-12-17 to 02-03-18			
2	Live Line Maintenance Technique (LLMT) using bare Hand Methods (BHM)	5 weeks	09-10-2017						09-10-17 to 10-11-17							
C. SHORT TERM COURSES (One Day to 4 Weeks)																
1	Switchyard Maintenance Techniques using LLMT using Hot Stick	4 weeks	22-05-2017 05-03-2018		22-5-17 to 16-06-17										05-03-18 to 30-03-18	
2	Live Line Punctured Insulator Detector (PID)	1 week	15-05-2017 11-12-2017		15-19							11-15				
3	Awareness Programme for Executive in Hot Line activities	1 week	18-09-2017 12-02-2018						18-22					12-16		
4	Familiarization Training Program on 400kv Cold Lines	4 week	13-11-2017								13-11-2017 to 08-12-2017					
5	Live Line Insulator Washing Techniques (LLIW)	4 days														

Legend :

— Courses started in previous year(s).

— Courses started in current year.

TRAINING CALENDAR 2017-2018

NEVELI

S. No.	Names of Course	Batch	Duration (Years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
A. TRAINING COURSES																
1	Post Graduate Diploma Course Power Plant Engg.	2016-17 2017-18	52 weeks	22-08-2016					22-08-2016							
2	Post Diploma Course in Power Plant Engg.	2016-17 2017-18	52 weeks	27-11-2017								27-11-2017				
B. LONG TERM COURSES (16 week and above)																
1	Graduate Engineers Course (Thermal) [GEC]	2016-17 2017-18	52 weeks	19-02-2018											19-02-2018	
C. SHORT TERM COURSES (One Day to 4 weeks)																
1	Pumps-Operation Maintenance & Performance Monitoring		1 week	03-04-2017	03-07											
2	Switchgear Maintenance		2 days	27-04-2017	27-28											
3	Valve Actuators		3 days	03-05-2017	03-05											
4	Thermal Power Station Operation		1 week	15-05-2017	15-19											
5	Power System Studies Load Despatch		1 week	22-05-2017	22-26											
6	Fans and Air Heaters		3 days	29-05-2017	29-31											
7	Boiler Tube Failure - Case Studies		2 days	01-06-2017	01-02											
8	Steam Turbine & Auxiliaries Operation		1 week	05-06-2017	05-09											
9	Valve Maintenance		1 week	12-06-2017	12-16											
10	Electrostatic Precipitator		3 days	21-06-2017	21-23											
11	Boiler Firing System & Equipment		1 week	10-07-2017	10-14											
12	Electrical Protection System		3 days	19-07-2017	19-21											
13	Boiler Operation		1 week	24-07-2017	24-28											



TRAINING CALENDAR 2017-2018															
NEYVELI															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
14	Thermal Power Plant Efficiency & Performance Monitoring	1 week	07-08-2017					07-11							
15	Relay Maintenance	3 days	16-08-2017					16-18							
16	Power System Energy Losses	1 week	04-09-2017						04-08						
17	Boiler & its Auxiliaries	1 week	18-09-2017						18-22						
18	PLC & Micro Controllers	2 days	14-09-2017						14-15						
19	Battery Maintenance	3 days	04-10-2017							04-06					
20	Control&Instrumentation (C&I)in Power Sector	1 week	16-10-2017							16-20					
21	Power Plant Auto Control	1 week	23-10-2017							23-27					
22	Large Capacity CFBC Boiler	3 days	01-11-2017								01-03				
23	Operation&Maintenance of Coal Mills&Feeder	3 days	15-11-2017								15-17				
24	Motor Maintenance	3 days	22-11-2017								22-24				
25	Generator & Auxiliaries including Excitation System	1 week	04-12-2017									04-08			
26	Burner Management System/FSSS	3 days	13-12-2017									13-15			
27	Transformer Maintenance	3 days	20-12-2017									20-22			
28	Transformers	1 week	08-01-2018										08-12		
29	Issues Related to Supercritical Technology	2 days	22-01-2018										22-23		
30	Gas Turbine Combined Cycle Power Plant Appreciation	1 week	05-02-2018											05-09	
31	Pump Maintenance	1 week	12-02-2018											12-16	
32	Energy Audit & Demand Side Management in Power Utilities	1 week	19-02-2018											19-23	
33	Energy Conservation and Energy Audit	1 week	05-03-2018												05-09
34	Bearing Maintenance & Shaft Alignment	1 week	12-03-2018												12-16

Legend :

█ Courses started in previous year(s).

