



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

Laboratory Process Optimisation And Efficiency Improvement Training

Agriculture and Nature Conservation / Secondary Agriculture

Unit Standard 114301 · NQF Level 5 · 16 Credits · 13 Days

COURSE OVERVIEW

This course equips laboratory professionals with the skills to identify inefficiencies and implement process improvements in a laboratory environment. Participants will learn to apply lean principles, analyse workflows, and design optimisation strategies to enhance productivity and quality. The training ensures alignment with industry standards and regulatory requirements.

Category	Agriculture and Nature Conservation
Subfield	Secondary Agriculture
Unit Standard	114301
Accreditation	SAQA Accredited · NQF Level 5 · 16 Credits
Duration	13 days
Training Method	Online, On-Campus, In-House
Certificate	Issued via AATICD LMS – verifiable online

LEARNING OUTCOMES

- Apply lean and six sigma methodologies to identify waste and inefficiencies in laboratory processes.
- Analyse current laboratory workflows using process mapping and data analysis techniques.
- Evaluate the impact of proposed changes on quality, turnaround time, and resource utilisation.
- Design optimisation strategies that balance efficiency with compliance and quality standards.
- Implement improvement initiatives and monitor their effectiveness using key performance indicators.
- Demonstrate continuous improvement culture through root cause analysis and corrective action planning.

WHO SHOULD ATTEND

- Laboratory managers, supervisors, technicians, and quality assurance personnel seeking to improve operational efficiency and drive continuous improvement in laboratory settings.

COURSE OUTLINE

Day 1: Introduction to Laboratory Process Optimisation

- Overview of laboratory process optimisation
- Key performance indicators (KPIs) and metrics
- Introduction to lean laboratory principles
- Common inefficiencies: bottlenecks, rework, delays
- Quality management systems (ISO 15189, ISO 17025)

Day 2: Lean Principles and Waste Reduction

- The seven wastes in laboratories
- 5S: Sort, Set in order, Shine, Standardise, Sustain
- Value stream mapping (VSM) basics
- Standard work and visual management
- Kaizen: continuous improvement culture

Day 3: Process Mapping and Analysis

- Process mapping symbols and conventions
- Swimlane diagrams for multi-department processes
- Root cause analysis: 5 Whys and fishbone diagrams
- Impact-effort matrix for prioritisation
- Case study: mapping a sample reception process

Day 4: Data-Driven Decision Making

- Data collection methods in laboratories
- Descriptive statistics and data visualisation
- Control charts (Shewhart charts)
- Pareto principle (80/20 rule)
- Introduction to statistical process control (SPC)

Day 5: Workflow Optimisation Techniques

- Theory of constraints (TOC) and bottleneck management
- Pull systems vs. push systems
- Kanban cards for reagent and consumable management
- Layout optimisation: cellular vs. functional
- Workload balancing and line balancing

Day 6: Time Management and Scheduling

- Turnaround time analysis and benchmarks
- Scheduling methods: first-in-first-out (FIFO), prioritisation
- Gantt charts for laboratory projects
- Queuing theory basics
- TAT improvement case studies

Day 7: Automation and Technology Integration

- Automation in pre-analytical, analytical, and post-analytical phases
- LIMS: features, benefits, and selection
- Robotics and automated liquid handling
- Barcoding and sample tracking

- Change management for technology adoption

Day 8: Quality Improvement Methodologies

- PDCA cycle in practice
- DMAIC methodology for Six Sigma
- Failure mode and effects analysis (FMEA)
- Mistake-proofing in laboratories
- Quality control planning and monitoring

Day 9: Team Collaboration and Communication

- Building a continuous improvement culture
- Communication strategies for change management
- Facilitation skills for improvement teams
- Collaborative SOP development
- Managing resistance and engaging stakeholders

Day 10: Performance Measurement and Benchmarking

- KPI selection and dashboards
- Benchmarking: internal, competitive, and best-in-class
- Balanced scorecard for laboratories
- Gap analysis techniques
- Performance reporting and visualisation

Day 11: Cost Reduction and Resource Optimisation

- Cost analysis: direct and indirect costs
- Consumable and reagent waste reduction
- Equipment utilisation and preventive maintenance
- Energy efficiency in laboratories
- ROI calculation for optimisation projects

Day 12: Project Management for Optimisation Initiatives

- Project charter and scope definition
- Work breakdown structure (WBS)
- Risk management and mitigation
- Resource allocation and budgeting
- Project closure and lessons learned

Day 13: Integration, Review, and Certification

- Developing a laboratory optimisation roadmap
- Capstone project presentations
- Peer and facilitator feedback
- Course review and knowledge consolidation
- Final assessment and certification

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 **16 NQF credits** at **NQF Level 5**.

PRICING (PER DELEGATE, EX-VAT)

Delegates	Training Method	Price per Delegate	Total
1	Online	R 45,700.00	R 45,700.00
1	In-House	R 59,400.00	R 59,400.00
1	On-Campus (Pretoria)	R 68,500.00	R 68,500.00

UPCOMING SESSIONS

Start	End	Method	Venue
10 Aug 2026	26 Aug 2026	On-Campus	Abu Dhabi, UAE
11 Aug 2026	27 Aug 2026	On-Campus	Durban, South Africa
11 Aug 2026	27 Aug 2026	On-Campus	Mauritius
12 Aug 2026	28 Aug 2026	On-Campus	Cape Town, South Africa
13 Aug 2026	31 Aug 2026	On-Campus	Dubai, UAE
14 Aug 2026	01 Sep 2026	On-Campus	Pretoria, South Africa
17 Aug 2026	02 Sep 2026	On-Campus	Durban, South Africa
18 Aug 2026	03 Sep 2026	On-Campus	Shenzhen, China

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 114301) 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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