



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

Evaluating Diamond Quality By Minimising Impurities In Gemstones Training

Manufacturing, Engineering and Technology / Fabrication and Extraction

Unit Standard 115775 · NQF Level 4 · 39 Credits · 36 Days

COURSE OVERVIEW

This course equips learners with the knowledge and skills to evaluate diamond quality by identifying and minimising impurities in gemstones. Participants will learn to apply industry-standard grading criteria and techniques to assess clarity, colour, and inclusions, ensuring accurate quality assessment and value determination.

Category	Manufacturing, Engineering and Technology
Subfield	Fabrication and Extraction
Unit Standard	115775
Accreditation	SAQA Accredited · NQF Level 4 · 39 Credits
Duration	36 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply the 4Cs (cut, colour, clarity, carat) to evaluate diamond quality with emphasis on minimising impurities.
- Analyse different types of inclusions and blemishes using magnification and grading tools.
- Evaluate the impact of impurities on diamond clarity grades and overall value.
- Demonstrate techniques for identifying and documenting impurities in gemstones.
- Implement standardised procedures for minimising impurities during diamond handling and grading.

WHO SHOULD ATTEND

- Gemologists, jewellery appraisers, diamond graders, and professionals in the gemstone and jewellery industry seeking to enhance their expertise in diamond quality evaluation.

COURSE OUTLINE

Day 1: Introduction to Gemology and Diamond Formation

- Overview of gemology as a scientific discipline.
- The diamond formation process: mantle conditions and kimberlite pipes.
- Basic crystallography and chemical composition of diamond (carbon).
- Introduction to the 4Cs of diamond quality.
- The role of SAQA and unit standards in skills development.

Day 2: Fundamentals of Diamond Clarity and Inclusions

- The concept of clarity as one of the 4Cs.
- Detailed study of internal inclusions: crystals, clouds, feathers, pinpoints.
- Detailed study of external blemishes: naturals, polish lines, scratches.
- Introduction to clarity grading scales (e.g., GIA, CIBJO).
- Using a 10x loupe for initial inclusion observation.

Day 3: Optical Properties and Light Behaviour in Diamonds

- Refractive index and its significance.
- Dispersion (fire) and brilliance (brightness).
- The concepts of scintillation and contrast.
- How inclusions scatter, block, or absorb light.
- Introduction to the daylight-equivalent lamp.

Day 4: Systematic Observation with the 10x Loupe

- Loupe selection, care, and correct holding technique.
- The optimal lighting environment for loupe work.
- The step-by-step scanning methodology.
- The diamond's crown, girdle, and pavilion zones.
- Practical session: plotting simple inclusion patterns.

Day 5: Introduction to the Microscope for Advanced Inspection

- Parts and functions of a stereo microscope.
- Darkfield vs. brightfield illumination: purposes and setup.
- Adjusting focus and working distance.
- Observing inclusion characteristics at magnification.
- Practical: Transitioning from loupe to microscope.

Day 6: Crystalline and Mineral Inclusions

- Common mineral guests in diamonds: appearance and identification.
- The concept of syngenetic (formed simultaneously) inclusions.
- Progenetic (pre-existing) inclusions.
- How size, colour, and relief affect visibility.
- Case studies of diamonds with prominent crystal inclusions.

Day 7: Feathers, Fractures, and Cleavage

- Feathers: internal fractures, their appearance and causes.
- Cleavage planes and their directional weakness.
- Assessing fracture depth and potential for propagation.
- The impact on grading: 'clarity' vs. 'durability' considerations.

- Practical: Identifying and risk-assessing fractures.

Day 8: Clouds, Pinpoints, and Graining

- Pinpoints: tiny crystals, their clustering and distribution.
- Clouds: hazy areas caused by dense pinpoints.
- Internal graining: lines or planes from crystal growth distortion.
- Differentiating graining from feathers.
- Grading exercises focusing on cloudy diamonds.

Day 9: Advanced Microscopy Techniques and Immersion

- The principle and setup of immersion (using di-iodomethane).
- Using fibre-optic lights to highlight specific inclusions.
- Techniques for viewing inclusions at the culet or near the table.
- Basic digital imaging and annotation for reports.
- Practical: Comprehensive inspection of a complex stone.

