



NON-RESIDENTIAL

PROFESSIONAL TRAINING PROGRAMME

Training Module on

Power Plant Chemistry

Water Treatment

Boiler Chemistry

Cooling Water

Condenser Cleaning

Coal & Biomass

Designed for **Chemists and Shift Chemists of Thermal Power Plants** — with a dedicated module on **Coal Chemistry**.

3 days

INTENSIVE PROGRAMME

11

TECHNICAL SESSIONS

1

PLANT / R&D VISIT

5

CHEMISTRY INTERFACES

BACKGROUND & CONTEXT

Chemistry that keeps a thermal plant running

A three-day professional programme on power plant chemistry, focused on the chemistry interfaces that shape thermal power plant operation — from raw-water pre-treatment and demineralisation, feed and boiler water chemistry and boiler excursions, to cooling-water treatment, condenser cleaning, chemical safety, chemistry equipment, and coal / biomass characteristics and blending.



PURPOSE OF THE TRAINING

To develop a practical, professional understanding of chemistry in thermal power plants — enabling participants to interpret chemistry information, recognise abnormal trends, connect chemistry with equipment and plant performance, and support safe, efficient plant operation.

LEARNING OBJECTIVES

By the end of the programme, participants will be able to

- 01 Explain the role of chemistry across the principal water, steam, cooling-water and coal-related interfaces of a thermal power plant.
- 02 Describe the purpose and operating sequence of raw-water pre-treatment and an ion-exchange-resin (IER) based demineralisation plant.
- 03 Interpret routine water and steam chemistry observations and identify abnormal trends or excursions requiring attention.
- 04 Explain the significance of cooling-water chemistry, specialised chemical treatment and condenser cleanliness for water conservation and plant performance.
- 05 Identify key chemical-environment safety practices and the equipment / management considerations relevant to chemistry activities.
- 06 Interpret important coal-quality characteristics and discuss their relationship with boiler performance.
- 07 Explain the purpose and considerations of blending coal with biomass.
- 08 Apply the learning through case discussions, a plant visit / assessment activity and a final knowledge check.



Who Should Attend

Target participants

- Chemists of Thermal Power Plants
- Shift Chemists of Thermal Power Plants
- Junior / trainee chemists building plant-chemistry capability



Prerequisite Knowledge

Desirable, not mandatory

- Basic chemistry and familiarity with thermal power plant terminology
- Working knowledge of your plant's chemistry laboratory practices, sampling / monitoring and SOPs

TRAINING APPROACH



Classroom Sessions



Interactive
Discussions



Plant / Visit
Facility



Case Studies



Quiz & Assessment

TRAINING ARCHITECTURE

Three days, eleven focused sessions

DAY 01 Water Treatment & Boiler Chemistry	09:30–09:45	Introduction by Sr. Officer CEA, EEC
	S1 09:45–11:00	Introduction to Power Plant Chemistry & Pre-treatment of Raw Water for Demineralisation Role of chemistry; raw-water pre-treatment; interface with demineralisation. PRESENTATION · DISCUSSION
	S2 11:30–13:00	IER-based DM Plant Process & Troubleshooting Ion-exchange DM process, operating sequence and troubleshooting situations. INTERACTIVE LECTURE · CASE DISCUSSION
	S3 14:00–15:45	Managing Feed & Boiler Water Chemistry Feed / boiler water chemistry; monitoring; recognising abnormal trends. LECTURE · WORKED EXAMPLES
	S4 16:00–17:30	Boiler Chemistry Guidelines & Dealing with Excursions Guidelines; chemistry excursions; response and escalation principles. SCENARIO EXERCISE · DISCUSSION
DAY 02 Cooling Water, Condenser & Safety	S1 09:30–11:00	Cooling-Water Treatment — Specialised Chemicals & Water Conservation Treatment chemicals; monitoring; water-conservation considerations. LECTURE · CASE STUDY
	S2 11:30–13:00	Condenser Cleaning — When and How When cleaning is indicated and how it is undertaken. TECHNICAL SESSION · CASE DISCUSSION
	S3 14:00–15:45	Managing Safety in a Chemical Environment Chemical-environment safety; SOPs; safe handling and response. SCENARIO-BASED LEARNING
	S4 16:00–17:30	Equipment Required & Management Equipment requirements; use, management and good practices. DEMONSTRATION · DISCUSSION
DAY 03 Coal, Biomass & Field Learning	S1 09:30–11:00	Coal Characteristics & Role in Plant Performance Coal-quality parameters and their implications for boiler performance. LECTURE · WORKED EXAMPLE
	S2 11:30–13:00	Blending of Coal with Biomass Purpose and considerations of coal / biomass blending. CASE STUDY · DISCUSSION
	S3 14:00–17:30	Plant / Facility Visit · NTPC-NETRA (R&D) · Assessment Apply classroom learning to plant and R&D observations, then demonstrate learning. SITE VISIT · OBSERVATION CHECKLIST · ASSESSMENT

