



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

Electrical Power Systems

Custom Courses / Energy, Oil and Gas

Unit Standard AATICD-0507 · NQF Level 5 · 6 Credits · 3 Days

COURSE OVERVIEW

This course equips participants with a comprehensive understanding of electrical power systems, from generation and transmission to distribution and utilization. It covers the fundamental principles, components, and operational considerations necessary for safe and efficient management of electrical power in industrial and commercial settings.

Category	Custom Courses
Subfield	Energy, Oil and Gas
Unit Standard	AATICD-0507
Accreditation	SAQA Accredited · NQF Level 5 · 6 Credits
Duration	3 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply the fundamental principles of electrical power generation, transmission, and distribution to analyze system operations.
- Analyze the components and configurations of electrical power systems, including transformers, switchgear, and protection devices.
- Evaluate the performance of power systems under various load conditions and fault scenarios.
- Design basic electrical power distribution layouts for industrial and commercial facilities.
- Implement safety procedures and regulations relevant to electrical power systems.
- Demonstrate the ability to troubleshoot common electrical power system issues.

WHO SHOULD ATTEND

- This course is designed for electrical engineers, technicians, and maintenance personnel who are involved in the operation, maintenance, or design of electrical power systems.
- It is also suitable for facility managers and safety officers seeking to enhance their knowledge of electrical power infrastructure.

COURSE OUTLINE

Day 1: Fundamentals of Electrical Power Systems

- Overview of electrical power systems: generation, transmission, and distribution
- AC fundamentals: sinusoidal waveforms, RMS values, phasors
- Three-phase systems: balanced and unbalanced loads
- Power system components: generators, transformers, circuit breakers, and busbars
- Load types: resistive, inductive, capacitive, and non-linear
- Introduction to power flow and voltage regulation
- Earthing and safety in power systems

Day 2: Power System Analysis and Protection

- Load flow analysis: Gauss-Seidel and Newton-Raphson methods
- Fault analysis: symmetrical components, short-circuit calculations
- Protection devices: relays, fuses, and circuit breakers
- Protection coordination: time-current characteristics and selectivity
- Power factor correction: capacitor banks and synchronous condensers
- Earthing systems: solid, resistance, and reactance earthing
- Introduction to transient stability and switchgear operation

Day 3: Advanced Applications and System Integration

- Renewable energy integration: solar, wind, and energy storage
- Smart grid technologies: AMI, SCADA, and demand response
- Power quality: harmonics, voltage sags, and flicker
- Harmonic filters and mitigation techniques
- Energy efficiency: losses reduction and voltage optimization
- Case study: design of a small industrial power system
- Future trends in electrical power systems

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 **6 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 13,900.00	R 13,900.00
1	In-House	R 18,100.00	R 18,100.00
1	On-Campus (Pretoria)	R 20,800.00	R 20,800.00

UPCOMING SESSIONS

Start	End	Method	Venue
05 Oct 2026	07 Oct 2026	On-Campus	Nairobi, Kenya
05 Oct 2026	07 Oct 2026	On-Campus	Lusaka, Zambia
06 Oct 2026	08 Oct 2026	On-Campus	Kigali, Rwanda
06 Oct 2026	08 Oct 2026	On-Campus	Windhoek, Namibia
06 Oct 2026	08 Oct 2026	On-Campus	Bangkok, Thailand
07 Oct 2026	09 Oct 2026	On-Campus	Mbabane, Eswatini
07 Oct 2026	09 Oct 2026	Online	—
12 Oct 2026	14 Oct 2026	In-House	—

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-0507) 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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