



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

Derivatives of Simple and Trigonometric Functions

Physical, Mathematical, Computer and Life Sciences / Mathematical Sciences

Unit Standard 243842 · NQF Level 4 · 6 Credits · 3 Days

COURSE OVERVIEW

This course equips learners with the skills to differentiate simple functions and trigonometric functions, and apply these derivatives to solve real-world problems. It builds a strong foundation in calculus, essential for fields such as engineering, physics, and data analysis.

Category	Physical, Mathematical, Computer and Life Sciences
Subfield	Mathematical Sciences
Unit Standard	243842
Accreditation	SAQA Accredited · NQF Level 4 · 6 Credits
Duration	3 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply differentiation rules to find derivatives of simple algebraic functions.
- Differentiate trigonometric functions including sine, cosine, and tangent.
- Apply the chain rule, product rule, and quotient rule to composite functions.
- Solve optimization and rate-of-change problems using derivatives.
- Analyze function behaviour (e.g., monotonicity, concavity) using first and second derivatives.
- Evaluate limits and continuity as prerequisites for differentiation.

WHO SHOULD ATTEND

- This course is designed for professionals and students in technical fields who need to apply differentiation techniques in their work or studies, including engineers, scientists, and data analysts.

COURSE OUTLINE

Day 1: Foundations of Differentiation

- Introduction to limits and continuity
- Definition of the derivative
- The power rule for derivatives
- Derivative of constant functions
- Sum and difference rules
- Constant multiple rule
- Graphical interpretation of derivatives
- Worked examples and practice problems

Day 2: Derivatives of Trigonometric Functions

- Review of trigonometric functions and their graphs
- Derivative of $\sin(x)$ and $\cos(x)$ from first principles
- Derivatives of $\tan(x)$, $\cot(x)$, $\sec(x)$, $\csc(x)$
- The product rule for derivatives
- The quotient rule for derivatives
- Chain rule introduction (simple cases)
- Examples with trigonometric and polynomial combinations
- Applications to real-world problems

Day 3: Advanced Applications and Integration

- Chain rule for composite functions
- Implicit differentiation (brief introduction)
- Higher-order derivatives
- Applications: curve sketching and optimization
- Related rates problems
- Mixed practice with polynomial and trigonometric derivatives
- Review and assessment preparation
- Course summary 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 **6 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 13,200.00	R 13,200.00
1	In-House	R 17,200.00	R 17,200.00
1	On-Campus (Pretoria)	R 19,800.00	R 19,800.00

UPCOMING SESSIONS

No sessions are currently scheduled. Please contact us to arrange a session at a time and location that suits your team.

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 243842) 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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