



Electrical Engineering

Certified Power Plant Operator

Course Introduction

This training course offers an insight into the basic principles, as well as selected in-depth knowledge, regarding the operation, control, construction, fabrication, and composition of the most popular types of fossil-fuelled power plants like thermal, gas, and diesel power stations.

The program also provides an insight into the concepts and theories of electrical and mechanical engineering, electrical machines and electrical drives, thermodynamics, etc. to further the participants' knowledge in the domain.

Target Audience

- Electrical Engineers and Technicians in the Industrial Sector
- Maintenance Managers and Supervisors
- Electrical Controls Engineer
- Electrical Design Engineer
- Electrical Engineer

Learning Objectives

- Learn basic engineering principles associated with power plants
- Grasp the operation of power plants
- Analyse power-related processes and control diagrams
- Learn about the different features of the power plant, selection criteria and optimisation techniques
- Get acquainted with the maintenance protocols, troubleshooting procedures, and control operations of power plants
- Comprehend the power plant parameters, disturbances, and control techniques

Course Outline

• DAY 01

MODULE 1: FUNDAMENTALS OF MECHANICAL & ELECTRICAL ENGINEERING

- Sensors, actuators
- Pumps, compressors, turbines, fan, blowers
- Pneumatics and hydraulics
- Control valves and cylinders, electrical actuation
- Theory of heat transfer
- Electric generators, motors, and drives

MODULE 2: GAS POWER STATION

- Overview of gas power stations
- Fundamentals and thermodynamics
- Gas turbine components
- Construction, lubrication system, fuel system, and auxiliary systems
- Protection, control, and instrumentation
- Installation, operation, and maintenance

• Day 02

MODULE 3: THERMAL POWER STATION

- Overview of thermal power stations
- Fuel combustion and steam generation process
- Boiler auxiliary plant, operation, and controls
- Boilers and power generation
- Waste heat recovery
- Boiler emission control, maintenance, and troubleshooting

MODULE 4: DIESEL GENERATOR POWER STATION

- Power plant types and components, engine types
- Engine technology and classifications
- DG types, protection, insulation, earthing and construction
- DG set assemblies & components
- DG plant layout
- DG operation and maintenance

• Day 03

MODULE 5: PROCESS INSTRUMENTATION & CONTROL

- Process control fundamentals
- Measurement and control of pressure, level, flow, and heat
- Electronic controllers
- Process flow diagram (PFD), P&ID, transfer function
- Open & closed-loop controllers
- Operational amplifiers, analogue & digital controllers

• Day 04

MODULE 6: MANAGEMENT AND ORGANISATION OF PLANT OPERATIONS

- Functions and tasks of plant operations
- Operating policy
- Human resources and qualification of personnel
- Performance objectives and standards
- Interfaces with other plant groups

MODULE 7: SHIFT COMPLEMENT AND FUNCTION

- Shift supervisor
- Operators
- Shift safety engineer or technical adviser
- Shift technical support personnel

• Day 05

MODULE 8: SHIFT ROUTINES AND OPERATING PRACTICES

- Shift arrangements
- Shift operations
- Shift turnover
- Availability and use of operating procedures
- Pre-job briefings
- Conduct in the control room
- Shift rounds
- Communications
- Shift records and log keeping

Confirmed Sessions

FROM	TO	DURATION	FEES	LOCATION
June 16, 2025	June 20, 2025	5 days	4250.00 \$	UAE - Abu Dhabi
Sept. 22, 2025	Sept. 26, 2025	5 days	4250.00 \$	UAE - Dubai
Dec. 15, 2025	Dec. 19, 2025	5 days	4950.00 \$	Singapore - Singapore