



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

Grind Tools and Cutters for Engineering Machining

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 258676 · NQF Level 4 · 8 Credits · 5 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to safely and effectively grind tools and cutters used in engineering machining operations. Participants will understand correct grinding techniques, wheel selection, and safety procedures to maintain cutting tools for optimal performance in a workshop environment.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	258676
Accreditation	SAQA Accredited · NQF Level 4 · 8 Credits
Duration	5 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Demonstrate the correct procedures for mounting and dressing grinding wheels.
- Apply appropriate grinding techniques to sharpen various cutting tools such as lathe tools, drills, and milling cutters.
- Select suitable grinding wheels based on material, grit, and bond type for specific tool grinding tasks.
- Evaluate tool geometry and identify defects to determine re-grinding requirements.
- Implement safety precautions and personal protective equipment (PPE) during grinding operations.
- Inspect ground tools for dimensional accuracy and cutting edge quality using measuring instruments.

WHO SHOULD ATTEND

- This course is intended for engineering machinists, toolmakers, and apprentices who require competence in grinding tools and cutters as part of their machining operations.

COURSE OUTLINE

Day 1: Introduction to Grinding Theory and Safety

- Overview of grinding processes in engineering machining
- Types of grinding machines: surface, cylindrical, centreless, tool and cutter
- Abrasive materials: aluminium oxide, silicon carbide, CBN, diamond
- Grinding wheel structure: bond, grain size, grade, structure
- Wheel marking system (ISO standard)
- Safety precautions: guarding, wheel handling, speeds, PPE
- Wheel balancing and mounting procedures

Day 2: Grinding Wheel Selection and Conditioning

- Wheel selection criteria: material, hardness, contact area, finish
- Dressing tools: single-point diamond, multi-point, rotary
- Dressing techniques: traverse, plunge, form dressing
- Truing and balancing procedures
- Coolants: types, concentration, filtration, application methods
- Grinding parameters optimisation
- Common defects: burn, chatter, cracks, glazing, loading

Day 3: Tool and Cutter Grinding Fundamentals

- Cutting tool materials: HSS, carbide, ceramics
- Tool geometry: rake, relief, clearance, cutting edge angles
- Tool and cutter grinder components and adjustments
- Sharpening single-point tools: tool bit, brazed carbide
- Sharpening twist drills: point angle, lip clearance, chisel edge
- Sharpening milling cutters: end mills, face mills, side and face cutters
- Inspection and measurement of tool angles

Day 4: Advanced Grinding Techniques and Specialised Applications

- Form grinding: wheel dressing, profile generation
- Creep-feed grinding: parameters, wheel selection, coolant
- CNC tool and cutter grinding: programming basics, wheel paths
- Surface finish measurement: Ra, Rz, profilometry
- Quality control: dimensional accuracy, geometric tolerances
- Troubleshooting: vibration, wheel wear, burn, surface defects

Day 5: Integration, Maintenance, and Best Practices

- Process planning: sequence, wheel selection, parameters
- Maintenance: lubrication, spindle runout, coolant system
- Wheel storage: environment, racking, shelf life
- Cost analysis: wheel consumption, dressing intervals, cycle time
- Environmental considerations: coolant disposal, dust extraction
- Review of key concepts and practical 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 **8 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 23,000.00	R 23,000.00
1	In-House	R 29,900.00	R 29,900.00
1	On-Campus (Pretoria)	R 34,500.00	R 34,500.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	14 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	14 Aug 2026	On-Campus	Abu Dhabi, UAE
10 Aug 2026	14 Aug 2026	On-Campus	Pretoria, South Africa
10 Aug 2026	14 Aug 2026	On-Campus	Dubai, UAE
10 Aug 2026	14 Aug 2026	On-Campus	Cape Town, South Africa
10 Aug 2026	14 Aug 2026	On-Campus	Mauritius
17 Aug 2026	21 Aug 2026	On-Campus	Dubai, UAE
17 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 258676) 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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