



PROCESS AND CHEMICAL ENGINEERING

Artificial Intelligence in Refining Operations

5 day course

Classroom, online or in-house

Course overview

Refineries generate enormous quantities of process data and have used models for decades, which makes them a genuine rather than speculative application for machine learning, and also one where a wrong output has physical consequences. This course covers the realistic uses. Delegates work through soft sensors and inferential property prediction, predictive maintenance on rotating and fired equipment, yield and blend optimisation, and anomaly detection on process data. Model validation is treated seriously, since a model informing an operating decision must be defensible. The course covers the operator interface question of trust and override, and closes on evaluating a vendor proposal against refinery reality.

What you will learn

- Identify the refining applications where these methods genuinely help
- Build and validate soft sensors for inferential property prediction
- Apply predictive maintenance to rotating and fired equipment
- Use anomaly detection on process data and triage the output
- Support yield and blend optimisation with models
- Validate a model whose output informs an operating decision
- Design the operator interface for trust and override

Who should attend

- Refinery process and technical services engineers
- Advanced process control engineers
- Data and analytics staff in refining
- Reliability and maintenance engineers
- Operations managers evaluating investment

Course outline

- 01 Why refining is a genuine application
- 02 Soft sensors and inferential properties
- 03 Predictive maintenance on critical equipment
- 04 Anomaly detection and triage
- 05 Yield and blend optimisation
- 06 Model validation for operating decisions
- 07 Operator trust, interface and override
- 08 Evaluating a vendor proposal

Upcoming dates

Dates	Venue	Format	Fee per delegate
30 November to 4 December 2026	Online	Online	R8,500
25 to 29 January 2027	Durban, South Africa	Classroom	R19,950
8 to 12 February 2027	Windhoek, Namibia	Classroom	R19,950
15 to 19 February 2027	Kigali, Rwanda	Classroom	USD 1,325



Fees and how to register

This 5 day course is **R8,500** per delegate online, **R19,950** in the classroom in South Africa, Botswana, Namibia, Lesotho and Eswatini, and **USD 1,325** in the classroom elsewhere in Africa. In-house training is quotation on request. Book 2 or more delegates on this course and save 10%.

To register or request an in-house proposal, visit www.afrisciencegroup.com, email info@afri-science.co.za, or WhatsApp us on **+27 63 479 1136**.

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