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OIL AND GAS | OG-023

Advanced Refinery Process Yields Optimization

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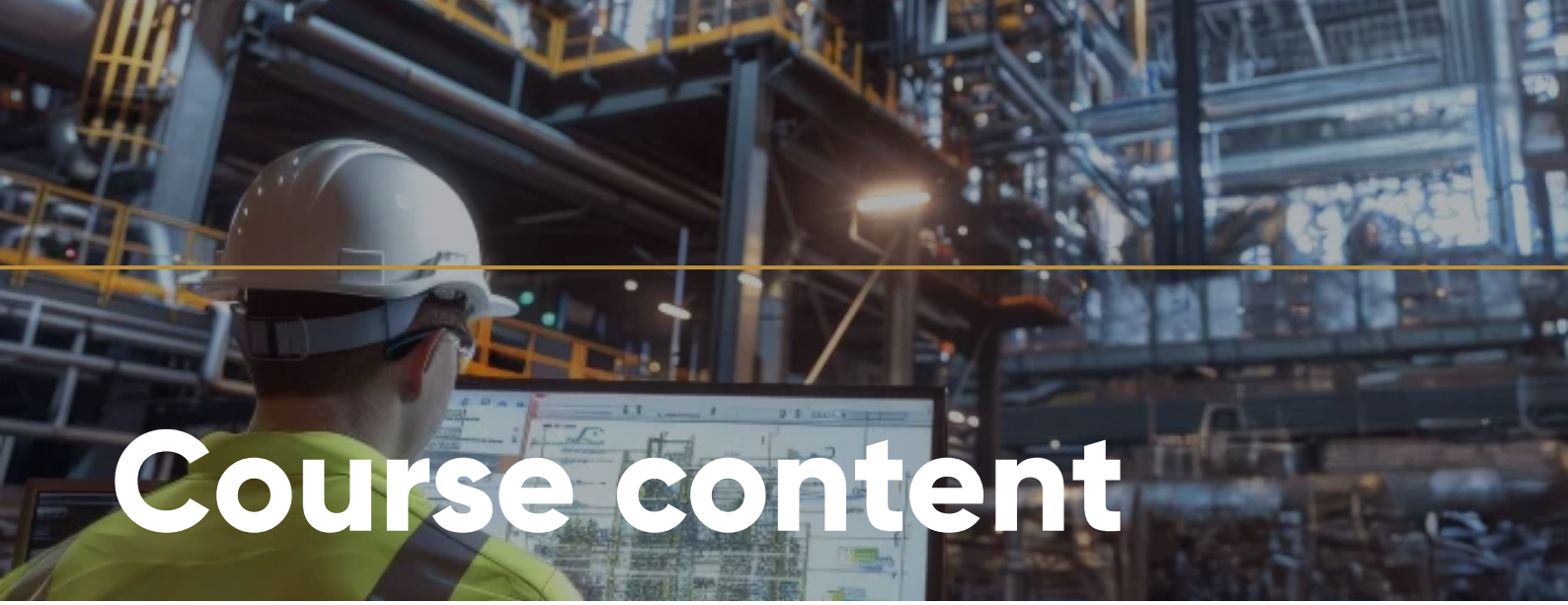


Course content

Why Attend

Why Attend Maximizing refinery process yields is essential for improving profitability, increasing operational efficiency, reducing energy consumption, and maintaining competitiveness in today's refining industry. This course provides participants with practical knowledge of refinery yield optimization, advanced process control, energy management, process simulation, and digital technologies that support operational excellence and sustainable refinery performance.

