



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

Riemann Sum and Definite Integral for Area Under Curve

Physical, Mathematical, Computer and Life Sciences / Mathematical Sciences

Unit Standard 243831 · NQF Level 3 · 5 Credits · 2 Days

COURSE OVERVIEW

This course equips learners with the skills to develop the Riemann sum formula and definite integral for calculating the area under a curve. It bridges the gap between theoretical calculus and practical applications in business, economics, and engineering, enabling learners to model and solve real-world problems involving accumulation and area.

Category	Physical, Mathematical, Computer and Life Sciences
Subfield	Mathematical Sciences
Unit Standard	243831
Accreditation	SAQA Accredited · NQF Level 3 · 5 Credits
Duration	2 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply the Riemann sum formula to approximate the area under a curve using left, right, and midpoint sums.
- Analyze the relationship between Riemann sums and the definite integral as the limit of sums.
- Evaluate definite integrals using the Fundamental Theorem of Calculus and interpret the result as area under a curve.
- Demonstrate the ability to calculate area under a curve for polynomial, exponential, and trigonometric functions.
- Design and implement a step-by-step solution to find the area between two curves using definite integrals.

WHO SHOULD ATTEND

- This course is designed for professionals, managers, and analysts who need to apply calculus concepts in fields such as finance, logistics, project management, and data analysis.
- It is also suitable for learners pursuing further studies in mathematics or engineering.

COURSE OUTLINE

Day 1: Foundations of Riemann Sums

- Introduction to area under a curve: motivation and historical context.
- Partitioning intervals and creating subintervals.
- Left, right, and midpoint Riemann sums: definitions and examples.
- Sigma notation for sums.
- Effect of increasing the number of subintervals on approximation accuracy.
- Graphical interpretation of Riemann sums.

Day 2: Definite Integral and Practical Applications

- Definition of the definite integral: limit of Riemann sums.
- Properties of definite integrals: linearity, additivity, reversal of limits.
- Fundamental Theorem of Calculus: connection between differentiation and integration.
- Evaluating definite integrals using antiderivatives.
- Area under a curve: positive and negative regions.
- Area between two curves: setup and computation.
- Real-world applications: distance from velocity, total accumulation.

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 **5 NQF credits** at **NQF Level 3**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 15,400.00	R 15,400.00
1	In-House	R 20,000.00	R 20,000.00
1	On-Campus (Pretoria)	R 23,100.00	R 23,100.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	04 Aug 2026	On-Campus	Pretoria, South Africa
03 Aug 2026	04 Aug 2026	On-Campus	Mauritius
04 Aug 2026	05 Aug 2026	On-Campus	Dubai, UAE
04 Aug 2026	05 Aug 2026	On-Campus	Johannesburg, South Africa
06 Aug 2026	07 Aug 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	07 Aug 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	11 Aug 2026	On-Campus	Pretoria, South Africa
10 Aug 2026	11 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 243831) 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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