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

Mechanical Pulping Processes And Variables Explained Training

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 114266 · NQF Level 4 · 10 Credits · 7 Days

COURSE OVERVIEW

This course provides a comprehensive understanding of mechanical pulping processes and the critical variables that influence pulp quality and production efficiency. Participants will gain the knowledge to optimize mechanical pulping operations, troubleshoot common issues, and apply best practices in a pulp and paper mill environment.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	114266
Accreditation	SAQA Accredited · NQF Level 4 · 10 Credits
Duration	7 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS — verifiable online

LEARNING OUTCOMES

- Describe the principles and stages of mechanical pulping processes, including stone groundwood, refiner mechanical pulping, and thermomechanical pulping.
- Analyze the impact of key variables such as temperature, pressure, energy input, and wood chip quality on pulp properties.
- Apply systematic troubleshooting techniques to identify and resolve common mechanical pulping problems.
- Evaluate pulp quality using standard testing methods and interpret results to adjust process parameters.
- Implement process control strategies to optimize pulp yield, strength, and brightness while minimizing energy consumption.
- Demonstrate understanding of environmental and safety considerations in mechanical pulping operations.

WHO SHOULD ATTEND

- This course is designed for process engineers, production supervisors, and technical operators in the pulp and paper industry who are involved in or responsible for mechanical pulping operations.

COURSE OUTLINE

Day 1: Introduction to Mechanical Pulping

- Overview of pulp and paper industry
- Classification of pulping processes (mechanical, chemical, semi-chemical
- History and evolution of mechanical pulping
- Raw materials: wood species, chip quality
- Basic properties of mechanical pulp: yield, strength, brightness
- Environmental aspects: energy consumption and effluent
- Introduction to process variables

Day 2: Stone Groundwood (SGW) Process

- Principle of stone grinding
- Grinding zone mechanics
- Stone specifications: grit, pattern, sharpening
- Variables: pressure, temperature, shower water, stone speed
- Effect on fiber morphology: fiber length, fines content
- Energy consumption and efficiency
- Quality control: freeness, shives, brightness
- Advantages and limitations of SGW

Day 3: Refiner Mechanical Pulping (RMP) and Pressurized Refiner Mechanical Pulping (PRMP)

- Principle of disc refining
- RMP process flow: chip washing, preheating, refining
- PRMP: pressurized refining concept
- Refiner plate patterns, materials, and wear
- Variables: rotational speed, plate gap, consistency, temperature
- Effect on fiber development: fibrillation, cutting
- Energy consumption: specific energy, net energy
- Quality parameters: tensile index, tear index, opacity
- Comparison with SGW

Day 4: Thermomechanical Pulping (TMP) and Chemi-Thermomechanical Pulping (CTMP)

- TMP process: chip preheating, pressurized refining, latency removal
- CTMP: chemical impregnation (sodium sulfite, alkaline peroxide
- Variables: preheating temperature, retention time, chemical charge
- Refining conditions: pressure, consistency, energy input
- Fiber characteristics: flexibility, bonding potential
- Pulp strength properties: tensile, burst, tear
- Brightness and bleachability
- Applications: newsprint, magazine paper, board

Day 5: Mechanical Pulp Bleaching and Brightness Development

- Bleaching vs. brightening: chemical mechanisms
- Peroxide bleaching: chemistry, variables (pH, temperature, time, consistency
- Hydrosulfite bleaching: reduction mechanism, variables
- Two-stage bleaching sequences
- Chelation and metal management

- Brightness reversion: causes and prevention
- Environmental considerations: effluent, AOX
- Quality control: brightness measurement, reversion tests

Day 6: **Process Control and Optimization in Mechanical Pulping**

- Process control loops: consistency, temperature, pressure, flow
- Online sensors: freeness, fiber length, shives, brightness
- Data acquisition and process monitoring
- Statistical process control: control charts, capability indices
- Energy optimization strategies: specific energy control, refiner load
- Troubleshooting: shives, low strength, high energy
- Case studies of process optimization
- Maintenance of refiner plates and equipment

Day 7: **Practical Integration and Case Studies**

- Review of key concepts from Days 1-6
- Case study 1: Converting from SGW to TMP
- Case study 2: Optimizing CTMP for board grades
- Case study 3: Troubleshooting brightness reversion
- Economic analysis: energy costs vs. pulp quality
- Environmental compliance: effluent treatment
- Group exercise: process design for a new mill
- Assessment preparation and Q&A;

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 4**.

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
04 Aug 2026	12 Aug 2026	On-Campus	Johannesburg, South Africa
05 Aug 2026	13 Aug 2026	On-Campus	Mauritius
06 Aug 2026	14 Aug 2026	On-Campus	Cape Town, South Africa
07 Aug 2026	17 Aug 2026	On-Campus	Dubai, UAE
10 Aug 2026	18 Aug 2026	On-Campus	Abu Dhabi, UAE
11 Aug 2026	19 Aug 2026	On-Campus	Durban, South Africa
11 Aug 2026	19 Aug 2026	On-Campus	Mauritius
12 Aug 2026	20 Aug 2026	On-Campus	Cape Town, 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 114266) 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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