



Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

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COURSE BROCHURE

Oil refining

Custom Courses / Energy, Oil and Gas

Unit Standard AATICD-0273 · NQF Level 5 · 10 Credits · 5 Days

COURSE OVERVIEW

This course provides a comprehensive understanding of the oil refining process, from crude oil distillation to the production of valuable petroleum products. Learners will gain the technical knowledge and practical skills required to operate refining units safely and efficiently, with a strong emphasis on health, safety, and environmental compliance. The course prepares participants to contribute effectively in a refinery environment while adhering to industry standards and regulations.

Category	Custom Courses
Subfield	Energy, Oil and Gas
Unit Standard	AATICD-0273
Accreditation	SAQA Accredited · NQF Level 5 · 10 Credits
Duration	5 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply the principles of crude oil distillation and conversion processes to optimize product yield and quality.
- Analyze the key operational parameters and control systems used in atmospheric and vacuum distillation units.
- Evaluate the hazards associated with refining operations and implement appropriate safety measures.
- Demonstrate the ability to monitor and troubleshoot common refining unit malfunctions.
- Implement environmental management practices to minimize emissions and waste in line with regulatory requirements.
- Design basic process flow diagrams and interpret P&IDs for refinery units.

WHO SHOULD ATTEND

- This course is designed for process operators, technicians, and engineers working in or entering the petroleum refining industry.
- It is also suitable for supervisors and managers seeking to deepen their understanding of refining operations and safety protocols.

COURSE OUTLINE

Day 1: Introduction to Oil Refining and Crude Oil Characteristics

- Overview of the petroleum industry and refining history
- Crude oil composition: hydrocarbons, impurities, and classification
- Physical and chemical properties of crude oil (API gravity, sulfur content, etc.)
- Refinery configuration and major processing units
- Safety and environmental considerations in refining

Day 2: Distillation and Separation Processes

- Principles of distillation: boiling points, vapor-liquid equilibrium
- Atmospheric distillation column design and operation
- Vacuum distillation for heavy fractions
- Side strippers, pumps, and heat exchangers
- Product streams: LPG, naphtha, kerosene, diesel, gas oil, residue

Day 3: Conversion Processes – Cracking and Reforming

- Fluid catalytic cracking (FCC): process flow, reactor, regenerator
- Hydrocracking: chemistry, catalysts, and products
- Catalytic reforming: reactions, catalyst types, and reformate
- Coking and other residue conversion processes
- Product yields and quality improvement

Day 4: Treatment and Blending Processes

- Hydrodesulfurization (HDS) and hydrotreating
- Alkylation: sulfuric acid and HF processes
- Isomerization for light naphtha
- Sweetening processes (Merox, etc.)
- Blending of gasoline, diesel, jet fuel, and fuel oils
- Quality control and specifications (octane, cetane, volatility)

Day 5: Refinery Integration, Utilities, and Future Trends

- Refinery mass and energy balances
- Hydrogen production and management (steam reforming)
- Utility systems: steam, cooling water, compressed air, flare
- Process control and optimization
- Environmental management: emissions, wastewater, solid waste
- Future trends: renewable feedstocks, carbon capture, energy efficiency

ASSESSMENT & CERTIFICATION

Delegates are assessed through exercises and a final test. A mark of **50% or above** earns an **AATICD Certificate of Completion**, issued digitally with a unique verification code. This course carries **10 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 24,200.00	R 24,200.00
1	In-House	R 31,400.00	R 31,400.00
1	On-Campus (Pretoria)	R 36,200.00	R 36,200.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	14 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	14 Aug 2026	On-Campus	Abu Dhabi, UAE
17 Aug 2026	21 Aug 2026	On-Campus	Harare, Zimbabwe
17 Aug 2026	21 Aug 2026	On-Campus	Shenzhen, China
24 Aug 2026	28 Aug 2026	On-Campus	Bangkok, Thailand
24 Aug 2026	28 Aug 2026	On-Campus	Victoria Falls, Zimbabwe
31 Aug 2026	04 Sep 2026	On-Campus	Lusaka, Zambia
31 Aug 2026	04 Sep 2026	On-Campus	London, UK

Contact us if no suitable date is listed – on-demand sessions can be arranged for groups.

HOW TO GET A QUOTE OR APPLY

- 1. Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard AATICD-0273) and click **Get A Quote / Apply**. Select your training method and number of delegates – your quotation is generated immediately and emailed to you with the course brochure attached.
- 2. Apply by email:** send the course title, your preferred training method (Online, In-House or On-Campus Pretoria), the number of delegates and your preferred dates to apply@aaticd.co.za – our team will reply with a formal quotation.
- 3. Apply by phone or WhatsApp:** call +27 12 004 8389 or WhatsApp +27 65 077 6310 and we will prepare your quotation and reserve your seats.
- 4. Confirm your booking:** accept the quotation and settle the invoice. As soon as payment is confirmed your delegates are enrolled and receive their AATICD LMS login details by email, along with joining instructions for their chosen training method.

Group discounts apply automatically – the more delegates you enrol, the lower the price per delegate. No payment is required to request a quotation.

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