

TRAINING TITLE

POWER GENERATION SYSTEM

Training Duration

5 days

Training Venue and Dates

EE376	Power Generation System	5	26-30 May 2025	\$5,500	DUBAI, UAE
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In any of the 4 or 5-star hotels. The exact venue will be informed later.

Training Fees

- \$5,500 per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Lunch

Training Certificate

Define Management Consultancy & Training Certificate of course completion will be issued to all attendees.

TRAINING DESCRIPTION

The Power Generation System course is designed to provide participants with a comprehensive understanding of the principles, technologies, and processes involved in generating electrical power. It covers various types of power generation systems, including thermal, hydroelectric, nuclear, and renewable energy sources. The course focuses on the operation, maintenance, and optimization of power plants, while also addressing the environmental and regulatory considerations associated with energy production.

TRAINING OBJECTIVES

By the end of this course, participants will be able to:

- Understand the key principles and types of power generation systems.
- Learn the operation and maintenance of various power generation technologies.
- Gain insight into the processes of electricity generation, transmission, and distribution.
- Be familiar with the environmental and safety standards in the power generation industry.
- Develop the ability to analyze, troubleshoot, and optimize power generation systems.

WHO SHOULD ATTEND?

- Engineers and technicians working in power plants

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- Electrical engineers and energy professionals
- Plant operators and maintenance staff
- Professionals involved in the design, operation, or management of power generation systems
- Students and anyone interested in learning about power generation technologies

TRAINING METHODOLOGY

A highly interactive combination of lectures and discussion sessions will be managed to maximize the amount and quality of information and knowledge transfer. The sessions will start by raising the most relevant questions and motivating everybody to find the right answers. You will also be encouraged to raise your own questions and to share in the development of the right answers using your own analysis and experiences. Tests of multiple-choice type will be made available on daily basis to examine the effectiveness of delivering the course.

Very useful Course Materials will be given.

- 30% Lectures
- 30% Workshops and work presentation
- 20% Group Work & Practical Exercises
- 20% Videos & General Discussions

COURSE PROGRAM:

Day 1: Introduction to Power Generation Systems

- Overview of power generation: Types and importance in the global energy landscape
- Basic concepts in electricity generation, transmission, and distribution
- Types of power generation systems: Thermal, hydroelectric, nuclear, and renewable energy
- Key components of power plants: Turbines, generators, boilers, and heat exchangers
- Introduction to energy sources: Fossil fuels, nuclear energy, solar, wind, and biomass

Day 2: Thermal Power Generation

- Principles of thermal power generation: Steam cycle, Rankine cycle
- Components of thermal power plants: Boiler, steam turbine, condenser, and generator
- Combustion and heat recovery systems in coal, gas, and oil-fired plants
- Efficiency and performance optimization in thermal power plants
- Environmental impact and emission control technologies

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Day 3: Hydroelectric Power Generation

- Principles of hydroelectric power generation: Dam, water flow, and turbine operation
- Types of hydroelectric plants: Storage, run-of-river, and pumped storage
- Key components: Reservoirs, turbines, generators, and transmission systems
- Challenges in hydroelectric power generation: Environmental and operational considerations
- Maintaining and optimizing hydroelectric plants

Day 4: Nuclear and Renewable Power Generation

- Nuclear power generation: Fission process, nuclear reactors, and safety considerations
- Components of nuclear power plants: Reactor, coolant, steam generator, and turbine
- Renewable energy sources: Solar, wind, biomass, and geothermal
- Integration of renewable energy into the grid: Challenges and solutions
- Environmental, safety, and regulatory concerns in nuclear and renewable energy production

Day 5: Power Plant Operation, Maintenance, and Optimization

- Operation and control of power plants: Monitoring and automation systems
- Preventive maintenance and troubleshooting of power generation equipment
- Safety protocols and standards in power plant operations
- Load management and grid stability
- Future trends in power generation: Smart grids, energy storage, and decentralized energy production

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NOTE:

Pre-& Post Tests will be conducted.

Case Studies, Group Exercises, Group Discussions, Last Day reviews, and assessments will be carried out.

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