█ Courses started in current year.

TRAINING CALENDAR 2017-2018
DURGAPUR

S. No.	Names of Course	Batch	Duration (Years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
A. TRAINING COURSES																
1	B.Tech. in Power Engineering	2013-17 2014-18 2015-19 2016-20	4 Years	July 2016	↓											
2	PGDC in Power Plant Engineering	2016-17 2017-18	52 weeks	21-08-2017	↓											
3	Post Graduate Diploma Course in Energy Market Management	2017-18	52 weeks	07-08-2017					21-08-2017 07-08-2017							
4	PDC in Thermal Power Plant Engineering	2016-17 2017-18	52 weeks	01-09-2017	↓											
5	Post Graduate Diploma Course in Power System Operation	2017-18	52 weeks	07-08-2017					01-09-2017 07-08-2017							
6	Post Graduate Diploma Course in Renewable Energy and Grid Interface Technologies	2017-18	52 weeks	07-08-2017					07-08-2017							
7	Post Graduate Diploma Course in Smart Grid Technologies	2017-18	52 weeks	07-08-2017					07-08-2017							
8	Distance Education Certificate Course in Electricity Regulation & Commercial Aspects	2017-18	52 weeks	07-08-2017					07-08-2017							
9	Post Graduate Diploma Course in Distribution & Sub Station Management	2017-18	26 weeks	01-09-2017						01-09-2017						



TRAINING CALENDAR 2017-2018															
DURGAPUR															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
B. SHORT TERM COURSES (One Day to 4 weeks)															
1	Valve & Pump maintenance	1 week	24-04-2017	24-28											
2	Switchgear & Transformer Maintenance	1 week	01-05-2017		01-05										
3	Reduction in Power Distribution Losses	3 Days	15-05-2017		15-17										
4	Electrical protection system	1 week	22-05-2017		22-26										
5	Thermal Power Station Operation	1 week	05-06-2017			05-09									
6	Vibrational Analysis	3 Days	12-06-2017			12-14									
7	O&M of Transmission Lines and Sub Station	1 week	19-06-2017			19-23									
8	Transformer Maintenance for Field Engineers	1 week	01-07-2017				01-05								
9	Boiler Tube Failure and Case Study	1 week	10-07-2017				10-14								
10	Power Plant Chemistry for Operation Engineers	1 week	24-07-2017				24-28								
11	Thermal Power Plant Efficiency and Performance Monitoring	1 week	31-07-2017				31-04								
12	Generator & Auxiliaries including Excitation System and AVR	1 week	07-08-2017					07-11							
13	Trouble Shooting of Steam Turbine	3 Days	11-09-2017						11-13						

TRAINING CALENDAR 2017-2018															
DURGAPUR															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
14	Welding Practice	1 week	18-09-2017						18-22						
15	Energy Efficiency Management in Power System	3 Days	06-11-2017								06-08				
16	Boiler and its Auxiliaries Operation	1 week	20-11-2017								20-24				
17	Condition bases Maintenance	1 week	04-12-2017									04-08			
18	Power Plant Instrumentation	1 week	18-12-2017									18-22			
19	Steam Turbine its Aux. Operation	1 week	08-01-2018										08-12		
20	Trouble Shooting of Steam Turbine	3 Days	15-01-2018										15-17		
21	Renewable Energy Technologies Hydraulic	3 Days	05-02-2018											05-07	
22	Change Management	3 Days	12-02-2018											12-14	
23	Renewable Energy Technologies - Solar	3 Days	05-03-2018												05-07

Legend :

— Courses started in previous year(s).

