Accredited Africa Training Institute for Capacity Development
Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa
Tel: +27 12 004 8389 · Mobile: +27 65 077 6310
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COURSE BROCHURE

Power Plant Efficiency

Custom Courses / Energy, Oil and Gas

Unit Standard AATICD-0506 · NQF Level 5 · 4 Credits · 2 Days

COURSE OVERVIEW

This course equips participants with the knowledge and skills to optimize power plant operations for maximum efficiency. It covers key performance indicators, efficiency calculations, and strategies for reducing energy losses, thereby improving overall plant performance and cost-effectiveness.

Category	Custom Courses
Subfield	Energy, Oil and Gas
Unit Standard	AATICD-0506
Accreditation	SAQA Accredited · NQF Level 5 · 4 Credits
Duration	2 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS — verifiable online

LEARNING OUTCOMES

- Apply principles of thermodynamics and energy conversion to analyze power plant performance.
- Calculate key efficiency metrics such as heat rate, thermal efficiency, and capacity factor.
- Evaluate operational data to identify inefficiencies and areas for improvement.
- Design strategies to reduce energy losses and enhance overall plant efficiency.
- Implement best practices for combustion optimization, heat recovery, and emissions control.
- Demonstrate an understanding of regulatory requirements and environmental impact related to power generation.

WHO SHOULD ATTEND

- This course is designed for power plant operators, maintenance personnel, and engineers who are involved in the daily operations and performance monitoring of power generation facilities.

COURSE OUTLINE

Day 1: **Fundamentals of Power Generation and Efficiency**

- Overview of power plant types (coal, gas, nuclear, renewable
- Thermodynamic cycles (Rankine, Brayton, combined cycle
- Key components: boiler, turbine, condenser, generator, cooling systems
- Efficiency definitions: thermal efficiency, heat rate, capacity factor
- Calculations: heat rate, efficiency percentage, fuel consumption
- Losses in power generation: stack losses, condenser losses, mechanical/electrical losses
- Measurement techniques: flow meters, temperature sensors, pressure gauges
- Introduction to performance monitoring and benchmarking

Day 2: **Optimisation Strategies and Practical Implementation**

- Advanced loss analysis: heat balance, flue gas analysis, performance testing
- Boiler optimisation: combustion control, air-fuel ratio, soot blowing
- Turbine optimisation: steam conditions, condenser performance, blade cleaning
- Heat recovery systems: economisers, air heaters, heat exchangers
- Cogeneration and combined heat and power (CHP) principles
- Operational strategies: load management, start-up/shutdown optimisation
- Maintenance practices for efficiency: insulation, leak repair, surface cleaning
- Case studies of efficiency improvement projects

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 **4 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 11,900.00	**R 11,900.00**
1	In-House	R 16,100.00	**R 16,100.00**
1	On-Campus (Pretoria)	R 17,800.00	**R 17,800.00**

UPCOMING SESSIONS

Start	End	Method	Venue
01 Dec 2026	02 Dec 2026	On-Campus	Dubai, UAE
02 Dec 2026	03 Dec 2026	On-Campus	Victoria Falls, Zimbabwe
02 Dec 2026	03 Dec 2026	On-Campus	Cape Town, South Africa
03 Dec 2026	04 Dec 2026	On-Campus	Shenzhen, China
03 Dec 2026	04 Dec 2026	On-Campus	Lagos, Nigeria
09 Dec 2026	10 Dec 2026	On-Campus	Maseru, Lesotho
09 Dec 2026	10 Dec 2026	On-Campus	Kigali, Rwanda
09 Dec 2026	10 Dec 2026	On-Campus	Accra, Ghana

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

HOW TO GET A QUOTATION OR APPLY

1. **Get an instant quotation online:** visit www.aaticd.co.za, open the page for this course (Unit Standard AATICD-0506) and click **Get A Quotation**. 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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