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

Smart Grid Technology

Custom Courses / Energy, Oil and Gas

Unit Standard AATICD-0498 · NQF Level 5 · 4 Credits · 2 Days

COURSE OVERVIEW

This course provides a comprehensive introduction to Smart Grid Technology, covering the integration of digital communication and control systems into electrical power networks. Participants will gain a thorough understanding of smart grid components, functionalities, and benefits, enabling them to contribute effectively to the modernization of the electricity grid.

Category	Custom Courses
Subfield	Energy, Oil and Gas
Unit Standard	AATICD-0498
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 the fundamental principles of smart grid technology to real-world electricity network scenarios.
- Analyze the key components of a smart grid, including advanced metering infrastructure, distribution automation, and communication networks.
- Evaluate the benefits and challenges of smart grid implementation in the context of South Africa's energy landscape.
- Design a basic smart grid architecture for a specified application, considering interoperability and security requirements.
- Implement strategies for integrating renewable energy sources and demand-side management within a smart grid framework.
- Demonstrate an understanding of cybersecurity risks and mitigation measures in smart grid systems.

WHO SHOULD ATTEND

- This course is designed for engineers, technicians, project managers, and energy professionals who are involved in or transitioning to the deployment, operation, or management of smart grid technologies.

COURSE OUTLINE

Day 1: **Smart Grid Fundamentals and Communication Technologies**

- Introduction to smart grids: definition, drivers, and global trends
- Smart grid architecture: generation, transmission, distribution, and customer domains
- Communication technologies: wired and wireless options, protocols (e.g., IEC 61850, DNP3
- Sensors, actuators, and smart meters: functions and deployment
- Data management: big data analytics, cloud computing, and edge computing
- Cybersecurity fundamentals: threats, vulnerabilities, and mitigation strategies
- Regulatory and standards framework (e.g., NRS, IEC) in South Africa
- Case studies of smart grid projects in South Africa and Africa

Day 2: **Smart Grid Applications, Integration, and Future Trends**

- Demand response and load management strategies
- Distributed energy resources (DER) integration: solar PV, wind, and storage
- Microgrids and islanding: design and operational considerations
- Electric vehicles and vehicle-to-grid (V2G) technology
- Advanced metering infrastructure (AMI) and home area networks (HAN
- Grid automation: self-healing networks, fault detection, and restoration
- Smart grid analytics and predictive maintenance
- Future trends: artificial intelligence, blockchain, and Internet of Things (IoT) in smart grids

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-0498) 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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