Day 10: Clarity Grading Standards and Master Sets

- In-depth study of GIA and CIBJO clarity scales (Flawless to Included).
- The role and use of master comparison diamonds.
- Grading criteria: size, nature, number, location, and relief.
- Practical grading session using master sets.

Day 11: Colour and its Interaction with Inclusions

- The diamond colour scale (D-Z) and fancy colours.
- How colour can mask or accentuate inclusions.
- Specific inclusion types common in type Ia (cape) diamonds.
- Evaluating stones where colour is the dominant characteristic.

Day 12: Inclusions and Diamond Treatments

- Fracture filling: materials used and identifying flash effects.
- Laser drilling: identifying drill holes and associated stress fractures.
- Other treatments: irradiation, annealing, and coating.
- SAQA-aligned ethics: disclosure requirements in South Africa.

Day 13: Synthetics, Simulants, and their 'Inclusions'

- Growth structures and metallic flux inclusions in HPHT synthetics.
- Strain patterns and graphite inclusions in CVD synthetics.
- Common simulants (e.g., CZ, moissanite) and their tell-tale signs.
- Regulatory frameworks for disclosure in South Africa.

Day 14: Plotting and Diagramming Inclusions

- Standard diagram formats and symbols for inclusions/blemishes.
- Mapping inclusions to precise locations (zone, clock face, distance).
- Differentiating between plot symbols for different inclusion types.
- Practical: Creating a complete plot from microscope observation.

Day 15: The Business of Clarity: Valuation and Pricing

- The relationship between the 4Cs and price.
- Analysing price lists and understanding discounts/premiums.
- 'Eye-clean' diamonds and their premium in lower grades.
- Case study: Valuing three diamonds with different clarity characteristics.

Day 16: Practical Workshop I: Grading and Plotting

- Station rotation practical: loupe work, microscope inspection.
- Systematic grading of 5 diamonds across the clarity range.
- Creating detailed plots for each diamond.
- Peer review and facilitator feedback session.

Day 17: Practical Workshop II: Detection and Problem-Solving

- 'Mystery stone' practical: identifying treatments and synthetics.
- Risk assessment for stones with cleavages or large feathers.
- Writing a brief technical memo outlining observations and recommendations.
- Group discussion on complex cases.

Day 18: Quality Assurance and Ethical Practices

- Standard Operating Procedures (SOPs) for consistent grading.
- The Consumer Protection Act (CPA) implications for gem dealers.
- The role of the National Regulator for Compulsory Specifications (NRCS).
- Ethical case studies and dilemma resolution.

Day 19: Integration and Final Assessment Preparation

- Holistic diamond evaluation: balancing all quality factors.
- Review of inclusion identification, grading, and plotting.
- Format and expectations of the final summative assessment.
- Compiling and organising practical worksheets and plots.

Day 20: Summative Assessment and Course Closure

- Written theory test on diamond clarity and impurities.
- Practical assessment: grading and plotting of unknown diamonds.
- Ethical scenario-based discussion or viva.
- Course wrap-up, feedback, and issuing of certificates of attendance.

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 **39 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 102,400.00	R 102,400.00
1	In-House	R 133,100.00	R 133,100.00
1	On-Campus (Pretoria)	R 153,600.00	R 153,600.00

UPCOMING SESSIONS

Start	End	Method	Venue
03 Aug 2026	21 Sep 2026	On-Campus	Johannesburg, South Africa
04 Aug 2026	22 Sep 2026	On-Campus	Mauritius
05 Aug 2026	23 Sep 2026	On-Campus	Cape Town, South Africa
06 Aug 2026	24 Sep 2026	On-Campus	Dubai, UAE
07 Aug 2026	25 Sep 2026	On-Campus	Pretoria, South Africa
07 Aug 2026	25 Sep 2026	On-Campus	Lagos, Nigeria
10 Aug 2026	28 Sep 2026	On-Campus	Durban, South Africa
10 Aug 2026	28 Sep 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 115775) 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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