



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

Paper Machine Stock Preparation For Forming Section Supply Training

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 114265 · NQF Level 4 · 24 Credits · 21 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to prepare paper machine stock for supply to the forming section. It covers the key processes, equipment, and quality control measures required to ensure consistent stock quality for efficient paper production.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	114265
Accreditation	SAQA Accredited · NQF Level 4 · 24 Credits
Duration	21 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Describe the principles and objectives of stock preparation for paper machine forming section supply.
- Identify and explain the functions of key equipment used in stock preparation, including pulpers, refiners, screens, and cleaners.
- Apply quality control procedures to monitor and adjust stock consistency, freeness, and cleanliness.
- Demonstrate the correct start-up, operation, and shutdown procedures for stock preparation systems.
- Analyze common stock preparation problems and implement corrective actions.
- Evaluate the impact of stock quality on paper machine performance and final product quality.

WHO SHOULD ATTEND

- This course is designed for machine operators, process controllers, and technical staff working in paper mills who are responsible for stock preparation and supply to the forming section.

COURSE OUTLINE

Day 1: Introduction to Paper Making and Stock Preparation

- Overview of paper making from raw materials to finished product.
- The stock preparation system: functions and components.
- Key quality parameters of stock: consistency, freeness, fibre length.
- Introduction to the forming section and its requirements.
- Safety considerations in stock preparation.

Day 2: Raw Materials and Fibre Characteristics

- Hardwood vs softwood fibres: characteristics and uses.
- Recycled fibre sources and contaminants.
- Fibre length, coarseness, and flexibility.
- Storage and conveying of raw materials.
- Quality control tests for incoming fibres.

Day 3: Pulping and Slushing

- Types of pulping: mechanical, chemical, recycled.
- Slushing: purpose and equipment (hydropulpers).
- Consistency control during slushing.
- Energy considerations in pulping.
- Troubleshooting common slushing issues.

Day 4: Screening and Cleaning

- Screening: pressure screens, slot sizes, and rotor designs.
- Cleaning: centrifugal cleaners, hydrocyclones.
- Reject handling and fibre recovery.
- Operating parameters: flow, pressure, consistency.
- Impact of screening/cleaning on stock quality.

Day 5: Refining Theory and Practice

- Refining fundamentals: fibre cutting and fibrillation.
- Types of refiners: conical, disc.
- Refiner plate patterns and their effect.
- Specific energy and intensity.
- Refining curves and freeness development.
- Impact on paper strength and drainage.

Day 6: Stock Proportioning and Blending

- Proportioning methods: flow meters, consistency transmitters.
- Blending chests and agitation.
- Control loops for stock blending.
- Additive systems: fillers, sizes, dyes.
- Quality monitoring of blended stock.

Day 7: Chemical Additives and Wet End Chemistry

- Retention aids: types and mechanisms.
- Sizing agents: rosin, AKD, ASA.
- Fillers: calcium carbonate, clay, talc.

- Dyes and optical brighteners.
- pH and conductivity control.
- Zeta potential and charge demand.

Day 8: Consistency and Flow Control

- Consistency measurement: shear force, optical, microwave.
- Control valves and pumps for stock.
- Dilution water systems.
- Consistency control loops.
- Troubleshooting consistency problems.

Day 9: Approach Flow System Components

- Fan pump: types and selection.
- Pressure screens for approach flow.
- Deculators and their role.
- Headbox feed piping design.
- Pulse attenuation and vibration control.

Day 10: Headbox Types and Operation

- Headbox types: hydraulic, air-padded, dilution control.
- Slice opening and jet angle.
- Headbox consistency and pressure control.
- Formation improvement strategies.
- Common headbox problems and solutions.

Day 11: Forming Section Fundamentals

- Fourdrinier vs twin-wire formers.
- Drainage elements: foils, table rolls, wet suction boxes.
- Vacuum systems and dewatering.
- Retention and formation trade-offs.
- Operating parameters: speed, jet-to-wire ratio.

Day 12: Wet End Chemistry Interaction with Forming

- Retention aid programs and their effect on drainage.
- Deposit control: pitch, stickies, slime.
- Foam and air entrainment issues.
- Impact of water quality (pH, hardness).
- Monitoring and adjustment of chemical addition.

Day 13: Process Control and Instrumentation

- Sensors: consistency, flow, freeness, temperature.
- Control systems: DCS, PLC.
- Setpoint optimization for quality.
- Alarm management and troubleshooting.
- Data logging and analysis.

Day 14: Quality Testing and Troubleshooting

- Freeness testing (CSF).
- Fibre length analysis.
- Ash content and filler retention.

- Formation analysis.
- Troubleshooting: basis weight variation, two-sidedness.
- Root cause analysis techniques.

Day 15: Energy and Water Management

- Energy use in pulping, refining, pumping.
- Refining energy optimization.
- Water circuit closure and its effects.
- White water system management.
- Effluent treatment basics.

Day 16: Maintenance and Reliability of Equipment

- Preventative maintenance schedules.
- Wear parts: refiner plates, screen baskets.
- Lubrication and bearing care.
- Vibration analysis and thermography.
- Spare parts management.

Day 17: Advanced Refining and Fractionation

- Low-consistency vs high-consistency refining.
- Fractionation: principles and equipment.
- Fibre length distribution control.
- Refining for specific paper grades.
- Case studies: kraft, recycled, tissue.

Day 18: New Technologies and Trends

- Advanced sensors and inline measurements.
- Model predictive control.
- Artificial intelligence for process optimization.
- Sustainable fibre sources.
- Energy recovery systems.

Day 19: Integrated System Optimization

- System bottlenecks and constraints.
- Integrated quality control.
- Case studies: reducing variability.
- Cost-benefit analysis of changes.
- Developing an optimization plan.

Day 20: Course Review and Assessment

- Review of key concepts.
- Practical scenarios and problem-solving.
- Written and practical assessment.
- Feedback and continuous improvement.
- Certification and next steps.

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 **24 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 64,000.00	R 64,000.00
1	In-House	R 83,200.00	R 83,200.00
1	On-Campus (Pretoria)	R 96,000.00	R 96,000.00

UPCOMING SESSIONS

Start	End	Method	Venue
04 Aug 2026	01 Sep 2026	On-Campus	Mauritius
05 Aug 2026	02 Sep 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	03 Sep 2026	On-Campus	Dubai, UAE
07 Aug 2026	04 Sep 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	04 Sep 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	07 Sep 2026	On-Campus	Durban, South Africa
10 Aug 2026	07 Sep 2026	On-Campus	Mauritius
11 Aug 2026	08 Sep 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 114265) 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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