

Power Generation: Turbines, Boilers & Renewable Systems

Oil & Gas Engineering
Cape Town (South Africa)
01 - 05 Sep 2025

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Power Generation: Turbines, Boilers & Renewable Systems

Ref: 3299_138165 **Date:** 01 - 05 Sep 2025 **Location:** Cape Town (South Africa) **Fees:** 3300 Euro

Course Description

This comprehensive 5-day course provides in-depth knowledge of various power generation technologies, including traditional and renewable systems. Participants will explore turbines, boilers, co-generation, combined cycle, wind, and solar power, gaining practical insights into their operation, efficiency, and applications in the modern energy landscape.

Learning Objectives

- Understand the principles and operation of steam turbines and boilers in power plants
- Analyze co-generation and combined cycle systems for improved efficiency
- Explore wind and solar power technologies and their integration into the grid
- Evaluate the environmental impact and efficiency of different power generation methods
- Apply best practices in power plant operation and maintenance

Course Modules

Day 1: Introduction to Power Generation

- Overview of power generation technologies
- Thermodynamic cycles in power generation
- Energy conversion and efficiency concepts
- Environmental considerations in power generation

Day 2: Steam Turbines and Boilers

- Steam turbine types and components
- Boiler designs and steam generation processes
- Turbine and boiler efficiency optimization
- Operation and maintenance best practices

Day 3: Co-Generation and Combined Cycle Systems

- Principles of co-generation CHP systems
- Combined cycle power plant configurations
- Heat recovery steam generators HRSG
- Efficiency improvements in co-generation and combined cycle plants

Day 4: Wind Power Systems

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- Wind turbine technology and components
- Wind farm design and grid integration
- Wind resource assessment and site selection
- Operation and maintenance of wind power systems

Day 5: Solar Power and Future Trends

- Photovoltaic PV and concentrated solar power CSP technologies
- Solar power plant design and operation
- Energy storage solutions for renewable systems
- Emerging trends in power generation technology

Practical Wins for Participants

- Ability to assess and optimize power plant efficiency
- Skills to integrate renewable energy sources into existing power systems
- Knowledge to implement co-generation and combined cycle technologies
- Capacity to make informed decisions on power generation investments

A graphic illustration of a chessboard with several chess pieces. A large gold king piece is prominent in the foreground, with a silver pawn and a silver knight nearby. In the background, there are concentric white circles on a grey surface.

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