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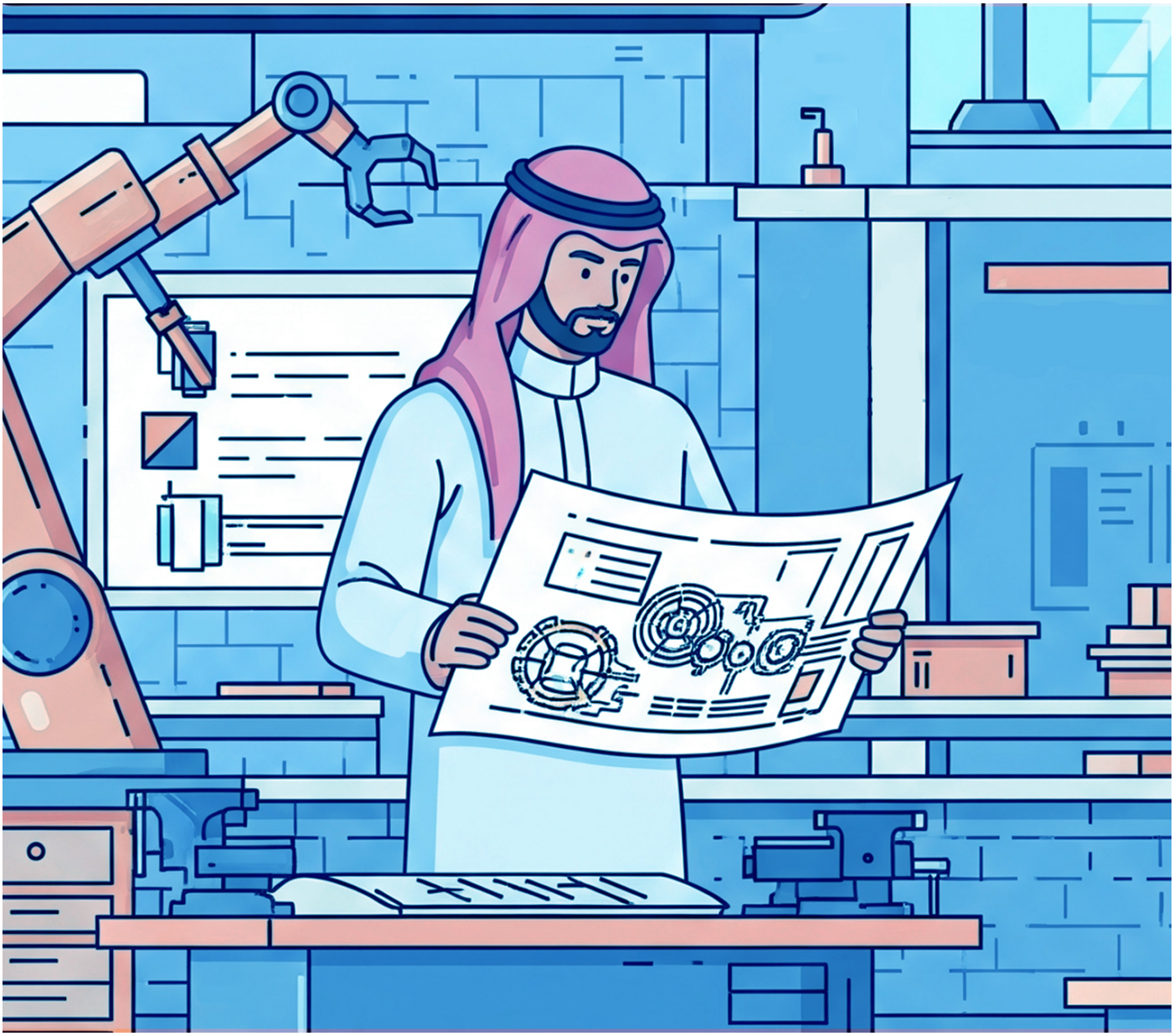
THE LEADING TRAINING PROVIDER



Mechanical Engineering

Steam Power Plant Layout System & Equipment Operation

Course Introduction

This course is devoted to present the different systems in a steam power plant and its components. Main steam and auxiliary systems necessary for operation is discussed in detail. The details and sequence of start-up and operating these systems and its components is also discussed. The proper understanding of functions and operation of different systems will be beneficial to the overall performance of the plant and will thus reduce emergency trip and hazardous situations.

Target Audience

- Automotive Engineer
- Boiler Engineer
- Ceramics Engineer
- Equipment Engineer
- High-Pressure Engineer
- Marine Engineer
- Mechanical Design Engineer
- Mechanical Engineer
- Naval Architect
- Pipeline Engineer
- Power Engineer
- Rotating Equipment Engineer
- Senior Mechanical Engineer
- Turbine Engineer
- Validation Engineer

Learning Objectives

- Major and Auxiliary components in a steam power plant.
- Function and operation of different equipment's in the plant.
- Layout and circuits of different systems in the plant.
- Safety and trip functions in the plant.
- Start up of auxiliary systems.
- Start up of main steam systems.
- Start up of main and auxiliary components.

