



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

CNC Machining Planning for Complex Components

Manufacturing, Engineering and Technology / Manufacturing and Assembly

Unit Standard 243342 · NQF Level 5 · 10 Credits · 7 Days

COURSE OVERVIEW

This course equips learners with the skills to plan and initiate CNC machining processes for complex components, ensuring precision and efficiency in manufacturing. Participants will learn to interpret technical drawings, select appropriate tools and materials, and set up CNC machines for optimal performance. The course emphasizes quality control and adherence to safety standards in a South African industrial context.

Category	Manufacturing, Engineering and Technology
Subfield	Manufacturing and Assembly
Unit Standard	243342
Accreditation	SAQA Accredited · NQF Level 5 · 10 Credits
Duration	7 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Interpret complex engineering drawings and specifications to determine machining requirements.
- Select appropriate cutting tools, work-holding devices, and machining parameters for complex components.
- Develop a comprehensive CNC machining plan, including toolpath strategies and sequence of operations.
- Set up and calibrate CNC machines to ensure precision and repeatability.
- Apply quality control procedures to verify component dimensions and surface finish.
- Demonstrate adherence to health, safety, and environmental regulations during machining processes.

WHO SHOULD ATTEND

- This course is designed for CNC machinists, manufacturing engineers, and technical personnel involved in planning and executing machining operations for complex parts.
- It is ideal for those seeking to advance their skills in CNC programming and process optimization.

COURSE OUTLINE

Day 1: Introduction to CNC Machining and Complex Components

- Overview of CNC machining and its importance
- Definition and examples of complex components
- Safety regulations and quality assurance principles
- Introduction to machining planning and documentation

Day 2: Reading and Interpreting Engineering Drawings

- Engineering drawing standards (SANS, ISO)
- GD&T; symbols and datums
- Material selection and specifications
- Identifying critical features and tolerances

Day 3: Process Planning and Tool Selection

- Machining process planning steps
- Tool selection criteria and tool materials
- Cutting parameters calculation
- Workholding methods for complex geometries

Day 4: CAM Programming for Complex Components

- Introduction to CAM software
- 2D and 3D toolpath strategies
- Multi-axis machining considerations
- Simulation and collision detection

Day 5: Setup and Workholding Techniques

- Machine setup procedures
- Workholding devices (vices, chucks, fixtures)
- Datum setting and offset management
- Probing and inspection for setup verification

Day 6: Machining and In-Process Inspection

- Running CNC programs for complex parts
- Cutting fluid application and chip control
- In-process measurement techniques
- Identifying and resolving errors

Day 7: Quality Assurance and Final Assessment

- Final inspection methods (CMM, surface roughness)
- Quality reports and traceability
- Corrective action procedures
- Course review and integrated assessment

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 **10 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 29,600.00	R 29,600.00
1	In-House	R 38,500.00	R 38,500.00
1	On-Campus (Pretoria)	R 44,400.00	R 44,400.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	11 Aug 2026	On-Campus	Johannesburg, South Africa
04 Aug 2026	12 Aug 2026	On-Campus	Mauritius
05 Aug 2026	13 Aug 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	14 Aug 2026	On-Campus	Dubai, UAE
07 Aug 2026	17 Aug 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	17 Aug 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	18 Aug 2026	On-Campus	Durban, South Africa
10 Aug 2026	18 Aug 2026	On-Campus	Mauritius

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 243342) 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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