



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

Communication Systems Management For Mission Operations Training

Law, Military Science and Security / Sovereignty of the State

Unit Standard 114845 · NQF Level 6 · 12 Credits · 9 Days

COURSE OVERVIEW

This course equips mission operations personnel with the skills to manage communication systems effectively in complex operational environments. Participants will learn to configure, monitor, and troubleshoot communication networks to ensure reliable data and voice transmission during critical missions.

Category	Law, Military Science and Security
Subfield	Sovereignty of the State
Unit Standard	114845
Accreditation	SAQA Accredited · NQF Level 6 · 12 Credits
Duration	9 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply communication system protocols and standards to ensure interoperability across mission-critical networks.
- Analyze communication system performance metrics to identify and resolve bottlenecks or failures.
- Evaluate security risks in mission communication systems and implement mitigation strategies.
- Design communication system configurations to support real-time mission requirements.
- Implement maintenance and upgrade procedures for communication hardware and software.
- Demonstrate effective incident response and recovery procedures for communication system outages.

WHO SHOULD ATTEND

- This course is designed for mission controllers, communication technicians, and operations managers involved in space, defence, or emergency response operations who require robust communication system management skills.

COURSE OUTLINE

Day 1: Introduction to Communication Systems in Mission Operations

- Overview of mission operations and communication requirements
- Basic communication system components: transmitters, receivers, antennas
- Communication links: uplink, downlink, crosslink
- Spectrum allocation and regulatory considerations
- Introduction to SAQA unit standard 114845

Day 2: Communication Fundamentals and Signal Propagation

- Electromagnetic spectrum and frequency bands
- Modulation techniques: AM, FM, PSK, QAM
- Signal propagation: free space loss, atmospheric effects
- Noise sources and signal-to-noise ratio (SNR)
- Link budget analysis fundamentals

Day 3: Communication System Hardware and Infrastructure

- Antenna types: parabolic, phased array, dipole
- RF components: amplifiers, mixers, filters
- Ground station architecture and subsystems
- Satellite transponders and repeaters
- Multiple access techniques: FDMA, TDMA, CDMA

Day 4: Network Protocols and Data Link Management

- OSI and TCP/IP models overview
- Data link layer protocols: HDLC, CCSDS
- Error detection: CRC, parity, checksum
- Error correction: ARQ, FEC
- Packet structure and framing

Day 5: Mission Operations Communication Procedures

- Communication planning and scheduling
- Pass procedures: acquisition, tracking, handover
- Contingency communication protocols
- Spectrum management and frequency coordination
- Case studies of mission communication failures

Day 6: System Performance Monitoring and Troubleshooting

- Performance metrics: BER, Eb/N0, throughput
- Monitoring tools: spectrum analyzers, network monitors
- Troubleshooting methodology
- Common faults: interference, hardware failure, misconfiguration
- Preventive maintenance practices

Day 7: Security and Reliability in Mission Communications

- Threat landscape: jamming, eavesdropping, spoofing
- Encryption standards: AES, public-key infrastructure
- Authentication and access control
- Redundancy: hot/cold spares, path diversity

- Reliability modeling and fault tolerance

Day 8: Advanced Topics and Emerging Technologies

- Adaptive modulation and coding
- Software-defined radio (SDR) architectures
- Optical communications: laser links, free-space optics
- Quantum communications basics
- Networking in space: inter-satellite links, delay-tolerant networking

Day 9: Integration, Simulation, and Final Assessment

- Capstone design exercise: mission scenario
- Simulation of communication procedures
- Team-based troubleshooting challenge
- Review of key concepts
- Written and practical 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 **12 NQF credits** at **NQF Level 6**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 36,600.00	R 36,600.00
1	In-House	R 47,600.00	R 47,600.00
1	On-Campus (Pretoria)	R 55,000.00	R 55,000.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	20 Aug 2026	On-Campus	Dubai, UAE
11 Aug 2026	21 Aug 2026	On-Campus	Pretoria, South Africa
12 Aug 2026	24 Aug 2026	On-Campus	Abu Dhabi, UAE
13 Aug 2026	25 Aug 2026	On-Campus	Durban, South Africa
13 Aug 2026	25 Aug 2026	On-Campus	Mauritius
14 Aug 2026	26 Aug 2026	On-Campus	Cape Town, South Africa
17 Aug 2026	27 Aug 2026	On-Campus	Pretoria, South Africa
18 Aug 2026	28 Aug 2026	On-Campus	Abu Dhabi, UAE

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 114845) 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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