COURSE OVERVIEW IT0290-3D
Advanced Laboratory Information Management Systems (LIMS) for Analytical Laboratories as per ISO/IEC 17025

Course Title
Advanced Laboratory Information Management Systems (LIMS) for Analytical Laboratories as per ISO/IEC 17025



Course Date/Venue
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1.8 CEUs (18 PDHs) AWARD

H-STK© INCLUDED

Course Reference
IT0290-3D

Course Duration/Credits
Three days/3.0 CEUs/30 PDHs

Course Description



This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Advanced Laboratory Information Management Systems (LIMS) for Analytical Laboratories as per ISO/IEC 17025. It covers the ISO/IEC 17025 requirements and LIMS regulatory compliance; the advanced LIMS architecture, configuration and system administration; the laboratory workflow automation and sample lifecycle management; the master data management and laboratory information standardization; and the advanced analytical data acquisition, laboratory instrument integration and analytical data integrity, security and electronic records management.



During this interactive course, participants will learn the LIMS-based analytical quality control, quality assurance, advanced analytical results management and data validation; the measurement uncertainty, metrological traceability and method management; the advanced laboratory reporting and ISO/IEC 17025-compliant test reports; the LIMS validation, verification and computerized system compliance as well as laboratory performance monitoring, dashboards and advanced data analytics; the LIMS integration with laboratory quality management and audit systems; and the advanced LIMS troubleshooting, optimization and cybersecurity.



Course Objectives/Outcomes & Benefits for the Participants

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an advanced knowledge on laboratory information management systems (LIMS) for analytical laboratories as per ISO/IEC 17025
- Discuss advanced laboratory information management systems (LIMS) including ISO/IEC 17025 requirements and LIMS regulatory compliance
- Carryout advanced LIMS architecture, configuration and system administration as well as laboratory workflow automation and sample lifecycle management
- Implement master data management and laboratory information standardization
- Employ advanced analytical data acquisition, laboratory instrument integration and analytical data integrity, security and electronic records management
- Apply LIMS-based analytical quality control, quality assurance, advanced analytical results management and data validation
- Carryout measurement uncertainty, metrological traceability and method management
- Review advanced laboratory reporting and ISO/IEC 17025-compliant test reports
- Apply LIMS validation, verification and computerized system compliance as well as laboratory performance monitoring, dashboards and advanced data analytics
- Carryout LIMS integration with laboratory quality management and audit systems including advanced LIMS troubleshooting, optimization and cybersecurity

Exclusive Smart Training Kit - H-STK®



*Participants of this course will receive the exclusive "Haward Smart Training Kit" (**H-STK®**). The **H-STK®** consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.*

Who Should Attend

This course provides an overview of all significant aspects and considerations of advanced laboratory information management systems (LIMS) for analytical laboratories as per ISO/IEC 17025 for laboratory managers, quality assurance and quality control personnel, laboratory supervisors, analytical chemists, laboratory analysts, LIMS administrators, technical managers, IT specialists and personnel responsible for laboratory accreditation and data management.

Course Date/Venue

Session(s)	Date	Venue
1	November 16-18, 2026	TBA Meeting Room, InterContinental Abu Dhabi, Abu Dhabi, UAE
2	November 23-25, 2026	
3	December 07-09, 2026	
4	December 21-23, 2026	

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course who completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Haward's certificates are accredited by the following international accreditation organizations: -

- British Accreditation Council (BAC)

  Haward Technology is accredited by the **British Accreditation Council** for **Independent Further and Higher Education** as an **International Centre**. Haward's certificates are internationally recognized and accredited by the British Accreditation Council (BAC). BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.

- The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units** (CEUs) in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **1.8 CEUs** (Continuing Education Units) or **18 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Konstantin Kaminaris, MSc, BSc, is a **Senior IT Specialist** with **20 years** of extensive experience in the areas of **Laboratory Quality** Management, **Data & Method** Validation, Laboratory Information Management Systems **(LIMS)**, **ISO/IEC 17025** Requirements, **Master Data** Management, **Analytical Data** Integrity, **Artificial Intelligence**, **Digitalization**, **Digital Transformation** Strategy & Implementation, **VMware Virtualization** (ESXi, vCenter, vGPU, VCF), **Microsoft Enterprise** Systems, **Microsoft Servers**, **Microsoft Hyper-V**, **Microsoft Exchange**, **Microsoft 365 Cloud** Services (Exchange Online, Teams, OneDrive), **Microsoft Azure & Hybrid Active Directory** Environments, **VMware** Events, **VMware** ESXi/vCenter, **Enterprise Infrastructure & Virtualization**, **Data Center** Infrastructure, **Data Center Architecture & Digital Transformation** Projects, Mission-critical IT Systems, **Data Center** Design & Management, **File Server & Corporate Document** Management, ERP (SAP) & Oracle Database Systems, Oracle OVM, Oracle DB, Active Directory, SAP ERP, VMware vSphere 6.0 Installation & Configuration, Microsoft Windows Server 2012 R2, Microsoft Exchange Server 2012, Red Hat Linux Administration, AutoCAD and GIS ArcView.

During his career life, Mr. Kaminaris has gained his practical and field experience through his various significant positions and dedication as the **Head of Systems Department**, **IT Professional**, **Information Technology Specialist**, **Central Infrastructure & User Support** and **Senior Instructor/Trainer/Lecturer**, **Certified OAED Instructor** and **Technical Trainer** from various companies such as the Independent Power Transmission (ADMIE) and Renewable Energy Sources & Guarantees of Origin Administrator (DAPEEP).