— Courses started in current year.



TRAINING CALENDAR 2017-2018												
NPTI-NER GUWAHATI												
S. No.	Names of Course	Batch	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November
A. TRAINING COURSES												
1	Post Graduate Diploma Course in Power Plant Engg.	2016-2017 2017-2018	52 week	21-08-2017								
2	Post Diploma Course in Power Plant Engg.	2016-2017 2017-2018	52 week	17-07-2017								
3	Graduate Engg. Course in TPPE	2016-2017 2017-2018	52 week	18-09-2017								
4	PGDC in Transmission & Distribution System	2017-2018	26 week	11-10-2017								
B. SHORT TERM COURSES (1 Day to 4 Weeks)												
1.	Distribution Metering		1 week	15-05-2017								
2.	Operation & Maintenance Sub-Station		1 week	05-06-2017								
3.	Energy Conservation & Energy Audit (For Generation Sector)		1 week	17-07-2017								
4.	Electrical Safety and Installation of Electrical Equipment under RE Rules		1 week	21-8-2017								
5.	Operation & Maintenance (O&M) HT/LT Switchgear		1 week	04-09-2017								
6.	Management of Renewable Energy (Sector Energy in Particular) Finance and Economics of Renewable Energy		2 weeks	04-09-2017								
7.	Operation & Maintenance (O&M) Sub-Station		1 week	20-11-2017								
8.	Electrical Safety and Installation of Electrical Equipment under RE Rules		1 week	11-12-2017								
9.	Operation & Maintenance(O&M)Transformers		1 week	05-02-2018								
10.	Distribution Engineering		1 week	05-03-2018								

Legend :

— Courses started in previous year(s).

— Courses started in current year.

TRAINING CALENDAR 2017-2018

NAGPUR

S. No.	Names of Course	Batch	Duration (Years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
A. TRAINING COURSES																
1	B.E. in Power Engineering	2013-17 2014-18 2015-19 2016-20	4 Years	July 2016	↓											
					↓											↑
					↓											↑
					↓											↑
2	Post Graduate Diploma Course in Power Plant Engg.	2016-17 2017-18	52 weeks	21-08-2017	↓											
									21-08-2017							↑
3	Post Graduate Diploma Course in Energy Market Management	2017-18	52 weeks	07-08-2017												↑
									07-08-2017							↑
4	Post Graduate Diploma Course in Power System Operation	2017-18	52 weeks	07-08-2017												↑
									07-08-2017							↑
5	Post Graduate Diploma Course in Renewable Energy and Grid Interface Technologies	2017-18	52 weeks	07-08-2017												↑
									07-08-2017							↑
6	Post Graduate Diploma Course in Smart Grid Technologies	2017-18	52 weeks	07-08-2017												↑
									07-08-2017							↑
7	Post Diploma Course in Power Plant Engg.	2016-17 2017-18	52 weeks	18-09-2017	↓											
																↑
8	PGDC in Transmission & Distribution System	2016-17 2017-18	26 weeks	25-09-2017						18-09-2017						↑
										25-09-17						↑



TRAINING CALENDAR 2017-2018															
NAGPUR															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
B. SHORT TERM COURSES (One Day to 4 weeks)															
1	Smart T & D System for Graduate Engineers	1 week	17-04-2017	17-21											
2	Boiler & its Auxiliaries Operation	3 days	16-05-2017		16-18										
3	Control & Instrumentation for Operation Engineers	3 days	20-06-2017			20-22									
4	Generator Auxiliaries including Excitation System	3 days	11-07-2017				11-13								
5	O&M of HVAC Transmission System	1 week	11-09-20017						11-15						
6	Thermal Power Plant Operation	3 days	19-09-2017						19-21						
7	Power System Studies & Load Dispatch	3 days	26-09-2017						26-28						
8	O&M of Distribution System	1 week	06-11-2017								06-10				
9	Energy Conservation & Energy Audit for Generation Sector	3 days	07-11-2017								07-09				
10	Valve Maintenance	3 days	08-11-2017								08-10				
11	Power Plant Chemistry for Operation Engineers	3 days	14-11-2017								14-16				
12	Pumps Operation, Maintenance & Performance Monitoring	5 days	20-11-2017								20-24				
13	Fire Prevention, Protection & Safety for Thermal Power Station	3 days	06-12-2017									06-08			
14	Bearing Maintenance & Shaft Alignment	4 days	19-12-2017									19-22			
15	Data Acquisition & Distributed Digital Control System in Thermal Power Station	3 days	03-01-2018										03-05		

