



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

Energy Efficient HVAC Systems

Custom Courses / Engineering & Technical Maintenance

Unit Standard AATICD-0255 · NQF Level 5 · 10 Credits · 5 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to design, implement, and manage energy-efficient HVAC systems. Participants will understand key principles of HVAC energy optimization, system components, and regulatory standards to reduce operational costs and environmental impact.

Category	Custom Courses
Subfield	Engineering & Technical Maintenance
Unit Standard	AATICD-0255
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 principles of thermodynamics and heat transfer to analyze HVAC system performance.
- Evaluate energy efficiency metrics and identify opportunities for improvement in existing systems.
- Design HVAC system configurations that optimize energy consumption while maintaining comfort conditions.
- Implement control strategies such as variable speed drives and demand-controlled ventilation.
- Demonstrate compliance with South African energy efficiency regulations and standards.
- Analyze life-cycle costs and payback periods for energy-efficient HVAC upgrades.

WHO SHOULD ATTEND

- Ideal for HVAC technicians, facility managers, energy consultants, and engineers seeking to specialize in energy-efficient system design and retrofitting.

COURSE OUTLINE

Day 1: Fundamentals of Energy Efficiency in HVAC

- Introduction to energy efficiency concepts
- Overview of HVAC systems: components and operation
- Energy performance metrics: EER, COP, SEER, IPLV
- Factors affecting HVAC energy consumption
- Building envelope and its influence on HVAC loads
- Basic thermodynamics and heat transfer principles

Day 2: Energy-Efficient Design and System Selection

- Load calculation methods: Manual J and software tools
- High-efficiency equipment: chillers, boilers, heat pumps
- Variable refrigerant flow (VRF) systems
- Duct design and air distribution efficiency
- Zoning strategies and demand-controlled ventilation
- Introduction to Building Management Systems (BMS)

Day 3: Advanced Technologies and Renewable Integration

- Heat recovery ventilators (HRVs) and energy recovery ventilators (ERVs)
- Solar thermal and photovoltaic integration for HVAC
- Geothermal heat pump systems
- Thermal energy storage: chilled water and ice storage
- Desiccant cooling systems
- Smart thermostats and IoT-enabled controls

Day 4: Commissioning, Maintenance, and Optimization

- Commissioning process: design, construction, and acceptance
- Preventive and predictive maintenance practices
- Performance monitoring: trend logging and fault detection
- Retrofitting existing systems for efficiency
- Energy audits and benchmarking
- Optimization through controls and scheduling

Day 5: Standards, Regulations, and Practical Integration

- Overview of SA legislation: SANS 10400-XA, SANS 204, NRCS
- Energy efficiency labelling and minimum performance standards
- Financial analysis: payback period, life cycle cost
- Case studies of energy-efficient HVAC projects in SA
- Developing an energy management plan
- Course review and assessment

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-0255) 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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