

# DIGITAL TWINS & AI IN REFINING OPERATIONS

Start Date:	08/12/2025	End Date:	12/12/2025
Categories:	Artificial Intelligence & Er	Venues:	Dubai
Formats:	In Person	Instructors:	

## OVERVIEW

Explore the latest innovations in digital twins and AI applications in refining. This course covers modeling, predictive maintenance, real-time simulation, and data-driven optimization strategies for enhanced operational performance.

## OBJECTIVES

- Understand the architecture of digital twin technology.
- Apply AI models to simulate and optimize refinery operations.
- Use data analytics for predictive maintenance and decision-making.
- Integrate AI tools into control systems and dashboards.
- Evaluate ROI and implementation strategies for digital transformation.

## COURSE OUTLINE

- Introduction to Digital Twins and Smart Plants
- Components and Data Flow Architecture
- Machine Learning Models in Refining
- Predictive Maintenance and Anomaly Detection
- Real-Time Simulation and Visualization
- AI for Process Control and Optimization
- Case Studies and Implementation Roadmaps

## TARGET AUDIENCE

Digital transformation leads, control engineers, plant IT teams, and operations managers.

## METHODOLOGY

Hands-on labs, live simulations, model demos, and case analysis.

## CONCLUSION

Participants will be able to design and deploy digital twin and AI tools to optimize refinery systems.

## DAILY AGENDA

### **Day 1: Smart Refinery Foundations**

Digital twin concepts and infrastructure overview.

### **Day 2: AI Integration**

Modeling, machine learning, and data systems.

### **Day 3: Simulation & Maintenance**

Live simulations and predictive applications.

### **Day 4: Control & Optimization**

AI-based control systems and dashboards.

### **Day 5: Case Studies & Strategy**

Industry case studies and transformation roadmaps.

*For more information, please contact us:*

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