



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

Advanced Construction Technology Applications And Implementation Training

Physical Planning and Construction / Physical Planning, Design and Management

Unit Standard 116359 · NQF Level 7 · 15 Credits · 12 Days

COURSE OVERVIEW

This course equips learners with advanced knowledge and practical skills to apply and implement modern construction technologies in complex building projects. It covers the integration of digital tools, sustainable materials, and innovative construction methods to enhance efficiency, quality, and safety on site.

Category	Physical Planning and Construction
Subfield	Physical Planning, Design and Management
Unit Standard	116359
Accreditation	SAQA Accredited · NQF Level 7 · 15 Credits
Duration	12 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply advanced construction technologies to improve project efficiency and quality.
- Analyze the suitability of innovative materials and methods for specific construction contexts.
- Evaluate the impact of digital tools (e.g., BIM, drones) on project planning and execution.
- Design implementation plans for integrating new technologies into existing construction workflows.
- Demonstrate compliance with relevant South African construction regulations and standards.
- Implement risk management strategies for technology adoption in construction projects.

WHO SHOULD ATTEND

- Construction managers, project engineers, senior site supervisors, and technical professionals seeking to deepen their expertise in advanced construction technologies and implementation strategies.

COURSE OUTLINE

Day 1: Introduction to Advanced Construction Technology

- Overview of the construction technology landscape
- SAQA Unit Standard 116359 and its application
- The role of technology in improving productivity and safety
- Current challenges and opportunities in the South African construction sector
- Introduction to the course project and portfolio of evidence
- Health, safety, and environmental considerations

Day 2: Digital Design and Modelling Fundamentals

- Principles of Computer-Aided Design (CAD)
- Introduction to Building Information Modelling (BIM)
- Model elements: architectural, structural, MEP
- Clash detection and coordination basics
- Software overview: Revit, AutoCAD, etc.
- File formats and interoperability

Day 3: Advanced Building Information Modelling (BIM) Processes

- BIM dimensions (3D, 4D scheduling, 5D cost)
- Common Data Environment (CDE) and collaboration
- Model authoring and management responsibilities
- Quantity take-off and cost estimation from models
- Case studies of BIM in South African projects
- Developing a BIM Execution Plan (BEP)

Day 4: Modern Construction Materials and Methods

- High-performance concrete and composites
- Advanced steel and timber systems
- Prefabricated and modular construction components
- Sustainable and green building materials
- Material testing and quality assurance
- Logistics and supply chain for advanced materials

Day 5: Robotics and Automation in Construction

- Robotic bricklaying and welding
- Automated guided vehicles (AGVs) for material handling
- Drones for surveying, inspection, and progress monitoring
- 3D printing/additive manufacturing for components
- Safety protocols for human-robot collaboration
- Cost-benefit analysis of automation

Day 6: Digital Surveying and Geospatial Technologies

- Global Navigation Satellite Systems (GNSS/GPS)
- Robotic total stations and their applications
- 3D laser scanning and point cloud generation
- Drone-based photogrammetry and LiDAR
- Data processing and modelling software

- Accuracy, tolerances, and quality control

Day 7: Project Planning and Control with Advanced Software

- Advanced features of scheduling software (e.g., MS Project, Primavera)
- Linking 3D models with schedules (4D simulation)
- Resource management and allocation software
- Earned Value Management (EVM) principles
- Dashboard and reporting tools for stakeholders
- Risk management integration

Day 8: Sustainable Construction and Green Technology

- Green Star South Africa and other rating systems
- Passive design and building envelope optimisation
- Solar PV, geothermal, and other renewable systems
- Water harvesting, recycling, and efficient fixtures
- Life Cycle Assessment (LCA) of materials and systems
- Sustainable site management practices

Day 9: Smart Construction and Internet of Things (IoT)

- IoT architecture: sensors, gateways, cloud platforms
- Applications: environmental monitoring, equipment tracking, worker safety
- Wearable technology and personal protective equipment (PPE)
- Data analytics and dashboards for decision-making
- Cybersecurity considerations for connected sites
- Case studies of IoT implementation

Day 10: Quality Management and Digital Compliance

- Digital checklists and inspection protocols
- Photo and video documentation with geotagging
- Compliance with the National Building Regulations (NBR)
- Software for managing non-conformances (e.g., Aconex, Procore)
- Creating digital Operation and Maintenance (O&M) manuals
- Auditing and continuous improvement processes

Day 11: Integration and Implementation Strategy

- Conducting a technology needs assessment
- Developing a phased implementation roadmap
- Change management and training strategies
- Cost-benefit analysis and ROI calculation
- Risk assessment and mitigation planning
- Stakeholder engagement and communication planning

Day 12: Practical Application and Course Consolidation

- Workshop: Developing a technology implementation plan for a case study
- Portfolio of evidence compilation and review
- Presentation skills and professional reporting
- Discussion on future trends in construction technology
- Course summary and assessment submission
- Action planning for continuous professional development (CPD)

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 **15 NQF credits** at **NQF Level 7**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 47,100.00	R 47,100.00
1	In-House	R 61,300.00	R 61,300.00
1	On-Campus (Pretoria)	R 70,700.00	R 70,700.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	18 Aug 2026	On-Campus	Pretoria, South Africa
03 Aug 2026	18 Aug 2026	On-Campus	Lagos, Nigeria
04 Aug 2026	19 Aug 2026	On-Campus	Johannesburg, South Africa
05 Aug 2026	20 Aug 2026	On-Campus	Mauritius
06 Aug 2026	21 Aug 2026	On-Campus	Cape Town, South Africa
07 Aug 2026	24 Aug 2026	On-Campus	Dubai, UAE
10 Aug 2026	25 Aug 2026	On-Campus	Abu Dhabi, UAE
11 Aug 2026	26 Aug 2026	On-Campus	Mauritius

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 116359) 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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