AMERICAN GLOBAL INSTITUTE
FOR PRIVATE TRAINING

External Training Course

Energy Efficiency and Loss Control in Refinery Operations

From 08 Sep. To 12 Oct. 2025
From 20 Oct. To 24 Oct. 2025
From 24 Nov. To 28 Nov. 2025
From 08 Dec. To 12 Dec. 2025

DoubleTree by Hilton Istanbul – Sirkeci Hotel
Istanbul, Turkey

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External Training Course:

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From 08 Sep. To 12 Oct. 2025	**Fees: 1300 KD**
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Course Overview:

This specialised training course equips refinery engineers, operators, and technical staff with practical knowledge and strategies to enhance energy efficiency and minimise operational losses. It covers energy management principles, loss identification, process optimisation, and implementation of best practices to reduce costs and improve sustainability in refinery operations.

Course Objectives:

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

- Understand the fundamentals of energy management in refineries.
- Identify and quantify energy losses in refinery processes.
- Analyse operational practices for loss control and energy savings.
- Apply process optimisation techniques to improve energy performance.
- Integrate energy efficiency and loss control into daily operations.
- Develop action plans for sustainable energy and cost reduction initiatives.

Training Methodology:

Interactive presentations with visual process animations.
Group discussions and operational problem-solving exercises.
Real-life case studies from refinery and petrochemical operations.
Practical troubleshooting scenarios and exercises.
Final workshop and participant action planning for their work areas.

Organisational Impact:

Reduced energy costs and improved operational profitability.
Enhanced environmental compliance and sustainability performance.
Improved operational efficiency and asset utilisation.
Strengthened workforce capability in energy and loss management.
Support towards corporate decarbonisation and net-zero goals.

Personal Impact:

Broader understanding of refinery energy systems and optimisation.
Improved analytical and problem-solving skills for energy savings.
Greater confidence in identifying and implementing loss control measures.
Enhanced capability to contribute to refinery efficiency and sustainability initiatives.
Strengthened professional competency for career development in refining.

Course Content:

Day 1 – Fundamentals of Energy Management in Refining

- Importance of energy efficiency in refinery profitability and sustainability.
- Overview of refinery energy consumption patterns.
- Introduction to energy management systems (ISO 50001).
- Energy balance concepts and energy intensity indicators.
- Typical energy losses in refineries and their impacts.

Day 2 – Process Units Energy Performance Analysis

- Energy usage in major refinery units: CDU, VDU, FCC, Hydrocracker, Reforming.
- Heat integration and pinch analysis basics.
- Furnace and boiler efficiency improvement opportunities.
- Steam system optimisation: generation, distribution, and utilisation.
- Case studies on unit energy performance assessments.

Day 3 – Loss Control Strategies and Best Practices

- Types of operational losses: material, energy, and quality losses.
- Leak detection and loss prevention in pipelines and tanks.
- Flare minimisation and recovery strategies.
- Best practices in loss monitoring and control systems.
- Operational discipline for loss reduction.

Day 4 – Process Optimisation for Energy Efficiency

- Process control strategies for energy savings.
- Advanced process control (APC) and real-time optimisation (RTO).
- Equipment efficiency improvement: pumps, compressors, heat exchangers.
- Debottlenecking for energy-efficient throughput increase.
- Integrating energy efficiency in turnaround and maintenance planning.

Day 5 – Sustainable Refining and Action Planning

- Energy transition impacts and decarbonisation initiatives in refining.
- Integrating renewable energy and utility optimisation.
- Developing refinery energy efficiency and loss control action plans.
- Key performance indicators (KPIs) and benchmarking.
- Course review, knowledge assessment, and personal action plans.

Course Agenda (Bilingual A/E):

(1st Day) Agenda

8.30	9.00	Opening Remarks (30 Min.).
9.00	11.30	Discuss Course Major Points: • Fundamentals of Energy Management in Refining. • Process Units Energy Performance Analysis. • Loss Control Strategies and Best Practices. • Process Optimisation for Energy Efficiency. • Sustainable Refining and Action Planning
11.30	12.00	Coffee Break
12.00	14.00	Fundamentals of Energy Management in Refining: • Importance of energy efficiency in refinery profitability and sustainability. • Overview of refinery energy consumption patterns. • Introduction to energy management systems (ISO 50001). • Energy balance concepts and energy intensity indicators. • Typical energy losses in refineries and their impacts.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(2nd Day) Agenda

9.00	11.30	Process Units Energy Performance Analysis: • Energy usage in major refinery units: CDU, VDU, FCC, Hydrocracker, Reforming. • Heat integration and pinch analysis basics. • Furnace and boiler efficiency improvement opportunities.
11.30	12.00	Coffee Break
12.00	14.00	Process Units Energy Performance Analysis: • Steam system optimisation: generation, distribution, and utilisation. • Case studies on unit energy performance assessments.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(3rd Day) Agenda

9.00	11.30	Loss Control Strategies and Best Practices: • Types of operational losses: material, energy, and quality losses. • Leak detection and loss prevention in pipelines and tanks. • Flare minimisation and recovery strategies.
11.30	12.00	Coffee Break
12.00	14.00	Loss Control Strategies and Best Practices: • Best practices in loss monitoring and control systems. • Operational discipline for loss reduction.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(4th Day) Agenda

9.00	11.30	Process Optimisation for Energy Efficiency: • Process control strategies for energy savings. • Advanced process control (APC) and real-time optimisation (RTO). • Equipment efficiency improvement: pumps, compressors, heat exchangers.
11.30	12.00	Coffee Break
12.00	14.00	Process Optimisation for Energy Efficiency: • Debottlenecking for energy-efficient throughput increase. • Integrating energy efficiency in turnaround and maintenance planning.
14.00	14.30	Questions and Discussion
14.30		Buffet Lunch

(5th Day) Agenda

9.00	11.30	Sustainable Refining and Action Planning: • Energy transition impacts and decarbonisation initiatives in refining. • Integrating renewable energy and utility optimisation. • Developing refinery energy efficiency and loss control action plans.
11.30	12.00	Coffee Break
12.00	14.00	Sustainable Refining and Action Planning: • Key performance indicators (KPIs) and benchmarking. • Course review, knowledge assessment, and personal action plans.
14.00	14.30	Questions, Discussion & Conclusion Training Course.
14.30		Buffet Lunch