



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

Metallurgical Plant Material Crushing Operations

Manufacturing, Engineering and Technology / Fabrication and Extraction

Unit Standard 253339 · NQF Level 3 · 9 Credits · 6 Days

COURSE OVERVIEW

This course equips learners with the skills and knowledge required to safely and efficiently crush material in a metallurgical plant. It covers the operation of crushing equipment, adherence to safety protocols, and quality control measures to ensure optimal plant performance.

Category	Manufacturing, Engineering and Technology
Subfield	Fabrication and Extraction
Unit Standard	253339
Accreditation	SAQA Accredited · NQF Level 3 · 9 Credits
Duration	6 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Demonstrate the ability to prepare and start up crushing equipment according to standard operating procedures.
- Operate crushing equipment to reduce material size while monitoring process parameters and making adjustments as needed.
- Apply safety and environmental procedures during crushing operations to prevent incidents and minimize impact.
- Monitor and control the quality of crushed material to meet specified product requirements.
- Perform routine maintenance and troubleshoot common equipment faults to ensure continuous operation.
- Complete required documentation and report on crushing process performance and deviations.

WHO SHOULD ATTEND

- This course is designed for plant operators, process controllers, and technicians working in metallurgical plants who are responsible for material crushing operations.

COURSE OUTLINE

Day 1: Introduction to Crushing Operations and Safety

- Overview of metallurgical plant processes and the crushing circuit
- Health, safety, and environmental regulations (MHSA, OHS Act)
- Hazard identification: dust, noise, moving parts, falling material
- Personal protective equipment (PPE) requirements
- Principles of comminution: impact, compression, attrition, shear
- Types of crushers: jaw, cone, gyratory, impact, roll
- Basic material properties affecting crushing (hardness, moisture, abrasiveness)

Day 2: Crusher Components and Operation

- Detailed anatomy of a jaw crusher: fixed jaw, swing jaw, toggle plates, flywheel
- Detailed anatomy of a cone crusher: mantle, concave, eccentric assembly, tramp iron relief
- Operating principles: closed side setting (CSS), open side setting (OSS), crushing stroke
- Feed chutes, grizzly feeders, and vibrating feeders
- Discharge conveyors and transfer points
- Pre-start inspection checklist
- Start-up sequence and safe shutdown procedures

Day 3: Crusher Settings and Performance Optimisation

- Setting the closed side setting (CSS) on jaw and cone crushers
- Measuring and adjusting the open side setting (OSS)
- Key performance indicators: throughput, power draw, product size distribution
- Effect of feed size, moisture, and clay content
- Common problems: bridging, plugging, tramp metal, liner wear
- Basic troubleshooting techniques
- Introduction to crusher automation and control systems

Day 4: Maintenance and Wear Management

- Types of wear: abrasive, impact, fatigue, corrosive
- Liner materials: manganese steel, chrome-moly, ceramic composites
- Wear measurement techniques: templates, ultrasonic thickness gauging
- Daily, weekly, and monthly maintenance schedules
- Lubrication: grease, oil, automatic lubrication systems
- Condition monitoring: vibration analysis, temperature checks, oil analysis
- Safe maintenance practices: lock-out/tag-out (LOTO), confined space entry

Day 5: Crushing Circuit Integration and Process Control

- Crushing circuit layouts: open circuit vs. closed circuit
- Role of screens: scalping, sizing, dewatering
- Conveyor systems: belt speed, capacity, chute design
- Stockpile management: live capacity, reclaim systems
- Process control: setpoints, alarms, interlocks
- Communication with dispatch, metallurgists, and maintenance
- Emergency response procedures: power failure, fires, spills

Day 6: Advanced Topics, Practical Assessment, and Course Review

- Advanced topics: high-pressure grinding rolls (HPGR), vertical shaft impactors (VSI)
- Case study: root cause analysis of a crushing plant failure
- Best practices for continuous improvement
- Review of unit standard 253339 outcomes
- Written and practical assessment preparation
- Course feedback 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 **9 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 25,600.00	R 25,600.00
1	In-House	R 33,300.00	R 33,300.00
1	On-Campus (Pretoria)	R 38,400.00	R 38,400.00

UPCOMING SESSIONS

Start	End	Method	Venue
07 Aug 2026	14 Aug 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	14 Aug 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	17 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	17 Aug 2026	On-Campus	Mauritius
11 Aug 2026	18 Aug 2026	On-Campus	Cape Town, South Africa
12 Aug 2026	19 Aug 2026	On-Campus	Dubai, UAE
13 Aug 2026	20 Aug 2026	On-Campus	Pretoria, South Africa
14 Aug 2026	21 Aug 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 253339) 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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