GTC Transforming Emerging Economies

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Smart Refinery Economics: AI for Yield Optimization and Cost Control

COURSE OVERVIEW

This course analyses the integration of Artificial Intelligence (AI) and advanced analytics into refinery economics, focusing on yield optimization, margin maximization and cost control in today's highly competitive energy market. Participants will learn how AI-driven models can enhance decision making in crude selection, product blending, energy management and operational efficiency. Through practical case studies and experimental exercises, the course demonstrates how smart technologies can transform traditional refinery economics, improve profitability and support sustainable operations.

WHO SHOULD ATTEND?

This course is designed for refinery managers, process engineers, planning and economics teams, operations supervisors, financial analysts and decision makers in the oil and gas sector who seek to leverage AI tools and digital transformation strategies for improved refinery performance and cost efficiency.

COURSE OUTCOMES

Delegates will gain the skills and knowledge to:

- Understand the role of AI and machine learning in modern refinery economics.
- Apply AI-driven techniques to optimize yields, product slates, and operating costs.
- Enhance decision-making for crude selection, blending, and margin management.
- Develop strategies for energy efficiency, sustainability, and emissions reduction.
- Gain practical insights from real-world case studies and digital tools.
- Leverage predictive analytics to anticipate market trends and maximize refinery profitability.

KEY COURSE HIGHLIGHTS

At the end of the course, you will understand;

- The role of digital twins and simulations in process optimization.
- How AI optimizes refinery yields and output quality.
- The financial benefits of smart refinery economics for competitiveness and sustainability.
- Techniques to reduce costs via predictive maintenance and performance monitoring.
- How AI decision support improves supply chain and production planning.
- Using analytics to identify efficiency gaps and energy-saving opportunities.

All our courses are dual-certificate courses. At the end of the training, the delegates will receive two certificates.
1. A GTC end-of-course certificate
2. Continuing Professional Development (CPD) Certificate of completion with earned credits awarded