



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

Laboratory Testing For Aggregate Materials In Construction Training

Physical Planning and Construction / Civil Engineering Construction

Unit Standard 116560 · NQF Level 3 · 10 Credits · 7 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to perform laboratory tests on aggregate materials used in construction. It covers sampling, test procedures, and analysis to ensure compliance with South African National Standards (SANS) and quality control requirements. The training is critical for ensuring the durability and safety of construction materials.

Category	Physical Planning and Construction
Subfield	Civil Engineering Construction
Unit Standard	116560
Accreditation	SAQA Accredited · NQF Level 3 · 10 Credits
Duration	7 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply sampling techniques for aggregate materials according to SANS standards.
- Demonstrate the correct use of laboratory equipment for aggregate testing.
- Perform sieve analysis, density, and water absorption tests on aggregates.
- Analyze test results to determine aggregate suitability for construction.
- Evaluate compliance of aggregate materials with specified construction standards.
- Implement quality control procedures in aggregate testing processes.

WHO SHOULD ATTEND

- Laboratory technicians, quality controllers, construction site supervisors, and civil engineering graduates who need to perform or oversee aggregate testing in construction laboratories.

COURSE OUTLINE

Day 1: Introduction to Aggregate Materials and Sampling

- Overview of aggregate materials: natural vs. manufactured.
- Significance of aggregate testing in construction.
- Relevant SANS and TMH standards for aggregate testing.
- Sampling techniques: bulk sampling, reduction, and splitting.
- Sample preparation: drying, sieving, and conditioning.
- Laboratory safety and quality assurance principles.

Day 2: Particle Size Distribution and Sieve Analysis

- Theory of particle size distribution.
- Sieve analysis procedure for coarse aggregates (SANS 3001-AG1).
- Sieve analysis procedure for fine aggregates (SANS 3001-AG2).
- Plotting grading curves and determining fineness modulus.
- Interpretation of results: grading limits and specification compliance.
- Quality control checks and troubleshooting.

Day 3: Relative Density and Water Absorption

- Concepts of relative density (specific gravity) and water absorption.
- Test method for coarse aggregates (SANS 3001-AG20).
- Test method for fine aggregates (SANS 3001-AG21).
- Use of pycnometers and balances.
- Calculations and corrections for temperature.
- Application in mix design and quality control.

Day 4: Aggregate Crushing, Impact, and Abrasion Tests

- Mechanical properties of aggregates: strength and toughness.
- ACV test procedure (SANS 3001-AG10).
- AIV test procedure (SANS 3001-AG11).
- Los Angeles Abrasion test (SANS 3001-AG12).
- Reporting and interpretation of results.
- Correlation between tests and field performance.

Day 5: Flakiness Index, Elongation Index, and Shape Tests

- Significance of particle shape and texture.
- Flakiness index test (SANS 3001-AG4).
- Elongation index test (SANS 3001-AG5).
- Angularity test for fine aggregates (uncompacted void content).
- Interpretation of shape indices.
- Influence on workability, strength, and compaction.

Day 6: Organic Impurities, Clay Lumps, and Deleterious Materials

- Overview of deleterious substances in aggregates.
- Organic impurities test (SANS 3001-AG30).
- Clay lumps and friable particles test (SANS 3001-AG31).
- Lightweight particles test (SANS 3001-AG32).
- Soundness test (sodium sulfate or magnesium sulfate).

- Reporting and specification compliance.

Day 7: Practical Integration, Data Analysis, and Certification

- Hands-on practical session: complete aggregate testing suite.
- Data analysis and correlation between different tests.
- Report writing: format, calculations, and conclusions.
- Quality assurance and inter-laboratory comparisons.
- Common non-conformances and troubleshooting.
- Review of unit standard outcomes and assessment preparation.

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 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 28,200.00	R 28,200.00
1	In-House	R 36,700.00	R 36,700.00
1	On-Campus (Pretoria)	R 42,300.00	R 42,300.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	11 Aug 2026	On-Campus	Cape Town, South Africa
04 Aug 2026	12 Aug 2026	On-Campus	Dubai, UAE
05 Aug 2026	13 Aug 2026	On-Campus	Pretoria, South Africa
05 Aug 2026	13 Aug 2026	On-Campus	Lagos, Nigeria
06 Aug 2026	14 Aug 2026	On-Campus	Johannesburg, South Africa
07 Aug 2026	17 Aug 2026	On-Campus	Mauritius
10 Aug 2026	18 Aug 2026	On-Campus	Dubai, UAE
11 Aug 2026	19 Aug 2026	On-Campus	Pretoria, South Africa

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 116560) 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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