



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

Thermo Mechanical Pulp Production From Wood Chips Training

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 114249 · NQF Level 3 · 26 Credits · 23 Days

COURSE OVERVIEW

This course equips learners with the theoretical and practical knowledge required to produce thermo mechanical pulp (TMP) from wood chips. It covers the principles of TMP processes, equipment operation, quality control, and safety considerations. Successful learners will be able to monitor and control the TMP production process in a pulp and paper mill setting.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	114249
Accreditation	SAQA Accredited · NQF Level 3 · 26 Credits
Duration	23 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Explain the principles and stages of thermo mechanical pulp production from wood chips.
- Operate and monitor TMP equipment, including refiners, screens, and cleaners, according to standard procedures.
- Analyze pulp quality parameters such as freeness, fibre length, and shive content to ensure product specifications.
- Implement safety and environmental measures relevant to TMP production, including dust and noise control.
- Apply troubleshooting techniques to resolve common operational issues in the TMP process.
- Evaluate the impact of raw material variability (e.g., wood species, chip size) on pulp quality and production efficiency.

WHO SHOULD ATTEND

- This course is designed for process operators, technicians, and supervisors in the pulp and paper industry who are involved in or responsible for thermo mechanical pulp production.
- It is also suitable for entry-level engineers and quality control personnel seeking to deepen their understanding of TMP processes.

COURSE OUTLINE

Day 1: Introduction to Thermo Mechanical Pulping

- Overview of pulping processes
- Wood chip characteristics and quality
- Basic TMP process: steaming, refining, and screening
- Comparison of TMP with other pulping methods

Day 2: Wood Chip Handling and Preparation

- Chip pile management and reclaim systems
- Chip screening: oversize, fines, and accepts
- Chip washing and dewatering
- Moisture measurement and control

Day 3: Pre-steaming and Impregnation

- Pre-steaming vessels and steam supply
- Chemical impregnation: sodium sulfite, bisulfite
- Chip softening mechanisms
- Safety protocols for high temperature and pressure

Day 4: Refining Fundamentals

- Refiner types: single disc, double disc
- Refiner plates: design and materials
- Energy consumption and specific energy
- Fiber separation and fibrillation

Day 5: Refiner Operation and Control

- Start-up and shut-down procedures
- Control loops: dilution water, plate gap
- Online sensors for freeness and shives
- Vibration analysis and maintenance

Day 6: Latency and Screening

- Latency chests and agitation
- Hot stock screening
- Pressure screens and centrifugal cleaners
- Reject handling and refining

Day 7: Bleaching of TMP Pulp

- Brightness requirements for different paper grades
- Peroxide bleaching: alkalinity, temperature, time
- Reductive bleaching with hydrosulfite
- Optical brighteners and yellowing inhibition

Day 8: Pulp Quality Testing and Control

- Freeness (CSF) measurement
- Fiber length and coarseness analysis
- Sheet making and physical testing
- SPC charts and process capability

Day 9: Energy Efficiency and Optimization

- Refiner energy optimization
- Heat recovery from steam
- Variable frequency drives (VFDs)
- Benchmarking and best practices

Day 10: Water Management and Effluent Treatment

- Water balance and closure
- Effluent loads: BOD, COD, suspended solids
- Primary clarification and sludge handling
- Biological treatment: activated sludge, aerated lagoons

Day 11: Maintenance of TMP Equipment

- Refiner plate wear and replacement
- Bearing and seal maintenance
- Screens and cleaner maintenance
- Lubrication and condition monitoring

Day 12: Process Control and Automation

- Distributed control system (DCS) overview
- PID control for consistency and temperature
- Model predictive control for refining
- Alarm management and operator interface

Day 13: Safety in TMP Operations

- Hazard identification and risk assessment
- Safe work permits and confined space entry
- Fire and explosion prevention
- Emergency response drills

Day 14: Environmental Compliance and Sustainability

- Air quality: particulate, TRS, VOC
- Odor control and biofilters
- Solid waste: bark, sludge, ash
- Life cycle assessment and carbon footprint

Day 15: Advanced Refining Technologies

- High-consistency vs. low-consistency refining
- RTS: principles and applications
- Thermo mechanical pulping with chemical pretreatment (CTMP)
- Energy savings and pulp quality

Day 16: Troubleshooting and Problem Solving

- Problem-solving methodologies (5 Whys, fishbone)
- Common issues: low freeness, high shives, brightness reversion
- Case studies from industry
- Continuous improvement culture

Day 17: Mill Integration and Paper Machine Interface

- Stock blending and refining
- Approach flow system
- Broke system and repulping

- Tailoring pulp for newsprint, LWC, board

Day 18: Quality Management Systems

- Quality policy and objectives
- Document control and records
- Process control and monitoring
- Non-conformance and continuous improvement

Day 19: Cost Management and Economics

- Raw material, energy, chemical costs
- Fixed vs. variable costs
- Cost per ton analysis
- Capital vs. operating expenditure

Day 20: Capstone Project and Course Review

- Capstone project: optimize a TMP line
- Presentation and peer feedback
- Final assessment preparation
- Course evaluation 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 **26 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 69,100.00	R 69,100.00
1	In-House	R 89,800.00	R 89,800.00
1	On-Campus (Pretoria)	R 103,600.00	R 103,600.00

UPCOMING SESSIONS

Start	End	Method	Venue
05 Aug 2026	04 Sep 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	07 Sep 2026	On-Campus	Dubai, UAE
07 Aug 2026	08 Sep 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	08 Sep 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	09 Sep 2026	On-Campus	Durban, South Africa
10 Aug 2026	09 Sep 2026	On-Campus	Mauritius
11 Aug 2026	10 Sep 2026	On-Campus	Cape Town, South Africa
12 Aug 2026	11 Sep 2026	On-Campus	Dubai, UAE

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 114249) 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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