TRAINING CALENDAR 2017-2018															
NAGPUR															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
16	Automation System for Power Plant (PLC & SCADA)	3 days	09-01-2018										09-11		
17	Pump Maintenance	3 days	09-01-2018										09-11		
18	Electrical Protection System	3 days	16-01-2018										16-18		
19	Thermal Power Plant Efficiency & Performance Monitoring	3 days	07-02-2018											07-09	
20	Operation & Maintenance (O&M) of Sub-Station	1 week	12-02-2017											12-16	
21	Environmental Pollution & Pollution Control related with Thermal Power Plants	3 days	14-02-2018											14-16	
22	Steam Turbine & Its Auxiliaries Operation	3 days	07-03-2018												07-09

Legend :

- Courses started in previous year(s).
- Courses started in current year.



TRAINING CALENDAR 2017-2018															
NAGPUR															
S. No.	Names of Course	Duration (years/ Weeks/ Days)	Dates	April	May	June	July	August	September	October	November	December	January	February	March
C. SIMULATOR TRAINING															
1	210 MW Fossil Fuel Power Plant Simulator Training	2 week	03-04-2017 17-04-2017 01-05-2017 15-05-2017 05-06-2017 19-06-2017 03-07-2017 17-07-2017 31-07-2017 21-08-2017 04-09-2017 18-09-2017 23-10-2017 06-11-2017 20-11-2017 04-12-2017 18-12-2017 08-01-2018 22-01-2018 05-02-2018 19-02-2018 05-03-2018 19-03-2018	03-04-2017 17-04-2017 01-05-2017 15-05-2017 05-06-2017 19-06-2017 03-07-2017 17-07-2017 31-07-2017 21-08-2017 04-09-2017 18-09-2017 23-10-2017 06-11-2017 20-11-2017 04-12-2017 18-12-2017 08-01-2018 22-01-2018 05-02-2018 19-02-2018 05-03-2018 19-03-2018	03-04-2017 17-04-2017 01-05-2017 15-05-2017 05-06-2017 19-06-2017 03-07-2017 17-07-2017 31-07-2017 21-08-2017 04-09-2017 18-09-2017 23-10-2017 06-11-2017 20-11-2017 04-12-2017 18-12-2017 08-01-2018 22-01-2018 05-02-2018 19-02-2018 05-03-2018 19-03-2018	03-07-2017 17-07-2017 31-07-2017	21-08-2017	04-09-2017 18-09-2017	23-10-2017	06-11-2017 20-11-2017	04-12-2017 18-12-2017	08-01-2018 22-01-2018	05-02-2018 19-02-2018	05-02-2018 19-02-2018	05-03-2018 19-03-2018



One Day National Training Program on "Standards and Labelling" organized on 11th November, 2016 in Bengaluru



Smt. Shalini Prasad, Additional Secretary, Ministry of Power, Govt. of India, inaugurating NPTI Stall in the presence of Shri Raj Pal, Economic Advisor, Ministry of Power, Govt. of India at India International Trade Fair 2016, New Delhi



Augmentation of Training Infrastructure at Various Institutes of NPTI

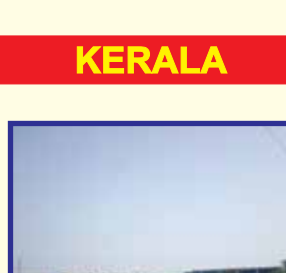
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