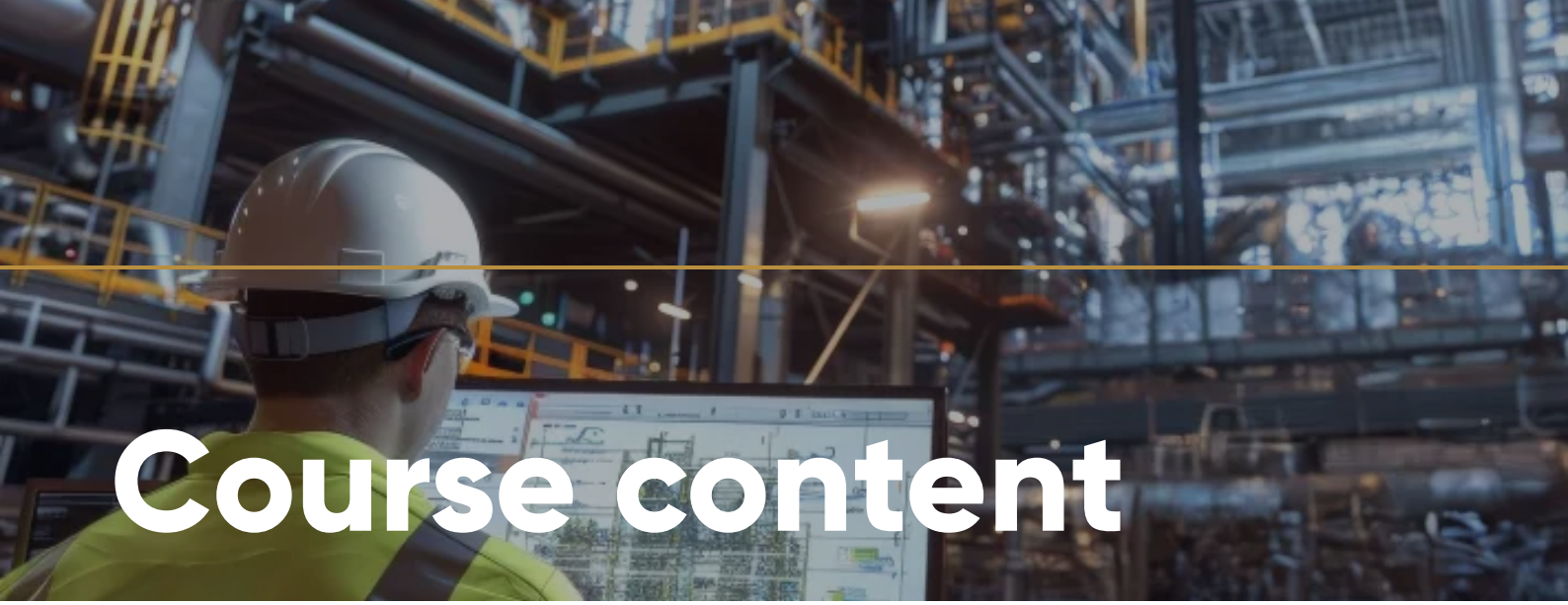
Course Methodology The course combines technical presentations, practical workshops, engineering case studies, simulation exercises, group discussions, refinery performance analysis, and real-world optimization scenarios.

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

- Understand the factors affecting refinery process yields and product recovery
- Apply advanced process control techniques to optimize refinery operations
- Improve energy efficiency across major refining processes
- Utilize process simulation tools to evaluate and optimize refinery performance
- Apply digital technologies to enhance operational decision-making
- Identify opportunities for continuous process improvement and yield enhancement
- Develop integrated refinery optimization strategies

Target Audience

- Process engineers
- Refinery operations engineers
- Production engineers
- Process control engineers
- Refinery supervisors and managers
- Energy optimization specialists



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Target Audience

• Oil and gas professionals involved in refinery operations

Target Competencies

• Refinery process optimization

• Advanced process control

• Energy efficiency management

• Process simulation and modeling

• Digital refinery technologies

• Operational excellence

• Process troubleshooting

• Performance analysis

Course outline

Day 1: Fundamentals of Refinery Yield Optimization

• Understanding refinery process configurations and product yield relationships

• Reviewing major refining units and their contribution to product distribution

• Evaluating the influence of crude oil characteristics on refinery performance

• Understanding the impact of equipment design and operating conditions on process yields

