|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **NPTI-DURGAPUR** | | | | | | | | |
| **Summer Training**  **on**  **“Power Generation, Transmission & Distribution Technology”**  for  Engineering /Diploma Engineering Students  Duration 3 weeks / 15 Days | | | | | | | | |
| **Module-I**  **Thermal Power Generation Technology**  **Program Director : Shri Rajneesh Vachaspati, Dy. Director** | | | | | | | | |
| **DAY** | | | **TOPIC** | | | | | **FACULTY** |
| DAY-1 | | | Emerging Power Scenario in India | | | | | Sh.S.K.Srivastava  Director |
| Coal to Electricity. | | | | | Sh. R. Vachaspati  Dy. Director |
| General layout of a Thermal Power Station. | | | | | Dr.C.Bhattacharya  Dy. Director |
| DAY-2 | | | Introduction to Steam Generation & Steam Cycle Theory. | | | | | Sh. R. Vachaspati  Dy. Director |
| Coal classification and analysis. | | | | | Dr.S.Satarupa  Faculty (C) |
| Description of Boiler & Boiler Circulation Theory. | | | | | Dr.C.Bhattacharya  Dy. Director |
| DAY-3 | | | Coal Mills | | | | | Dr.C.Bhattacharya  Dy. Director |
| Generator - Working Principle & Construction details. | | | | | Smt.A. Indira  Dy. Director |
| Overview of Steam Turbine. | | | | | Sh. D. Pandit  Dy. Director |
| **Module – II**  **Boiler & Turbine Auxiliaries**  **Program Director : Sh. D. Pandit ,Dy. Director & Dr. C. Bhattacharya, Dy. Director** | | | | | | | | |
| **DAY** | | | **TOPIC** | | | **FACULTY** | | |
| DAY-4 | | | Draft System and Fans | | | Dr. C. Bhattacharya  Dy. Director | | |
| Coal Milling Plant | | | Dr. C. Bhattacharya  Dy. Director | | |
| Air Preheating Arrangement | | | Sh. R. Vachaspati  Dy. Director | | |
| DAY-5 | | | Emission Control System (Flue Gas Cleaning, dust suppression system, ESP) | | | Dr. C. Bhattacharya  Dy. Director | | |
| Regenerative Feed Water heating system, Deaeration and HP/LP FW Heaters. | | | Dr. C. Bhattacharya  Dy. Director | | |
| Condenser and CW System with concept of Turbine Vacuum system. | | | Sh. D. Pandit  Dy. Director | | |
| DAY-6 | | | Turbine Lib Oil System | | | Sh. D. Pandit  Dy. Director | | |
| CEP, BFP and booster pumps / HP-LP bypass system | | | Dr. C. Bhattacharya  Dy. Director | | |
| DM Water treatment and service water system. | | | Dr. C. Bhattacharya  Dy. Director | | |
| **Module – III**  **Electrical Equipment In Power Plant**  **Program Director : Shri Kamal Nasir, Dy. Director** | | | | | | | | |
| **DAY** | | **TOPIC** | | | **FACULTY** | | | |
| DAY-7 | | Generation Excitation system | | | Sh. Prabhas Ankuri  Asstt. Director | | | |
| Generator Cooling and Sealing system | | | Sh. Kamal Nasir  Dy. Director | | | |
| Generator synchronization & Capability Curves | | | Sh. Kamal Nasir  Dy. Director | | | |
| DAY-8 | | Transformer – Working principle, construction & classification. | | | Smt. A. Indira  Dy. Director | | | |
| Installation, Commissioning and various tests in Transformer including DGA | | | Sh. Prabhas Ankuri  Asstt. Director | | | |
| Working principle and construction of  3-phase Induction Motors | | | Sh. Prabhas Ankuri  Asstt. Director | | | |
| DAY-9 | | Protection system – Operating principle of Relay, their properties and classification. | | | Sh. Kamal Nasir  Dy. Director | | | |
| Universal Torque equation of Relay. | | | Sh. Kamal Nasir  Dy. Director | | | |
| Differential relays & Earth Fault Relay | | | Sh. Kamal Nasir  Dy. Director | | | |
| **Module – IV**  **Alternative Sources Of Power Generation**  **Program Director : Smt. A.Indira, Dy. Director** | | | | | | | | |
| **DAY** | **TOPIC** | | | | | | **FACULTY** | |
| DAY-10 | Global & Indian Scenario of the Renewable Energy and targets. | | | | | | Dr.C. Bhattacharya  Dy. Director | |
| Solar Power Generation Technology. | | | | | | Sh. R. Vachaspati  Dy. Director | |
| Component of a SPV System. Microcontrollers and Inverters | | | | | | Smt. A. Indira  Dy. Director | |
| DAY-11 | Balance of System – DC cables, Protection, earthing, LA and SPV tools and tackles. | | | | | | Sh. Suvodip Saha  Faculty (C) | |
| Types of SPV System- Off-Grid, On-Grid, Hybrid. | | | | | | Sh. Prabhas Ankuri  Asstt. Director | |
| Design of a SPV System. | | | | | | Smt. A. Indira  Dy. Director | |
| DAY-12 | Renewable Energy - Hydro Power (Small, Mini & Micro) | | | | | | Sh. R. Vachaspati  Dy. Director | |
| Renewable Energy - Wind Power | | | | | | Smt. A. Indira  Dy. Director | |
| Other alternative sources of power generation – Biomass, Geothermal, MHD, OTEC etc. | | | | | | Dr.S. Satpathy  Faculty (C) | |
| **Module – V**  **Transmission and Distribution System**  **Program Director: Shri Prabhas Ankuri, Asstt. Director** | | | | | | | | |
| **DAY** | | **TOPIC** | | **FACULTY** | | | | |
| DAY-13 | | EHV & UHV Transmission System | | Sh. S. K. Srivastava  Director | | | | |
| Layout of switchyard and its equipment – CT, PT, DT etc. | | Sh. Prabhas Ankuri  Asstt. Director | | | | |
| Circuit Breakers- Working principle, construction, types and parameters. | | Sh. Prabhas Ankuri  Asstt. Director | | | | |
| DAY-14 | | Transmission line and its components. | | Sh. Kamal Nasir  Dy. Director | | | | |
| AT&C Losses and Reduction Methodology. | | Sh. S. K. Srivastava  Director | | | | |
| Load Scheduling and Grid Management | | Sh. Kamal Nasir  Dy. Director | | | | |
| DAY-15 | | Assessment and Evaluation | | Sh. Prabhas Ankuri  Asstt. Director | | | | |