



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

Chemical Pulping Principles Processes And Variables Training

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 114263 · NQF Level 4 · 12 Credits · 9 Days

COURSE OVERVIEW

This course equips learners with a comprehensive understanding of chemical pulping principles, processes, and variables essential for the pulp and paper industry. Participants will gain the knowledge to optimize pulping operations, troubleshoot process issues, and ensure quality and efficiency in chemical pulping.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	114263
Accreditation	SAQA Accredited · NQF Level 4 · 12 Credits
Duration	9 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply the fundamental principles of chemical pulping, including the chemistry of delignification and fiber liberation.
- Analyze the key process variables in chemical pulping, such as temperature, pressure, chemical concentration, and time.
- Evaluate the impact of different pulping conditions on pulp yield, quality, and environmental factors.
- Demonstrate the ability to monitor and control pulping processes to achieve desired pulp properties.
- Implement troubleshooting techniques to address common process deviations and equipment issues.

WHO SHOULD ATTEND

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

COURSE OUTLINE

Day 1: Introduction to Chemical Pulping

- Overview of pulp and paper industry
- Types of pulping: mechanical, chemical, hybrid
- Chemical pulping processes: kraft, sulfite, soda
- Basic chemistry of lignin and cellulose
- Environmental and economic importance of chemical pulping

Day 2: Kraft Pulping Process Fundamentals

- Kraft process overview: from wood to pulp
- Composition of white liquor (NaOH, Na₂S)
- Cooking parameters: temperature, pressure, time
- Delignification reactions and kinetics
- Batch vs. continuous digesters

Day 3: Sulfite Pulping Process

- Sulfite pulping process overview
- Cooking liquor preparation (acid, bisulfite, neutral)
- pH and temperature effects
- Delignification and carbohydrate degradation
- Advantages and limitations of sulfite pulping

Day 4: Soda and Other Alkaline Pulping

- Soda pulping chemistry and process
- Anthraquinone (AQ) catalyzed pulping
- Comparison of alkaline processes
- Non-wood fiber pulping (bagasse, straw)
- Environmental aspects of soda pulping

Day 5: Key Process Variables and Their Control

- Variables: temperature, time, chemical concentration, liquor-to-wood ratio
- Effect on kappa number, viscosity, and yield
- Control loops in batch and continuous digesters
- Wood chip properties: size, moisture, species
- Process optimization for target pulp quality

Day 6: Chemical Recovery and Recycling

- Black liquor evaporation and combustion
- Recovery boiler operation and safety
- Smelt dissolving and green liquor
- Causticizing process and lime kiln
- Energy efficiency and emission control

Day 7: Pulp Washing, Screening, and Bleaching

- Washing: drum, diffuser, press washers
- Screening: pressure screens, centrifugal cleaners
- Bleaching overview: ECF and TCF sequences
- Bleaching chemicals: ClO₂, O₂, H₂O₂

- Pulp quality testing: brightness, dirt count

Day 8: Troubleshooting and Process Optimization

- Common issues: high rejects, low yield, poor strength
- Troubleshooting methodology: data analysis, root cause
- Optimization of cooking cycles
- Energy and chemical savings strategies
- Case studies from industry

Day 9: Integration, Safety, and Future Trends

- Process integration: from wood handling to pulp storage
- Safety: chemical handling, high pressure, hot surfaces
- Environmental regulations and compliance
- Emerging trends: biorefinery, lignin valorization
- Review and assessment preparation

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 **12 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 33,300.00	R 33,300.00
1	In-House	R 43,300.00	R 43,300.00
1	On-Campus (Pretoria)	R 50,000.00	R 50,000.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	13 Aug 2026	On-Campus	Cape Town, South Africa
04 Aug 2026	14 Aug 2026	On-Campus	Dubai, UAE
05 Aug 2026	17 Aug 2026	On-Campus	Pretoria, South Africa
05 Aug 2026	17 Aug 2026	On-Campus	Lagos, Nigeria
06 Aug 2026	18 Aug 2026	On-Campus	Johannesburg, South Africa
07 Aug 2026	19 Aug 2026	On-Campus	Mauritius
10 Aug 2026	20 Aug 2026	On-Campus	Dubai, UAE
11 Aug 2026	21 Aug 2026	On-Campus	Pretoria, 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 114263) 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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