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

Select Radiation Or Contaminant Measurement Instruments Training

Physical, Mathematical, Computer and Life Sciences / Physical Sciences

Unit Standard 119495 · NQF Level 3 · 12 Credits · 9 Days

COURSE OVERVIEW

This course equips learners with the competencies to select appropriate radiation or contaminant measurement instruments for specific workplace scenarios. It covers the principles of radiation detection, instrument capabilities, and selection criteria to ensure accurate monitoring and compliance with health and safety regulations. Learners will be able to justify instrument choices based on operational requirements and risk assessments.

Category	Physical, Mathematical, Computer and Life Sciences
Subfield	Physical Sciences
Unit Standard	119495
Accreditation	SAQA Accredited · NQF Level 3 · 12 Credits
Duration	9 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS — verifiable online

LEARNING OUTCOMES

- Apply knowledge of radiation types and contaminant properties to identify measurement needs.
- Analyze instrument specifications and operational parameters to match workplace requirements.
- Evaluate instrument performance, calibration, and limitations for specific measurement tasks.
- Select appropriate instruments based on risk assessment, regulatory compliance, and cost-effectiveness.
- Demonstrate the ability to justify instrument selection through documented rationale.
- Implement instrument selection procedures that align with organizational policies and safety standards.

WHO SHOULD ATTEND

- This course is designed for health and safety practitioners, radiation protection officers, laboratory technicians, and anyone responsible for selecting or using radiation or contaminant measurement instruments in industrial, medical, or environmental settings.

COURSE OUTLINE

Day 1: Introduction to Radiation and Contaminant Measurement

- Overview of radiation: alpha, beta, gamma, neutron
- Types of contaminants: chemical, biological, radioactive
- South African legislation: NNR, OHS Act, SANS codes
- Basic health physics and ALARA principle
- Introduction to measurement units: becquerel, sievert, gray

Day 2: Principles of Detection and Measurement Instruments

- Gas-filled detectors: ionisation chambers, proportional counters, Geiger-Müller tubes
- Scintillation detectors: organic, inorganic, and photomultiplier tubes
- Semiconductor detectors: silicon, germanium
- Energy resolution, efficiency, and dead time
- Calibration standards and traceability

Day 3: Selection Criteria for Measurement Instruments

- Factors: radiation type, energy, intensity, field conditions
- Instrument selection for alpha, beta, gamma, neutron fields
- Contaminant measurement: surface, air, liquid, soil
- Environmental conditions: temperature, humidity, pressure
- Cost, durability, and user expertise considerations

Day 4: Survey Meters and Portable Instruments

- Types: dose rate meters, contamination monitors, neutron survey meters
- Practical operation: Geiger-Müller, ion chamber, scintillation probes
- Pre-use inspection, battery check, source check
- Survey techniques: scanning, grid, and background measurement
- Recording and reporting survey data

Day 5: Personal Dosimetry and Area Monitoring

- Passive dosimeters: film badges, TLD, OSL
- Active dosimeters: electronic personal dosimeters, alarming
- Area monitoring: fixed monitors, alarm thresholds
- Dose limits: occupational, public, emergency
- Record keeping and dose tracking systems

Day 6: Specialised Instruments for Contaminant Measurement

- Air sampling: filters, impactors, continuous air monitors
- Liquid monitoring: flow-through detectors, scintillation counting
- Gamma spectroscopy: HPGe, NaI(Tl) detectors
- Alpha spectroscopy and radon measurement
- Surface contamination: smear tests, direct measurement

Day 7: Instrument Calibration and Quality Assurance

- Calibration sources: reference standards, traceability
- Calibration procedures: geometry, energy, efficiency
- Quality control: background checks, response tests
- Uncertainty analysis and error propagation

- Maintenance: cleaning, battery care, storage

Day 8: **Practical Application and Field Scenarios**

- Scenario-based exercises: nuclear facility, medical, industrial
- Simulated contamination event: survey, mapping, decontamination verification
- Data interpretation: count rates, dose rates, nuclide identification
- Emergency response: high radiation, contamination spread
- Personal protective equipment and contamination control

Day 9: **Integration, Assessment, and Certification**

- Review of key concepts and instrument selection matrix
- Practical assessment: instrument operation, survey, calibration
- Written assessment: theory, regulations, scenarios
- Feedback and improvement areas
- Certification requirements and CPD opportunities

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 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 33,300.00	**R 33,300.00**
1	In-House	R 43,300.00	**R 43,300.00**
1	On-Campus (Pretoria)	R 50,000.00	**R 50,000.00**

UPCOMING SESSIONS

Start	End	Method	Venue
04 Aug 2026	14 Aug 2026	On-Campus	Pretoria, South Africa
04 Aug 2026	14 Aug 2026	On-Campus	Lagos, Nigeria
05 Aug 2026	17 Aug 2026	On-Campus	Johannesburg, South Africa
06 Aug 2026	18 Aug 2026	On-Campus	Mauritius
07 Aug 2026	19 Aug 2026	On-Campus	Cape Town, South Africa
10 Aug 2026	20 Aug 2026	On-Campus	Pretoria, South Africa
11 Aug 2026	21 Aug 2026	On-Campus	Abu Dhabi, UAE
12 Aug 2026	24 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 119495) 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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