



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@aatikd.co.za · Website: www.aatikd.co.za

COURSE BROCHURE

Continuous Column-Still Distillation Plant Operation

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 259338 · NQF Level 3 · 30 Credits · 27 Days

COURSE OVERVIEW

This course equips learners with the knowledge and practical skills to safely and efficiently operate a continuous column-still distillation plant for beverage production. It covers start-up, monitoring, shutdown, and troubleshooting procedures in compliance with South African food safety and occupational health regulations.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	259338
Accreditation	SAQA Accredited · NQF Level 3 · 30 Credits
Duration	27 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply pre-startup checks and safety protocols to prepare the continuous column-still for operation.
- Demonstrate the correct procedures for starting up, monitoring, and adjusting distillation parameters to maintain product quality.
- Analyze process variables such as temperature, pressure, and flow rates to optimize column performance.
- Evaluate product quality through sensory and analytical testing, making adjustments as needed.
- Implement shutdown procedures and emergency response actions in accordance with plant safety standards.
- Identify and troubleshoot common operational issues, including flooding, weeping, and contamination.

WHO SHOULD ATTEND

- This course is designed for distillation plant operators, process controllers, and production supervisors in the beverage industry who are responsible for the day-to-day operation of continuous distillation equipment.

COURSE OUTLINE

Day 1: Introduction to Column-Still Distillation

- Overview of distillation: history and applications
- Types of stills: pot vs column stills
- Continuous column-still design and components
- Basic process flow: feed, heating, vaporisation, condensation, collection
- Safety awareness in distillation operations
- Introduction to product quality parameters

Day 2: Distillation Theory and Principles

- Vapor-liquid equilibrium diagrams
- Theoretical plates and HETP (Height Equivalent to a Theoretical Plate)
- Reflux ratio and its effect on separation
- Raoult's law and Dalton's law
- Column efficiency: Murphree efficiency
- Mass and energy balances in distillation

Day 3: Column-Still Components and Configuration

- Column internals: trays (bubble cap, sieve, valve) vs packing (random, structured)
- Reboilers: types and operation
- Condensers: shell-and-tube, air-cooled
- Reflux system: reflux drum, pumps, controls
- Instrumentation: temperature, pressure, flow, level sensors
- Material selection: stainless steel, copper, etc.

Day 4: Process Instrumentation and Control

- Process variables and measurement devices
- Control loops: feedback, feedforward, cascade
- DCS architecture and operator interface
- PID controller tuning: Ziegler-Nichols method
- Reflux ratio control strategies
- Safety instrumented systems (SIS) and interlocks

Day 5: Feed Systems and Pre-Treatment

- Feed tanks, pumps, and piping
- Heat exchangers for feed preheating
- Filtration and de-aeration systems
- Feed quality parameters: alcohol content, acidity, solids
- Feed control valves and flow measurement
- Impact of feed composition on column operation

Day 6: Heating Systems and Energy Management

- Reboiler heating: steam, thermal oil, direct fire
- Boiler operation and steam quality
- Heat exchangers: types and maintenance
- Heat integration: feed preheat, vapour recompression
- Energy monitoring: steam traps, insulation

- Energy efficiency best practices

Day 7: Condensation and Cooling Systems

- Condenser types: total vs partial, shell-and-tube, air-cooled
- Condenser operation: temperature control, venting
- Cooling water systems: pumps, piping, cooling towers
- Fouling and cleaning methods
- Corrosion prevention and material selection
- Environmental regulations on heat discharge

Day 8: Product Collection and Quality Control

- Product receivers: design and operation
- Quality parameters: alcohol content, methanol, fusel oils
- Sampling techniques: grab vs composite samples
- Analytical methods: hydrometry, gas chromatography
- Quality troubleshooting: off-spec product
- Product storage: tank management, blending

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 **30 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 79,400.00	R 79,400.00
1	In-House	R 103,200.00	R 103,200.00
1	On-Campus (Pretoria)	R 119,100.00	R 119,100.00

UPCOMING SESSIONS

Start	End	Method	Venue
04 Aug 2026	09 Sep 2026	On-Campus	Dubai, UAE
05 Aug 2026	10 Sep 2026	On-Campus	Pretoria, South Africa
05 Aug 2026	10 Sep 2026	On-Campus	Lagos, Nigeria
06 Aug 2026	11 Sep 2026	On-Campus	Johannesburg, South Africa
07 Aug 2026	14 Sep 2026	On-Campus	Mauritius
10 Aug 2026	15 Sep 2026	On-Campus	Dubai, UAE
11 Aug 2026	16 Sep 2026	On-Campus	Pretoria, South Africa
12 Aug 2026	17 Sep 2026	On-Campus	Abu Dhabi, 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 259338) 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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