



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 Pulp Production Monitoring and Control

Manufacturing, Engineering and Technology / Engineering and Related Design

Unit Standard 256280 · NQF Level 4 · 15 Credits · 12 Days

COURSE OVERVIEW

This course equips learners with the skills to monitor and control chemical pulp production processes in a pulp and paper mill. Participants will learn to optimize production parameters, ensure quality standards, and troubleshoot process deviations. The course aligns with the SAQA unit standard 256280, focusing on practical application in a South African industrial context.

Category	Manufacturing, Engineering and Technology
Subfield	Engineering and Related Design
Unit Standard	256280
Accreditation	SAQA Accredited · NQF Level 4 · 15 Credits
Duration	12 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Monitor and adjust chemical pulp production parameters to maintain quality and efficiency.
- Analyze process data to identify deviations and implement corrective actions.
- Evaluate the impact of process variables on pulp quality and production yield.
- Apply safety and environmental procedures during chemical pulp production.
- Demonstrate effective communication and reporting of production status.
- Implement control strategies for key unit operations in chemical pulping.

WHO SHOULD ATTEND

- This course is designed for process controllers, production supervisors, and chemical pulp operators who are responsible for monitoring and controlling chemical pulp production.
- It is also suitable for technicians seeking to enhance their understanding of pulp mill operations.

COURSE OUTLINE

Day 1: Introduction to Chemical Pulp Production

- Overview of pulp and paper industry
- Raw materials: wood species, chip quality
- Chemical pulping vs mechanical pulping
- Basic chemistry of delignification
- Environmental impact and sustainability
- Safety in pulp mill operations

Day 2: Pulping Chemistry and Process Parameters

- Chemistry of lignin removal
- Cooking chemicals: white liquor composition
- Effect of temperature and pressure on delignification
- H-factor and its calculation
- Kappa number and residual lignin
- Chemical charge and liquor-to-wood ratio

Day 3: Kraft Pulping Process

- Kraft cooking process stages
- Digester types: batch vs continuous
- Chemical recovery: recovery boiler, causticizing
- Black liquor evaporation and burning
- White liquor preparation
- Control of cooking time and temperature

Day 4: Sulfite Pulping Process

- Sulfite pulping chemistry
- Acid, bisulfite, and neutral sulfite processes
- Cooking liquor preparation
- Recovery and by-products
- Process control parameters
- Advantages and limitations of sulfite pulping

Day 5: Process Control Fundamentals

- Process control loops: PID controllers
- Sensors: temperature, pressure, flow, consistency
- Actuators: valves, pumps, motors
- Distributed control systems (DCS)
- Control strategies for digesters
- Alarms and interlocks

Day 6: Monitoring Pulp Quality Parameters

- Kappa number measurement and control
- Pulp viscosity and degree of polymerization
- Brightness and whiteness
- Residual chemical analysis
- Online analyzers: NIR, UV-Vis

- Sampling and testing procedures

Day 7: Process Optimization and Troubleshooting

- Common issues: over-cooking, under-cooking, screen plugging
- Troubleshooting using trend analysis
- Optimization of H-factor and chemical charge
- Yield improvement strategies
- Energy and chemical consumption reduction
- Case studies of process upsets

Day 8: Automation and Advanced Control

- Model predictive control (MPC)
- Soft sensors for kappa number prediction
- Advanced sensors: NIR, Raman spectroscopy
- Control of recovery boiler and causticizing
- Energy management control
- Integration with mill-wide optimization

Day 9: Environmental Monitoring and Control

- Air emissions: TRS, SO₂, particulate matter
- Water effluent: BOD, COD, AOX
- Effluent treatment: primary, secondary, tertiary
- Odor control: non-condensable gas (NCG) collection
- Solid waste management
- Environmental monitoring and reporting

Day 10: Safety and Risk Management

- Hazard identification: chemical, thermal, mechanical
- Personal protective equipment (PPE)
- Lockout/tagout procedures
- Confined space entry
- Emergency response: spills, fires, releases
- Risk assessment methodologies

Day 11: Data Analysis and Reporting

- Data acquisition and historian systems
- Statistical process control charts
- Process capability analysis
- Shift-to-shift reporting
- Key performance indicators (KPIs)
- Root cause analysis using data

Day 12: Integration and Capstone Project

- Review of key concepts
- Case study: optimize a kraft digester
- Design a monitoring and control plan
- Group project presentation
- Final assessment
- Course wrap-up and feedback

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 **15 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 41,000.00	R 41,000.00
1	In-House	R 53,300.00	R 53,300.00
1	On-Campus (Pretoria)	R 61,500.00	R 61,500.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	25 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	25 Aug 2026	On-Campus	Mauritius
11 Aug 2026	26 Aug 2026	On-Campus	Cape Town, South Africa
12 Aug 2026	27 Aug 2026	On-Campus	Dubai, UAE
13 Aug 2026	28 Aug 2026	On-Campus	Pretoria, South Africa
14 Aug 2026	31 Aug 2026	On-Campus	Abu Dhabi, UAE
17 Aug 2026	01 Sep 2026	On-Campus	Shenzhen, China
18 Aug 2026	02 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 256280) 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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