



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

Hplc Analysis And Quantification Of Prepared Samples Training

Manufacturing, Engineering and Technology / Fabrication and Extraction

Unit Standard 110388 · NQF Level 4 · 13 Credits · 10 Days

COURSE OVERVIEW

This course equips learners with the skills to perform high-performance liquid chromatography (HPLC) analysis and quantification of prepared samples in a laboratory setting. Participants will gain practical competence in operating HPLC equipment, interpreting chromatograms, and ensuring accurate quantification of analytes. The training is aligned with SAQA unit standard 110388 and is designed to meet industry requirements for quality assurance and regulatory compliance.

Category	Manufacturing, Engineering and Technology
Subfield	Fabrication and Extraction
Unit Standard	110388
Accreditation	SAQA Accredited · NQF Level 4 · 13 Credits
Duration	10 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply HPLC principles and instrumentation to prepare and analyze samples according to standard operating procedures.
- Demonstrate correct calibration and operation of HPLC systems, including pump, injector, column, and detector components.
- Analyze chromatographic data to identify and quantify target analytes using appropriate software and calculations.
- Evaluate the quality of HPLC results by performing system suitability tests and troubleshooting common issues.
- Implement safety and quality assurance protocols in the HPLC laboratory to ensure reliable and reproducible outcomes.
- Document analytical results and maintain records in compliance with laboratory standards and regulatory requirements.

WHO SHOULD ATTEND

- This course is intended for laboratory technicians, analysts, and quality control personnel who are involved in HPLC analysis and require formal recognition of their competencies.
- It is also suitable for individuals seeking to upskill in chromatographic techniques within pharmaceutical, chemical, food, or environmental testing laboratories.

COURSE OUTLINE

Day 1: Introduction to HPLC and Quality Assurance

- Overview of HPLC: history, applications, and advantages
- Key components: pump, injector, column, detector, data system
- Quality assurance principles: ISO 17025, GLP
- Laboratory safety and waste management
- Introduction to sample preparation techniques

Day 2: The HPLC Instrument and Its Operation

- Detailed anatomy of HPLC modules
- Mobile phase selection and degassing
- Isocratic vs. gradient elution
- Instrument start-up, equilibration, and shutdown procedures
- Routine maintenance and troubleshooting

Day 3: Chromatography Theory and Separation Mechanisms

- Retention factor and selectivity
- Van Deemter equation and efficiency
- Normal-phase vs. reversed-phase HPLC
- Column selection: particle size, pore size, bonding
- Resolution calculation and optimization

Day 4: Sample Preparation Techniques

- Sample filtration and centrifugation
- Liquid-liquid extraction and solid-phase extraction
- Derivatization techniques
- Preparation of calibration standards and QC samples
- Sample storage and stability

Day 5: Method Development and Optimization

- Steps in method development
- Mobile phase pH and buffer selection
- Gradient optimization
- Detector selection: UV-Vis, fluorescence, RI
- Method validation parameters: specificity, linearity, precision

Day 6: Quantification and Calibration

- External standard calibration
- Internal standard calibration
- Calibration curve construction and linear regression
- Limit of detection and limit of quantification
- Statistical evaluation: R^2 , residual analysis

Day 7: Data Analysis and Interpretation

- Chromatogram interpretation: peak identification
- Integration parameters: slope sensitivity, width
- Baseline correction techniques
- Data processing software functions

- Report generation and documentation

Day 8: Troubleshooting and System Suitability Testing

- Common issues: pressure fluctuations, baseline noise, peak tailing
- System suitability parameters: retention time, resolution, tailing factor
- SST acceptance criteria
- Preventative maintenance schedule
- Documentation of troubleshooting

Day 9: Advanced Applications and Regulatory Compliance

- UHPLC and fast separations
- Chiral chromatography
- Regulatory guidelines: USP, ICH, FDA
- Application in pharmaceutical analysis
- Audit preparation and documentation

Day 10: Practical Integration and Assessment

- Full workflow: sample prep, method setup, calibration, analysis, data processing
- Practical assessment: unknown sample quantification
- Review of key concepts
- Feedback and certification process

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 **13 NQF credits** at **NQF Level 4**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 35,800.00	R 35,800.00
1	In-House	R 46,500.00	R 46,500.00
1	On-Campus (Pretoria)	R 53,700.00	R 53,700.00

UPCOMING SESSIONS

Start	End	Method	Venue
31 Jul 2026	13 Aug 2026	On-Campus	Lagos, Nigeria
03 Aug 2026	14 Aug 2026	On-Campus	Mauritius
04 Aug 2026	17 Aug 2026	On-Campus	Cape Town, South Africa
05 Aug 2026	18 Aug 2026	On-Campus	Dubai, UAE
06 Aug 2026	19 Aug 2026	On-Campus	Pretoria, South Africa
06 Aug 2026	19 Aug 2026	On-Campus	Lagos, Nigeria
07 Aug 2026	20 Aug 2026	On-Campus	Johannesburg, South Africa
10 Aug 2026	21 Aug 2026	On-Campus	Cape Town, 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 110388) 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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