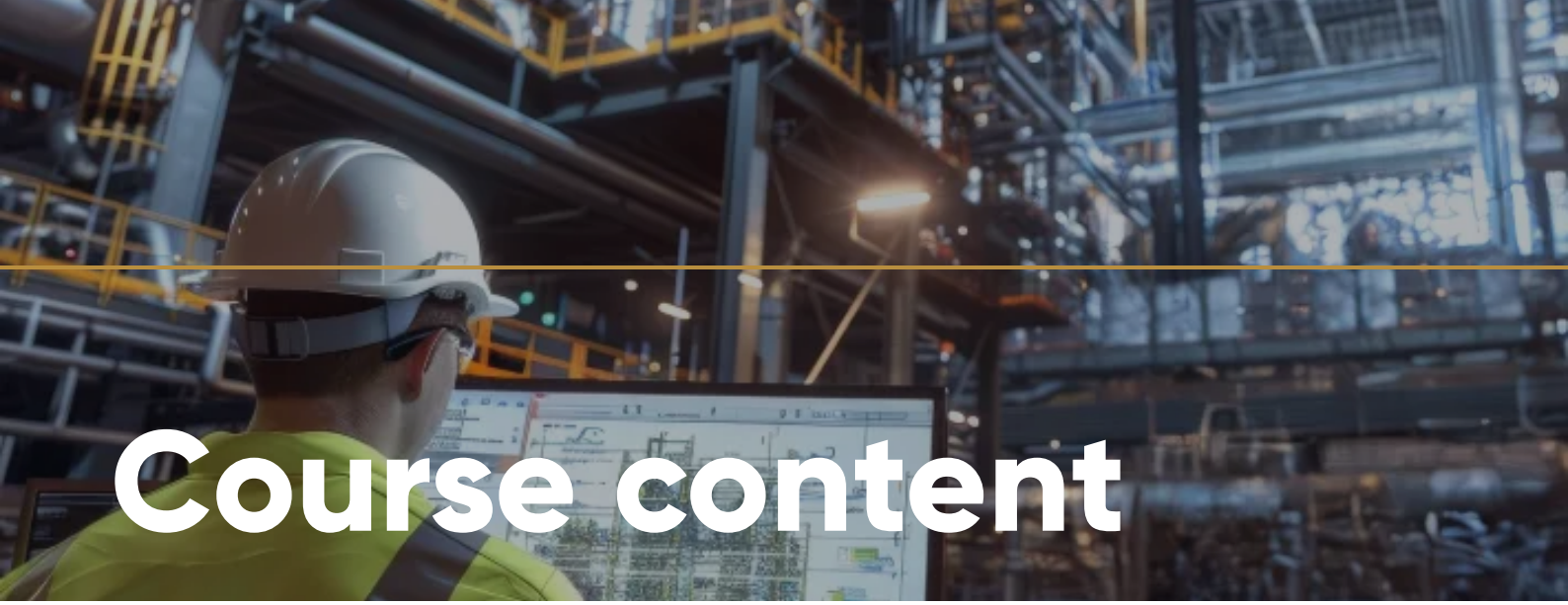
• Applying techniques to analyze refinery performance and identify operational constraints

• Identifying opportunities to improve product recovery and operational efficiency

Day 2: Advanced Process Control for Yield Improvement

• Understanding the role of advanced process control within refinery operations

• Reviewing distributed control systems and advanced optimization technologies



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• Applying model predictive control techniques to optimize refinery processes in real time

• Improving process stability, product quality, and operating efficiency through automation

• Monitoring key process variables and performance indicators

• Reviewing practical case studies demonstrating yield improvements through advanced process control

Day 3: Energy Optimization in Refinery Operations

• Understanding the relationship between energy consumption and refinery profitability

• Identifying opportunities to reduce energy usage across major refining units

• Optimizing distillation, hydroprocessing, and conversion processes for improved efficiency

• Applying heat integration principles and energy recovery strategies

• Evaluating utility system performance and waste heat recovery opportunities

• Developing energy management strategies that support operational excellence and sustainability

Day 4: Process Simulation and Refinery Performance Modeling

• Understanding the role of process simulation in refinery optimization and decision-making

• Applying simulation tools to evaluate refinery operating scenarios and process alternatives

• Developing process models for major refinery units and integrated operations

• Predicting operational performance through scenario analysis and sensitivity evaluation