● Tea break 11:00–11:30

● Lunch 13:00–14:00

● Tea break 15:45–16:00

KEY TAKEAWAYS

What participants carry back to the plant



Chemistry is an operational support function, directly linked to water treatment, steam / feed-water, cooling systems, coal quality, equipment reliability and safe operation.



Routine monitoring is useful only when data are read as trends, in the context of plant operating conditions.



Chemistry excursions must be recognised, investigated and managed through approved procedures and escalation.



Cooling-water treatment and condenser condition are closely tied to cooling-system effectiveness and water conservation.



Coal-quality data should be interpreted against boiler performance — not viewed only as a laboratory result.



Safe laboratory and chemical-environment practices are integral to professional chemistry work.



Training Materials Provided

Soft copy of presentations, case studies and a compilation of best practices.

PARTICIPATION FEE

MEMBER ORGANISATIONS

₹20,000

per participant, plus GST as applicable

NON-MEMBER ORGANISATIONS

₹30,000

per participant, plus GST as applicable

NON-MEMBER · **SAVE ₹5,000**
GROUP

₹25,000

each, when more than one participant is nominated from an organisation, plus GST

Bank Details for Fee Payment

All payments to EEC are to be made by bank transfer (RTGS / NEFT).

Beneficiary	Excellence Enhancement Centre for Indian Power Sector
Beneficiary address	West Block-2, Wing No-5, First Floor, R.K. Puram, Sector-1, New Delhi-110066
Account number	0157101027808
Bank & branch	Canara Bank, Diplomatic Enclave, 5 Nyaya Marg, Youth Hostel Building, Chanakyapuri, New Delhi-110021
Branch code · MICR	000157 · 110015007
IFSC (RTGS / NEFT)	CNRB0000157
PAN · GSTIN	AAAAE4790J · 07AAAAE4790J1ZK

REGISTRATION & ENQUIRIES

Shri Rahul Wadhwa

Manager (F&A), EEC



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eecrahul.wadhwa@gmail.com

Nominate your chemists today

REGISTRATION

Nominate your chemists

Complete this form on screen or in print, then email it with payment proof to **eecrahul.wadhwa@gmail.com**. For assistance, contact Shri Rahul Wadhwa, Manager (F&A), EEC · +91 98998 58688.

A · Organisation Details

Name of Organisation

Address

City / State

PIN Code

GSTIN

Organisation Category

☐ Member Organisation ☐ Non-Member

B · Participant Details attach an additional sheet for more participants

Participant 1

Full Name

Designation

Mobile No.

Email

Participant 2

Full Name

Designation

Mobile No.

Email

C · Fee & Payment Details

Fee per participant: **Member ₹20,000 + 18% GST = ₹23,600** | **Non-Member ₹30,000 + 18% GST = ₹35,400**. Non-Member, two or more participants from one organisation: **₹25,000 + 18% GST = ₹29,500 each**.

Mode of payment (bank transfer only) ☐ NEFT ☐ RTGS

UTR / Transaction Ref. No.

Date of Transfer

Amount Paid (₹)

D · Declaration & Authorisation

I confirm that the details above are correct and nominate the participant(s) named for this training programme.

Authorised Signatory (Name & Designation)

Date

Signature & Official Seal