



Advanced Level Training Programs On Coal Fired Power Plants



Excellence Enhancement Centre (EEC)

The Indo-German Energy Forum was established by Republic of India and Federal Republic of Germany in 2006 to promote energy efficiency and energy security etc. Under the forum both the Governments decided to set up Excellence Enhancement Centre (EEC), a society for Indian Power Sector. With the initiative of Ministry of Power and Central Electricity Authority (CEA) and Gesellschaft fuer Internationale Zusammenarbeit (GIZ), EEC has been set up to facilitate performance improvements especially with respect to efficiency and reliability in Indian power sector by promoting the deployment of most advanced solutions regarding technology, processes and personnel skills. As a “best practice platform” the EEC functions as a pacemaker and know-how hub in the power generation (thermal & hydro), transmission and distribution sectors. It looks into the complex operational problems arising from the power sector and acts as a focal point where latest state of the art technologies, problems and remedial actions can be shared effectively among power utilities and professionals.

Our Partners



The Excellence Enhancement Centre announces launching of the following training programmes on different aspects of Operation and Maintenance of coal fired power plants:

1. Advances in Power Plant Chemistry

- Introduction to advances in Power Plant Chemistry
- Maintaining water & steam quality
- Modern water treatment practices
- Management of cooling water system
- Pre & post operation chemical cleaning management
- Effluent treatment practices
- Water Chemistry for supercritical plants

At the end of the program participants will be able to:

- Introduce latest steam water cycle management system
- State features of advanced cooling water system management and ways and means to introduce the same.

2. Boiler Operation and Maintenance:

- Thermodynamic principles and laws.
- Boiler construction, pressure parts, boiler drum internals.
- ID, FD and PA fans, their characteristics,
- Fuels, combustion and combustion equipment, oxygen controls and Stoichiometry.
- Pre-checks for boiler start ups, boiler filling,
- boiler purge and start up, pressure raising.
- Coal mills, warming and start up of coal mills, removal of oil support and mill controls.
- Boiler shutdown and emergencies, boiler protections, boiler losses and efficiency.
- Causes of tube failures, leak detection, tube replacement and hydraulic test of boiler

At the end of the program participants will be able to:

- Describe constructional details of boiler
- Illustrate characteristic of ID, FD and PA fans and their functioning in boiler operation.
- Describe all steps in boiler operation
- Operate boiler including boiler shutdown and handling of emergencies
- Explain causes of tube failures and its prevention

3. ESP O & M and Performance Enhancement

- Electrostatic precipitator theory and practice including bag filter
- Resistivity effect
- Power supply and Automatic Voltage Control description and operation
- Rapper control description and operation
- On-line assessment techniques
- Electrical diagnostics
- Troubleshooting
- Factors affecting precipitator performance
- Alternative cleaning techniques
- Acid gas and mercury mitigation
- Proper inspection of electrostatic precipitators

At the end of the program participants will be able to:

- Describe principles of functioning of ESP
- Apply appropriate maintenance techniques
- Handle emergencies in relation to ESP's functioning

4. Combustion Mechanism & Optimization:

- Combustion process
- Coal properties affecting boiler performance: Effect of moisture, volatile matter, ash, fixed carbon, calorific value, grindability of coal on boiler performance
- Combustion optimization tools and techniques
- O & M practices relating to combustion optimization

At the end of the program participants will be able to:

- Describe combustion process in boiler
- List various coal/ash properties and their effects on boiler performance
- Explain combustion optimization tools and techniques
- List activities required for combustion optimization

5. Advance Level Heat Rate Awareness:

- Impact of design on Performance.
- Operational efficiency vs design.
- Performance degradation
- Restoration of performance based on conditioning monitoring
- Performance testing – Guarantee vs Routine.
- Factors affecting Heat Rate
- Deviations and its impacts on performance,
- Improvement in the process monitoring, calibration.
- Auxiliary power, factors affecting auxiliary power.
- Sustaining performance.
- Usage of offline instruments for performance testing
- Usage of DCS based performance trending for operation and maintenance Engineers
- Boiler performance testing techniques
- Turbine performance testing and performance analysis
- Introduction to PADO for Performance Tracking, Diagnostic Analysis

At the end of the program participants will be able to:

- Differentiate controllable and uncontrollable losses.
- List key performance parameters in Heat Rate management
- State factors responsible for Heat Rate degradation
- Undertake performance review and analysis to capture performance degradation impacting Heat Rate
- Explain the Performance Testing techniques of boiler, turbine etc.
- State the various off line and on line performance tracking and diagnostic tools and associated techniques
- Specify interventions needed for Heat Rate management on the basis of gap between design and operation parameters

6. Performance Optimization Of Steam Turbine And Its Auxiliary Systems:

- Thermodynamic aspects of steam turbine design
- Performance analysis of steam turbine cycle
- Performance assessment of FW heaters, condenser
- Impact of operation parameters towards performance deviation
- Accurate assessment and minimization of losses

At the end of the program participants will be able to:

- Define relationships among turbine cycle key parameters
- Explain important performance aspects
- Adopt appropriate performance analysis methodologies
- Analyze performances for further optimization
- Adopt proper O&M practices for steam turbine cycle systems

Faculty:

The faculty and the training inputs will be supported and coordinated by M/s **STEAG ENERGY SERVICES, INDIA**

With over 11000 MW of installed capacity, Steag Energy Services are Germany's fifth-largest power producer. Steag provides a wide range of services internationally. The services include all activities relating to Energy Technologies, Engineering & Consulting, Plant Services, Training & Advisory for hard coal fired, gas fired and solar thermal plants.

Steag Energy Services (India) Pvt. Ltd. is a wholly owned subsidiary of Steag Energy Services GmbH, Germany.

Venue:

903, Bhikaji Cama Bhawan, Bhikaji Cama Place, New Delhi – 110066

Who should attend?

Programs are designed for middle level personnel engaged in power plant operation and maintenance. Project Engineers involved in the commissioning of the thermal power plants will also benefit.

Training Fee:

Rs. 5000/- per participants for Two days programmes and Rs. 7500/- per participants for Three days programmes

(Training Fee to be paid through Cheque or Demand Draft in the name of "Excellence Enhancement Centre for Indian Power Sector" payable at New Delhi.)

There will be 20% discount to member organisations of EEC.

Registration:

Details of participants may be sent at least two weeks in advance of commencement of the individual programme, in the attached registration form.

Delegate fees as well as registration form may be sent to:**Excellence Enhancement Centre**

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