• Identifying optimization opportunities using engineering models and simulation results

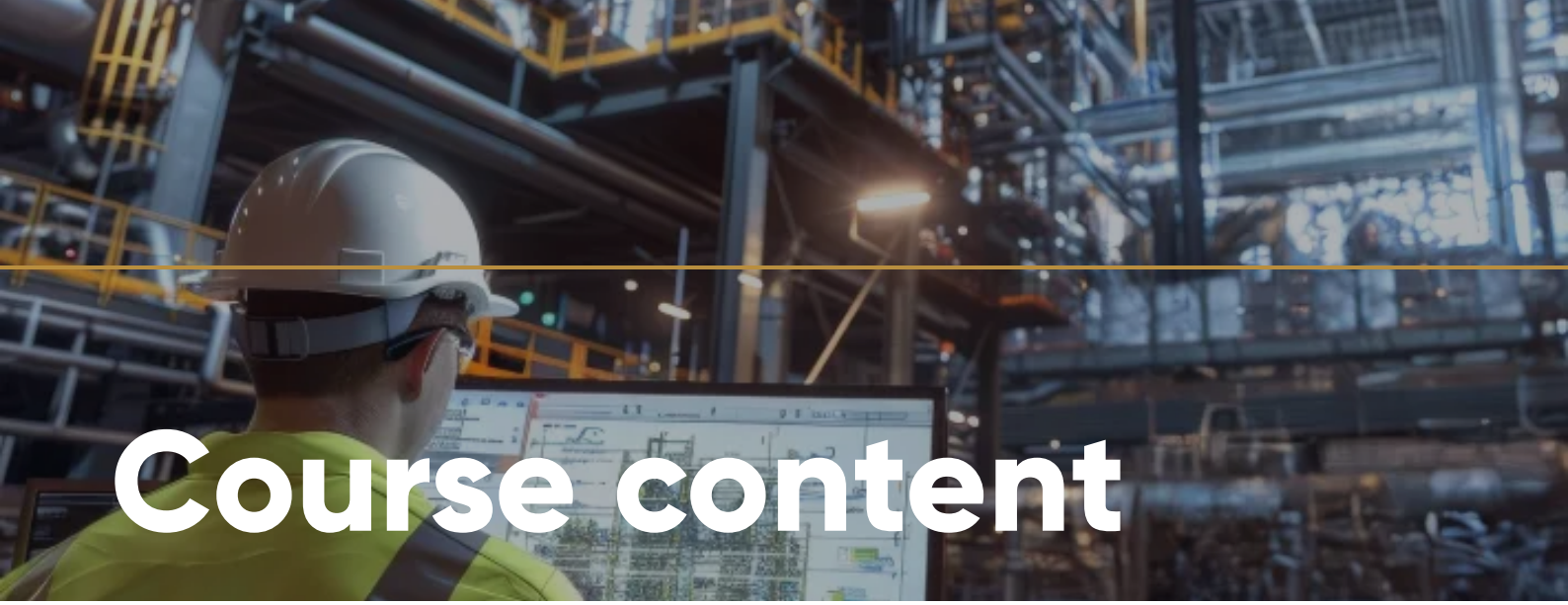
• Practical workshop: Refinery process modeling and performance optimization exercises

Day 5: Digital Refinery Technologies and Future Optimization Strategies

• Exploring the application of artificial intelligence and machine learning in refinery optimization

• Understanding digital twins and their role in operational monitoring and predictive optimization

• Applying advanced analytics to improve refinery performance and product yields



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Course outline

• Reviewing emerging technologies supporting digital transformation within refining operations

• Evaluating innovation-driven case studies demonstrating operational improvements

• Final workshop: Developing an integrated refinery yield optimization roadmap combining process control, simulation, energy management, and digital technologies

Seminar dates

Available seminar dates

Live dates and pricing for Advanced Refinery Process Yields Optimization generated from the course details page.

Date	Location	Format	Fee
Dates on request	Venue on request	Classroom	**Contact us**

Live online option	Online delivery is available at €1,850.-.