



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

Pipe Joining And Fitting Installation Techniques Training

Physical Planning and Construction / Civil Engineering Construction

Unit Standard 115898 · NQF Level 3 · 10 Credits · 7 Days

COURSE OVERVIEW

This course equips learners with the knowledge and practical skills required to join pipes and install fittings in various plumbing and piping systems. Participants will gain competence in selecting appropriate joining methods, applying correct techniques, and ensuring installations meet industry standards and safety regulations.

Category	Physical Planning and Construction
Subfield	Civil Engineering Construction
Unit Standard	115898
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 correct procedures for joining different types of pipe materials (e.g., PVC, copper, steel) using appropriate methods such as solvent welding, soldering, threading, or compression fitting.
- Demonstrate the ability to select and use the correct tools and equipment for pipe joining and fitting installation.
- Interpret technical drawings and specifications to plan and execute pipe installation layouts.
- Implement safety protocols and quality control measures during pipe joining and fitting activities.
- Analyze and troubleshoot common issues in pipe joints and fittings to ensure leak-free and durable installations.

WHO SHOULD ATTEND

- This course is designed for plumbers, pipe fitters, construction workers, and technicians who are involved in the installation and maintenance of piping systems in residential, commercial, or industrial settings.

COURSE OUTLINE

Day 1: Introduction to Pipe Joining and Fitting Installation

- Overview of course outcomes and assessment criteria per SAQA Unit Standard 115898.
- Types of pipes: metal (steel, copper), plastic (PVC, HDPE, PEX), and composite.
- Common fittings: elbows, tees, couplings, reducers, flanges.
- Joining methods overview: threading, welding, brazing, solvent welding, compression, and push-fit.
- Safety induction: hazard identification, risk assessment, PPE requirements.
- Introduction to tools: pipe cutters, reamers, threading dies, wrenches.
- Basic pipe system design: flow direction, supports, expansion considerations.
- Workplace documentation: permits, method statements, and quality records.

Day 2: Metal Pipe Joining – Threading and Welding

- Cutting and reaming metal pipes: tools and techniques.
- Threading with manual and power dies: pipe dies, threading oil, thread size standards.
- Assembly of threaded joints: sealants (PTFE tape, pipe dope), tightening torque.
- Introduction to welding: oxy-acetylene and arc welding basics.
- Welding positions and joint preparation: beveling, cleaning, tack welding.
- Inspection of welded joints: visual checks, weld defects (cracks, porosity, slag).
- Safety for welding: fire prevention, ventilation, welding screens.
- Practical exercise: thread and weld a simple pipe assembly.

Day 3: Plastic Pipe Joining – Solvent Welding and Fusion

- Plastic pipe types: PVC, CPVC, HDPE, ABS – properties and applications.
- Solvent welding process: cleaning, primer, cement application, assembly, curing.
- Factors affecting solvent weld quality: temperature, humidity, pipe alignment.
- Butt fusion for HDPE: temperature, pressure, alignment, cooling.
- Electrofusion: fitting design, power source, fusion cycle.
- Joint testing: pressure test, visual inspection, peel test for fusion.
- Safety: ventilation for solvent fumes, hot work permits for fusion.
- Practical exercise: solvent weld a PVC assembly and perform a butt fusion joint.

Day 4: Compression, Push-Fit, and Flanged Joints

- Compression fittings: components (olive, nut, body), assembly steps, tightening.
- Push-fit fittings: design, insertion depth, release tools, compatibility.
- Flanged joints: flange types (slip-on, weld neck), gasket materials, bolt tightening sequence.
- Torque specifications and use of torque wrenches.
- Pressure testing methods: hydrostatic and pneumatic, safety precautions.
- Leak detection: soap solution, pressure drop, electronic detectors.
- Common faults: over-tightening, misalignment, damaged O-rings.
- Practical exercise: install compression, push-fit, and flanged joints on a test rig.

Day 5: Pipe Support, Alignment, and System Assembly

- Pipe supports: hangers, clamps, rollers, anchors – selection and spacing.
- Pipe alignment: laser levels, spirit levels, string lines.
- Thermal expansion: calculation, expansion loops, bellows, sliding supports.
- Assembly of multi-joint systems: planning sequence, access for tools.
- Integration of valves, gauges, and other fittings.

- SANS standards for pipe installation (e.g., SANS 10162, SANS 10120).
- Quality control: checklists, inspection hold points.
- Practical exercise: assemble a section of piping system with supports and expansion loops.

Day 6: Testing, Commissioning, and Troubleshooting

- Hydrostatic testing: filling, pressurization, hold time, acceptance criteria.
- Pneumatic testing: safety risks, pressure limits, soap testing.
- Flushing and cleaning: debris removal, chemical cleaning, pigging.
- Commissioning procedures: system fill, venting, flow verification.
- Troubleshooting: leaks, misalignment, noise, water hammer.
- Fault rectification: re-making joints, replacing fittings, adjusting supports.
- Documentation: test certificates, as-built drawings, maintenance logs.
- Practical exercise: test a previously assembled system and troubleshoot any leaks.

Day 7: Integration, Assessment, and Certification

- Review of key concepts and common mistakes.
- Integrated practical assessment: install a pipe system from scratch using multiple joining methods.
- Theoretical assessment: multiple-choice, short answer, and diagram labeling.
- Safety observation during assessment.
- Feedback session: individual results and improvement areas.
- Certification requirements: portfolio of evidence, logbook, workplace sign-off.
- Career pathways: further SAQA unit standards, trade test preparation.
- Course evaluation and closure.

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	Johannesburg, South Africa
04 Aug 2026	12 Aug 2026	On-Campus	Mauritius
05 Aug 2026	13 Aug 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	14 Aug 2026	On-Campus	Dubai, UAE
07 Aug 2026	17 Aug 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	17 Aug 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	18 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	18 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 115898) 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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