Course Outline

- **01 DAY ONE**

  Module (01) Introduction and Common Auxiliary Systems

  - 1.0 Raw Water Supply Desalination & Demineralized Water System
  - 1.2 Instrument & Service Air System
  - 1.3 Closed Cooling Water System
  - 1.4 Auxiliary Steam System
- **02 DAY TWO**

  Module (02) Fuel and Air Systems

  - 2.1 Fuel Gas System
  - 2.1.1 Igniter Header and Level Safety Shutoff Valves
  - 2.1.2 Main Fuel Gas Safety Shutoff Valve
  - 2.2 Light Oil System
  - 2.2.1 Function and Description
  - 2.2.2 Start up
  - 2.3 Heavy Oil System
  - 2.3.1 Fuel Oil Combustion System: Heavy Oil Day Tank
  - 2.3.2 Heavy Oil Day Tank Suction Heater
  - 2.3.3 Fuel Oil Burner Heaters
  - 2.3.4 Fuel Oil Burner Supply Pumps

- 2.3.5 Fuel Oil Burner Pumps Suction Strainers
- 2.3.6 Fuel Oil Safety Shutoff Valves
- 2.3.7 Fuel Oil Control Valves
- 2.3.8 BMS Control and Operations
- 2.3.9 Safety Shutdown
- 2.4 Air and Gas Circuit
- 2.4.1 Fuel and Air Control system
- 2.4.2 BMS Operational Overview
- 2.4.3 Light Up (Cold Condition)
- 2.4.4 Check list
- 2.4.5 Furnace Boiler Purge
- 2.4.6 Fuel Leak Control Test
- 2.4.7 First Burner Light Up

Module (03) Boiler Start Up Systems and Procedure

- 3.1 Boiler Descriptions
- 3.2 Boiler Filling
- 3.3 Boiler Feed water System
- 3.4 Drum, SH and RH Protections
- 3.5 Pressure Raise
- 3.6 Boiler Load Increase
- 3.7 Chemical Parameters
- 3.8 Boiler Start Up Curves
- 3.8.1 Cold Start Up Curve
- 3.8.2 Warm Start Up Curve
- 3.8.3 Hot Start Up Curve

• **03 DAY THREE**

Module (04) Turbine Start Up Systems and Procedure

- 4.1 Steam Turbine Description
- 4.2 Turbine Auxiliary Circuits
- 4.3 Turbine Oil System
- 4.3.1 Lubrication oil system
- 4.3.2 Electro hydraulic control oil system
- 4.4 Turbine control system
- 4.4.1 “On-Off Control” Actuators
- 4.4.2 “Proportional Control” Actuators
- 4.4.3 Actuator Servo Valve
- 4.4.4 Auto stop oil / Emergency trip oil
- 4.5 Gland Sealing Steam System

- 4.6 Turbine Bypass System
- 4.7 Steam Turbine Start-Up Procedure
- 4.7.1 Preparation For Rolling
- 4.7.2 Start High Pressure Fluid System
- 4.7.3 Steam Rolling and Loading
- 4.8 Turbine Start Up Curves
- 4.8.1 Cold start up curve
- 4.8.2 Hot start up curve
- 4.8.3 Turbine Start Up Schedule

• **04 DAY FOUR**

Module (05) Condensate System

- 5.1 Steam Surface Condenser
- 5.2 Condenser Hotwell Level gauge
- 5.3 Vacuum Breakers
- 5.4 Condensate Pumps
- 5.6 Condensate Pump Check Valve
- 5.7 Condensate Storage Tank
- 5.8 Condensate Transfer Pump
- 5.9 Condensate Supply Pumps
- 5.10 Condenser vacuum systems
- 5.11 The Liquid Ring Pump
- 5.12 Ejector System
- 5.13 Gland Steam Condenser
- 5.14 Low Pressure Feedwater Heaters
- 5.15 Deareator

• **05 DAY FIVE**

Module (06) Generator Start Up Systems and Procedure

- 6.1 Description 6.2 Auxiliary Circuits
- 6.2.1 Service Gas System
- 6.3 Generator Gland Seals (Hydrogen Seals)
- 6.3.1 Air Side Seal Oil System
- 6.3.2 Hydrogen Side Seal Oil System
- 6.3.3 Seal Oil Backup
- 6.3.4 Seal Oil Coolers
- 6.3.5 Differential Pressure Regulator for AC Air-side Seal oil pump
- 6.4 Closed Circuit Cooling Water System
- 6.4.1 Stator-Coil Cooling Water System
- 6.5 Generator Start Up Sequence

- 6.5.1 DRYING 6.5.2 Leakage Test
- 6.5.3 Inspection of Phase
- 6.5.4 Initial start
- 6.5.5 Start Up
- 6.5.6 Synchronization To The Line

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 23, 2025	June 27, 2025	5 days	4950.00 $	Azerbaijan - Baku
Sept. 15, 2025	Sept. 19, 2025	5 days	4250.00 $	UAE - Dubai
Dec. 22, 2025	Dec. 26, 2025	5 days	4250.00 $	UAE - Dubai