Global Horizon
TRAINING CENTER

Training Course:
Enhancing CCPP Performance

7 - 18 July 2025
London (UK)
Landmark Office Space - Oxford Street

Training Course:
Enhancing CCPP Performance

Training Course code: SC235793 From: 7 - 18 July 2025 Venue: London (UK) - Landmark Office Space - Oxford Street
Training Course Fees: 9800 Euro

Introduction

The "Enhancing CCPP Performance" training program is designed by Global Horizon Training Center to provide participants with an in-depth understanding of Combined Cycle Power Plant CCPP performance optimization. This course covers fundamental and advanced concepts related to the Brayton and Rankine cycles, heat recovery steam generators HRSGs, gas turbines GTs, and steam turbines STs. Participants will also learn how to utilize key analysis tools, including psychrometric charts, Mollier diagrams, vendor correction curves, and various efficiency calculation methods, to enhance the operational efficiency of a CCPP. This training program is ideal for engineers and professionals responsible for power plant operation, maintenance, and optimization.

Objectives

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

- Describe the Brayton and Rankine Cycles and their performance parameters.
- Use the Psychrometric Chart for analyzing evaporative coolers.
- Apply the Mollier Diagram in evaluating steam turbine ST performance.
- Calculate gas turbine GT simple cycle heat rate and efficiency.
- Analyze GT output using vendor correction curves.
- Understand key GT performance considerations.
- Calculate GT compressor section isentropic efficiency.
- Explain HRSG efficiency, effectiveness, and capacity.
- Calculate HRSG efficiency using both Input-Output and Thermal Loss Methods.
- Compute HRSG Evaporator Pinch Point, Approach Temperature, and Efficiency.
- Assess the impact of combined cycle parameters on STG cycle heat rate and operator controllable losses.
- Calculate ST cycle heat rate.
- Implement strategies for optimizing CCPP performance.
- Analyze CCPP output using vendor correction curves.
- Describe the start-up, operation, and shutdown procedures of a typical CCPP.

Course Methodology

- Instructor-led sessions with industry experts.
- Case studies and real-world scenarios to apply theoretical knowledge.
- Hands-on exercises using performance analysis tools Psychrometric Charts, Mollier Diagrams, Vendor Correction Curves.
- Group discussions and problem-solving workshops.
- Performance calculations and efficiency improvement techniques.
- Interactive quizzes and assessments to reinforce learning.

Organizational Impact

Organizations will benefit from this program by:

- Enhancing the efficiency and reliability of CCPP operations.
- Reducing operational costs through improved heat rate and performance analysis.
- Developing in-house expertise to troubleshoot and optimize power plant performance.
- Ensuring compliance with industry standards and best practices.
- Improving decision-making and problem-solving capabilities for plant engineers and operators.

Target Audience

This training program is ideal for:

- Power Plant Engineers
- CCPP Operators and Maintenance Personnel
- Performance Engineers
- Energy Efficiency Specialists
- Plant Supervisors and Managers
- Thermal System Analysts
- Anyone involved in power plant performance optimization

Course Outlines:

Day 1: Fundamentals of CCPP and Performance Parameters

- Overview of Combined Cycle Power Plants CCPP
- Understanding Brayton and Rankine Cycles
- Key performance parameters: Efficiency, Heat Rate, and Load Factor

Day 2: Gas Turbine GT Performance and Heat Rate Calculation

- GT simple cycle heat rate and efficiency calculation
- GT compressor section isentropic efficiency
- Vendor correction curves for GT output analysis

Day 3: Gas Turbine Performance Considerations

- Impact of ambient conditions on GT performance
- Evaporative coolers and psychrometric chart analysis
- GT start-up and shutdown procedures

Day 4: HRSG Efficiency, Effectiveness, and Capacity

- Typical HRSG performance considerations
- Input-Output and Thermal Loss Methods for HRSG efficiency calculations
- HRSG operational limitations and design parameters

Day 5: HRSG Heat Transfer and Pinch Point Calculation

- HRSG Evaporator Pinch Point and Approach Temperature
- Factors affecting HRSG efficiency
- Impact of GT performance on HRSG efficiency

Day 6: Steam Turbine Performance and Mollier Diagram Analysis

- Steam cycle heat rate calculations
- Application of Mollier Diagram in ST performance analysis

- Operator controllable losses in STG cycle

Day 7: Performance Analysis and Optimization Techniques

- Identifying key performance losses in CCPP
- Optimizing HRSG and GT interaction for efficiency improvement
- Best practices for reducing operational inefficiencies

Day 8: Vendor Correction Curves and CCPP Output Analysis

- How to use vendor correction curves for output predictions
- Understanding the impact of design and operational changes
- Using correction curves for GT and ST performance analysis

Day 9: CCPP Operational Procedures and Optimization

- Start-up, operation, and shutdown of a typical CCPP
- Advanced monitoring techniques for efficiency tracking
- Preventive maintenance strategies for optimal performance

Day 10: Implementing Performance Improvements in CCPP

- Steps to enhance plant reliability and efficiency
- Case studies on successful CCPP performance improvements
- Final workshop: Developing an optimization plan for a real-world scenario

Registration form on the Training Course: Enhancing CCPP Performance

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Complete & Mail or fax to Global Horizon Training Center (GHTC) at the address given below

Delegate Information

Full Name (Mr / Ms / Dr / Eng): .....
Position: .....
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Personal E-Mail: .....
Official E-Mail: .....

Company Information

Company Name: .....
Address: .....
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Person Responsible for Training and Development

Full Name (Mr / Ms / Dr / Eng): .....
Position: .....
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Payment Method

- ☐ Please find enclosed a cheque made payable to Global Horizon
- ☐ Please invoice me
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Telephone: +201095004484 to provisionally reserve your place.	Fax your completed registration form to: +20233379764	E-mail to us : info@gh4t.com or training@gh4t.com	Complete & return the booking form with cheque to:Global Horizon 3 Oudai street, Aldouki, Giza, Giza Governorate, Egypt.