



Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza · 1122 Burnett St, Hatfield 0028 · Pretoria, Gauteng · South Africa

Tel: +27 12 004 8389 · Mobile: +27 65 077 6310

Email: apply@aaticd.co.za · Website: www.aaticd.co.za

COURSE BROCHURE

Set Up Process For Tube And Pipe Production Training

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 119053 · NQF Level 3 · 30 Credits · 27 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to set up processes for tube and pipe production in a manufacturing environment. It covers the identification of specifications, preparation of materials and tools, and the setup of machines and equipment to ensure efficient and safe production. The course is designed to meet the requirements of the SAQA unit standard 119053.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	119053
Accreditation	SAQA Accredited · NQF Level 3 · 30 Credits
Duration	27 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Identify and interpret production specifications and requirements for tube and pipe production.
- Prepare materials, tools, and equipment according to production plans.
- Set up machines and equipment for tube and pipe production in line with standard operating procedures.
- Apply quality control measures to ensure product conformance during setup.
- Demonstrate safe working practices and adherence to health and safety regulations during setup.
- Evaluate the setup process and make adjustments to optimize production efficiency.

WHO SHOULD ATTEND

- This course is intended for production operators, machine setters, and team leaders in the tube and pipe manufacturing industry who are responsible for setting up production processes.

COURSE OUTLINE

Day 1: Introduction to Tube and Pipe Production

- Overview of unit standard 119053
- Types of tubes and pipes: materials, sizes, applications
- Production process stages: cutting, bending, joining, finishing
- Safety protocols in tube and pipe production
- Quality standards and specifications

Day 2: Materials and Properties

- Steel, stainless steel, copper, aluminium, plastic pipes
- Mechanical properties: strength, ductility, hardness
- Corrosion resistance and thermal properties
- Material standards (e.g., ASTM, SANS)
- Material handling and storage

Day 3: Measurement and Inspection Tools

- Vernier callipers, micrometres, tape measures
- Go/no-go gauges, wall thickness gauges
- Measuring diameter, wall thickness, ovality
- Inspection procedures and documentation
- Tolerance interpretation

Day 4: Cutting Processes – Manual and Mechanical

- Hacksaws, tube cutters, abrasive saws
- Band saws, chop saws, cold saws
- Blade selection and speed settings
- Cutting parameters for different materials
- Deburring techniques

Day 5: Pipe Bending – Principles and Hand Bending

- Bending theory: tension, compression, neutral axis
- Hand benders: lever type, ratchet type
- Bend allowance calculations
- Springback and overbending
- Common defects and remedies

Day 6: Pipe Bending – Machine Bending

- Manual rotary draw benders
- Mandrel bending: when and how
- Setting bend angle and radius stops
- Lubrication and cooling
- Troubleshooting wrinkles, flattening, cracks

Day 7: Pipe Bending – CNC and Advanced Techniques

- CNC bender controls and programming
- Multi-bend sequences and collision avoidance
- Springback compensation techniques
- Heat bending for large diameters

- Induction bending overview

Day 8: Joining Methods – Threading and Mechanical Fittings

- Thread types: BSP, NPT, metric
- Manual and machine threading
- Thread cutting dies and chasers
- Mechanical fittings: compression, flared, push-fit
- Sealants and jointing compounds

Day 9: Joining Methods – Welding Preparation

- Weld joint designs: butt, socket, fillet
- Beveling techniques for thick walls
- MIG and TIG welding principles
- Setting welding parameters
- Tack welding procedures

Day 10: Joining Methods – Welding and Brazing

- Full welding procedures for steel and stainless
- Brazing: filler metals, fluxes, heating
- Post-weld heat treatment basics
- Non-destructive testing (visual, dye penetrant)
- Weld defect identification

Day 11: Flanging and Grooving

- Flange types: slip-on, weld neck, blind
- Roll grooving for grooved couplings
- Flange bolting and gasket selection
- Torque tightening sequences
- Hydrostatic testing

Day 12: Assembly and Erection of Pipe Systems

- Pipe routing principles
- Spool piece fabrication
- Hanger types: clevis, roller, spring
- Support spacing and load calculations
- Alignment techniques: laser, straight edge

Day 13: Pressure Testing and Leak Detection

- Hydrostatic test procedure and safety
- Pneumatic test precautions
- Leak detection methods: soap solution, ultrasonic
- Repair techniques: sealants, re-welding
- Test records and certification

Day 14: Surface Preparation and Coating

- Cleaning methods: abrasive blasting, chemical
- Primer and paint application
- Wrapping tapes and heat shrink sleeves
- Coating thickness measurement
- Standards: SSPC, NACE

Day 15: Quality Control and Documentation

- QC plan for tube and pipe production
- Inspection checkpoints: raw material, in-process, final
- Traceability: heat numbers, batch records
- Non-conformance reports
- Corrective and preventive actions

Day 16: Health, Safety, and Environment

- OHS Act and relevant regulations
- Hazard identification: pinch points, hot work, pressure
- PPE: gloves, goggles, welding screens
- Fire safety and extinguisher use
- Emergency response procedures

Day 17: Production Planning and Work Instructions

- Isometric drawings and P&IDs;
- Bill of materials and cut lists
- Sequence of operations
- Time estimation and production rates
- Work instruction templates

Day 18: Automation and Industry 4.0 in Tube Production

- Automated cutting and bending cells
- Robotic welding for pipe joints
- Digital measurement and data logging
- Industry 4.0: IoT, cloud-based QC
- Cost-benefit analysis of automation

Day 19: Troubleshooting and Problem Solving

- Common defects: ovality, wrinkling, weld porosity
- Root cause analysis: fishbone diagram, 5 Whys
- Corrective action plans
- Process adjustment techniques
- Continuous improvement principles

Day 20: Practical Integration and Assessment

- Practical project: fabricate a pipe assembly
- Cutting, bending, joining, testing
- Quality inspection and documentation
- Final assessment and feedback
- Course review and certification

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 **30 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 79,400.00	R 79,400.00
1	In-House	R 103,200.00	R 103,200.00
1	On-Campus (Pretoria)	R 119,100.00	R 119,100.00

UPCOMING SESSIONS

Start	End	Method	Venue
05 Aug 2026	10 Sep 2026	On-Campus	Pretoria, South Africa
05 Aug 2026	10 Sep 2026	On-Campus	Lagos, Nigeria
06 Aug 2026	11 Sep 2026	On-Campus	Johannesburg, South Africa
07 Aug 2026	14 Sep 2026	On-Campus	Mauritius
10 Aug 2026	15 Sep 2026	On-Campus	Dubai, UAE
11 Aug 2026	16 Sep 2026	On-Campus	Pretoria, South Africa
12 Aug 2026	17 Sep 2026	On-Campus	Abu Dhabi, UAE
13 Aug 2026	18 Sep 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 119053) 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.

Accredited Africa Training Institute for Capacity Development

Unit FO409, Hatfield Plaza, 1122 Burnett St, Hatfield 0028, Pretoria, Gauteng, South Africa
Tel: +27 12 004 8389 · WhatsApp: +27 65 077 6310 · apply@aaticd.co.za · www.aaticd.co.za