



## 2 Day`s Training program on

### TURBINES (STEAM/THERMAL)

#### Operation, Maintenance and Condition monitoring

(12-13 July 2018 at Nagpur and 14-15 Sept 2018 at Nagpur)

**Course Description:** Power generation using steam and gas turbines is very common world over. Understanding of turbine fundamentals, its operation and maintenance techniques is an important task for power plant personnel.

This is a basic level course intended for operations and maintenance staff. It covers turbine basics, its installation & commissioning, operations and maintenance. The course presents up to date technology for turbines, and helps building operational efficiency based on load control, safety and control, proper maintenance programmes and operations.

#### Course Objectives:

Upon completion of this course the participant will be able to

- Learn fundamentals of turbines
- Know turbine auxiliaries
- Understand turbine installation procedure
- Learn turbine commissioning, startup and shutdown
- Gain turbine operation knowledge
- Operate turbine efficiently
- Develop skills in turbine maintenance
- Develop skills in turbine maintenance

#### Course outline:

##### Module 1: Turbine Basics

- ❖ Introduction to Power Plants
- ❖ Simple Cycle and Combined Cycle Power Plants
- ❖ Gas and Steam Turbines Overview
- ❖ Components of Turbine
- ❖ Turbine Auxiliaries
- ❖ Turbine Systems
- ❖ Governors and Controls Introduction



## Module 2: Turbine Installation

- ❖ Overall Planning
- ❖ Installation Methodology
- ❖ Check Lists & Sequence
- ❖

## ❖ Module 3: Turbine Pre Commissioning & Commissioning

- ❖ Lube Oil Flushing
- ❖ Steam Blowing
- ❖ Electrical Tests, Cold and Hot Loop Check
- ❖ Functional Tests
- ❖ Charging of Systems (Mechanical & Electrical)
- ❖ Readiness of Controls, Grid / Power Output
- ❖ Barring Gear

## ❖ Module 4: Turbine Operations

- ❖ Operational Principles
- ❖ Systems Data Collection and Data Transfer
- ❖ Attending to Alarms and Alarms Management
- ❖ Reporting of Events
- ❖ Startup and Shutdown Procedures
- ❖ Turbine Safety

## Module 5: Turbine Maintenance

- ❖ Maintenance Considerations
- ❖ Maintenance Programmes (Preventive/ Routine/ Breakdown)
- ❖ Maintenance Best/ Recommended Practices
- ❖ Materials/ Spare Parts Planning & Tracking
- ❖ Data Collection, Reports, Analysis

## Module 6: Turbine Documentation

- ❖ Top Level Documents (P & I D, GA Drawing, Specifications, O & M Manuals)



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(Technical- Electrical/Mechanical/Automation/Chemical, Behavioral & Soft Skill, Safety, Business Excellence, Safety & Energy Audit)

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- ❖ Material Inventory Records
- ❖ Daily Log Reports
- ❖ Major Events Reports
- ❖ Generation Reports
- ❖ Review and Feed back
- ❖ Final Quiz, Assessment, Feedback,

Prerequisite: Basic knowledge of Mechanical Engineering and experience in maintenance will be helpful.

## Delivery Methodology:

- Introduction and Objective Setting
- Pre and Post Test,
- Knowledge Presentations,
- Assignments & Exercise,
- Case Study & Learning through Animations.
- Feedback and Assessment
- Discussion and Interaction.
- Delivery 9:30 AM to 17:00 PM including lunch/Tea breaks.

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Expert Profile Mr A S Dhawad: Mechanical Engineering- Turbine

Professional Experience: 38+ Years

Work experience: O&M, Consultant, Design & reverse Engineering. Power Plant.

Specialization :

- ❖ Specialization in maintenance field particularly turbine boiler, ash handling plant and its auxiliary system.
- ❖ Developed various indigenous spare parts required for turbine as an import substitute items by reverse engineering.
- ❖ Carried out number of annual and capital overhauls and its associate systems departmentally.

Branch Office: A-306 Creative Home Apartment, Anupam Society, Katol Road, Friends Colony Nagpur-440013, MS, India.

Web: [www.cisat.co.in](http://www.cisat.co.in); Email: [cisat.nagpur@gmail.com](mailto:cisat.nagpur@gmail.com); Contact: +91- 7709012815 (Branches: Thane/Pune/Nagpur/Bhilai)

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- ❖ Special purpose machines for T-slot insitu machining for HP and IP casing, deepening of steam heating grooves were carried out under my guidance and supervision that saved Rs. 174 lacs in the year 1991-92.
- ❖ Balancing, reblading and machining of HP & IP rotors.
- ❖ Repair of Shrouds plates.
- ❖ Retrofitting of new version LP rotor under R&M scheme.

Technical Responsibilities :

- ❖ Planning, scheduling, project management, supervising and executing the jobs for task completion.
- ❖ Maintenance, operation, boiler and TG set overhauling (annual and capital overhaul), repair, testing, commissioning of unit in the field of turbine, generator, boiler, valves, governing system, cooling towers, ash handling plant, coal procurement department, water treatment plant, sewage treatment plant, hydrogen generating plant.

## Registration Details:

**Dates of the program:** (12-13 July and 14-15 Sept 2018 at Nagpur)

**Participation fees:** INR 20000 per delegate (Excluding GST@18%; Training program includes training material hard copies, Tea, Lunch & snack)

**Payment:** ECS/NEFT/DD in favor of “Centre for Industrial Solutions and Advanced Training” Payable at Nagpur, Maharashtra, India. Account No: 0509102000003353  
Bank: IDBI, Wardha- 442001, MS, India; IFSC Code: IBKL0000509; Swift Code IBKLINBB007; MICR Code 442259001. (GST Code:27ABBPW5589J1ZV; SAC Code 99-9293; State Code 27; PAN No: ABBPW5589J)

**Venue:** KEC International Training Centre, Butibori (MIDC), Nagpur (20 KM from Nagpur Airport towards Hyderabad or Wardha)

We prefer on line Registration through our web [www.cisat.co.in](http://www.cisat.co.in). If not please do contact to,  
1. Vikas +91-8669546332; 7709012815; vikas@cisat.co.in; cisat.nagpur@gmail.com;

**Contact for any In-house Training Program at your plant or location.**

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