



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

Produce Cold Formed Tube And Pipe Training

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 119052 · NQF Level 4 · 50 Credits · 47 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills required to produce cold formed tube and pipe in a manufacturing environment. It covers the principles of cold forming, machine setup, operation, and quality control to ensure compliance with industry standards.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	119052
Accreditation	SAQA Accredited · NQF Level 4 · 50 Credits
Duration	47 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Explain the principles of cold forming for tube and pipe production.
- Set up and operate cold forming machinery according to specifications.
- Monitor and control the forming process to maintain product quality.
- Inspect finished products for defects and ensure compliance with standards.
- Apply safety procedures and maintain a safe working environment.

WHO SHOULD ATTEND

- This course is designed for machine operators, production supervisors, and technicians involved in tube and pipe manufacturing who need to upskill in cold forming processes.

COURSE OUTLINE

Day 1: Introduction to Cold Formed Tube and Pipe Production

- Overview of unit standard 119052 and course structure
- Industry applications of cold formed tube and pipe
- Basic metallurgy for cold forming
- Safety regulations and personal protective equipment (PPE)
- Introduction to cold forming vs hot forming

Day 2: Materials and Material Handling

- Types of metals and alloys for tube/pipe production
- Mechanical properties: yield strength, ductility, hardness
- Material receiving, inspection, and storage
- Handling equipment: cranes, forklifts, and slings
- Material traceability and documentation

Day 3: Cold Forming Processes Overview

- Roll forming process and applications
- Tube bending techniques (mandrel, rotary draw)
- Swaging and expanding operations
- Lubricants: types and application methods
- Common defects: wrinkling, cracking, springback

Day 4: Tube and Pipe Manufacturing Equipment

- Tube mill components: uncoiler, accumulator, forming section
- Welding stations and seam guides
- Sizing and straightening machines
- Cutting equipment: saws, shears
- Preventative maintenance schedules

Day 5: Roll Tooling and Setup

- Roll tool materials and coatings
- Roll profile design basics
- Setup procedures: shimming, alignment, gap adjustment
- Tooling inspection and replacement criteria
- Troubleshooting misalignment issues

Day 6: Forming Parameters and Process Control

- Forming speed and its impact
- Roll pressure and material thinning
- Temperature considerations in cold forming
- Process control charts and data logging
- Parameter adjustment for material variations

Day 7: Quality Control and Inspection

- Quality specifications per industry standards (ASTM, EN)
- Measurement tools and techniques
- Visual inspection criteria: surface defects, scratches
- Dimensional checks: OD, ID, wall thickness

- Non-conformance reporting and corrective actions

Day 8: Welding Processes for Tube and Pipe

- High-frequency welding: induction and contact
- Weld setup: coil positioning, impedance
- Weld bead formation and control
- Common weld defects: cold welds, burn-through
- Weld testing: visual, ultrasonic, hydrostatic

Day 9: Post-Forming Operations

- Straightening methods: roller, press
- Cutting to length: sawing, shearing, laser
- End finishing: deburring, bevelling
- Surface treatment: cleaning, oiling
- Final inspection and packaging

Day 10: Tooling Changeovers and Setup Reduction

- Changeover planning and scheduling
- SMED (Single-Minute Exchange of Die) concepts
- Pre-set tooling and quick-change systems
- Step-by-step changeover procedure
- Setup documentation and standard work

Day 11: Troubleshooting and Problem Solving

- Systematic troubleshooting: 5 Whys, fishbone diagram
- Dimensional problems: ovality, wall thickness variation
- Surface defects: scratches, die marks
- Equipment malfunctions: vibration, misalignment
- Corrective action plans and follow-up

Day 12: Health, Safety, and Environmental Compliance

- Machine guarding and safety interlocks
- Lockout/tagout procedures
- Noise control and hearing protection
- Hazardous materials: coolants, lubricants
- Waste management and recycling

Day 13: Production Planning and Scheduling

- Reading production orders and job cards
- Material requirements planning (MRP)
- Tooling availability and setup times
- Production scheduling techniques
- Real-time monitoring and adjustments

Day 14: Data Recording and Reporting

- Production logs and shift reports
- Quality control checklists
- Downtime tracking and analysis
- Defect reporting and trend analysis
- Shift handover communication

Day 15: Advanced Cold Forming Techniques

- Hydroforming: process and applications
- Roll forming high-strength steels
- Pre-piercing and post-piercing operations
- Forming of tailored blanks
- Advanced lubrication and cooling methods

Day 16: Automation and Industry 4.0 in Tube Production

- Automated material handling and feeding
- Sensors for temperature, speed, dimensions
- PLC programming basics for forming lines
- Data collection and real-time monitoring
- Predictive maintenance using IoT

Day 17: Lean Manufacturing and Continuous Improvement

- Lean principles: value, value stream, flow, pull, perfection
- Types of waste: overproduction, waiting, motion
- 5S methodology: sort, set in order, shine, standardize, sustain
- Kaizen: continuous improvement cycles
- Value stream mapping basics

Day 18: Teamwork and Communication in Production

- Effective communication techniques
- Shift handover protocols
- Team roles and responsibilities
- Conflict resolution strategies
- Safety culture and near-miss reporting

Day 19: Practical Assessment Preparation

- Recap of cold forming processes and equipment
- Hands-on practice: tooling setup, parameter adjustment
- Quality inspection drills
- Troubleshooting scenarios
- Assessment criteria review

Day 20: Final Assessment and Course Wrap-Up

- Final practical assessment: produce a tube/pipe to specification
- Written test on theory and safety
- One-on-one feedback session
- Course evaluation and certificates
- Career pathways and further training 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 **50 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 130,600.00	R 130,600.00
1	In-House	R 169,800.00	R 169,800.00
1	On-Campus (Pretoria)	R 195,900.00	R 195,900.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	13 Oct 2026	On-Campus	Pretoria, South Africa
11 Aug 2026	14 Oct 2026	On-Campus	Abu Dhabi, UAE
12 Aug 2026	15 Oct 2026	On-Campus	Durban, South Africa
12 Aug 2026	15 Oct 2026	On-Campus	Mauritius
13 Aug 2026	16 Oct 2026	On-Campus	Cape Town, South Africa
14 Aug 2026	19 Oct 2026	On-Campus	Dubai, UAE
17 Aug 2026	20 Oct 2026	On-Campus	Abu Dhabi, UAE
18 Aug 2026	21 Oct 2026	On-Campus	Durban, 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 119052) 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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