Mr. Kaminaris is currently taking up his **Master's** degree in **Digital Culture**, **Smart Cities**, **IoT & Advanced Digital Technologies** and has a **Bachelor's** degree in **Computer Science** and a **Diploma** in **Computer Science**. Further, he is a **Certified Instructor/Trainer** and holds a **Certificate** in **Programming & Computer Operation**. He has delivered numerous trainings, courses, workshops, conferences and seminars internationally.

Course Fee

US$ 3,750 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking.

Training Methodology

Our courses employ an interactive, learner-centred methodology that integrates theoretical knowledge with practical application. The training is delivered through a suitable combination of some or all of the following methods, selected according to the course content and learning objectives:

- Instructor-led presentations and facilitated discussions
- Practical workshops and participant presentations
- Hands-on exercises and real-world case studies
- Equipment demonstrations and technical drawings
- Hardware- and software-based simulations
- Gamification & Role Play in soft-skills courses only
- Virtual Reality (VR) and Augmented Reality (AR)
- Instructional videos and other relevant training resources

This blended approach encourages active participation, strengthens practical skills and supports the effective application of acquired knowledge in the workplace.

Learning Design & Customization

This course can be customized to the exact requirements of clients. Haward Technology is so proud of our huge capabilities in tailoring our courses to the training needs of our valued clients.

Course Program

The following program is planned for this course. However, the course instructor(s) may modify this program before or during the workshop for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	*Registration & Coffee*
0800 – 0815	*Welcome & Introduction*
0815 – 0830	***PRE-TEST***
0830 – 0930	***Advanced Introduction to Laboratory Information Management Systems (LIMS)*** *Evolution of LIMS & Its Role in Modern Analytical Laboratories • Advanced LIMS Functionalities, Capabilities & Laboratory Applications • Integration of LIMS With Laboratory Quality Management Systems (QMS) • Benefits of Laboratory Digitalization, Automation & Data-Driven Decision-Making*
0930 – 0945	*Break*
0945 – 1030	***ISO/IEC 17025 Requirements & LIMS Regulatory Compliance*** *Overview of ISO/IEC 17025:2017 Requirements for Testing & Calibration Laboratories • Understanding Clause 7.11: Control of Data & Information Management • LIMS Support for Impartiality, Confidentiality, Traceability & Technical Competence • Mapping ISO/IEC 17025 Requirements to LIMS Functionalities & Compliance Controls*
1030 – 1130	***Advanced LIMS Architecture, Configuration & System Administration*** *LIMS Architecture, Database Structures, Servers & Cloud-Based Deployment Models • Configuration of Laboratory Workflows, User Interfaces & System Parameters • User Account Management, Role-Based Access Control & Permission Settings • LIMS System Administration, Configuration Management & Performance Optimization*

1130 – 1215	***Laboratory Workflow Automation & Sample Lifecycle Management*** *Electronic Sample Registration, Identification & Barcode Tracking • Sample Receipt, Acceptance Criteria, Chain of Custody & Sample Traceability • Automated Test Assignment, Workflow Routing & Analytical Scheduling • Sample Storage, Retention, Disposal & Complete Lifecycle Documentation*
1215 – 1230	*Break*
1230 – 1330	***Master Data Management & Laboratory Information Standardization*** *Configuration of Test Methods, Analytical Parameters & Specification Limits • Management of Laboratory Master Data, Reference Tables & Controlled Records • Standardization of Sample Types, Test Codes, Units of Measurement & Reporting Formats • Master Data Governance, Version Control & Change Management Procedures*
1330 – 1420	***Practical Applications: LIMS Configuration & ISO/IEC 17025 Compliance Mapping*** *Developing a LIMS Workflow for a Typical Analytical Laboratory • Configuring Sample Registration, Test Assignment & User Access Permissions • Mapping Laboratory Information Processes to ISO/IEC 17025 Requirements • Case Study on Laboratory Digital Transformation & LIMS Implementation Challenges*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day One*

Day 2

0730 – 0830	***Advanced Analytical Data Acquisition & Laboratory Instrument Integration*** *Integration of LIMS with Chromatography, Spectroscopy & Analytical Instruments • Automated Data Transfer from Laboratory Instruments to LIMS Databases • Interface Technologies, APIs, Middleware & Laboratory Data Exchange Standards • Troubleshooting Instrument Connectivity, Data Transfer Errors & Interface Failures*
0830 – 0930	***Analytical Data Integrity, Security & Electronic Records Management*** *ALCOA+ Principles for Ensuring Analytical Data Integrity & Reliability • Electronic Records, Audit Trails, Electronic Signatures & User Activity Monitoring • Data Security, Encryption, Access Restrictions & Protection Against Unauthorized Changes • Data Backup, Recovery, Archiving & Retention Requirements Under ISO/IEC 17025*
0930 – 0945	*Break*
0945 – 1100	***LIMS-Based Analytical Quality Control & Quality Assurance*** *Configuration of Quality Control Samples, Blanks, Duplicates & Reference Materials • Automated Quality Control Checks, Acceptance Criteria & Statistical Monitoring • Integration of Control Charts, Quality Indicators & Laboratory Performance Monitoring • Identification of Out-of-Control Results, Nonconforming Work & Corrective Actions*
1100 – 1215	***Advanced Analytical Results Management & Data Validation*** *Automated Analytical Calculations, Dilution Factors & Result Processing • Configuration of Result Validation Rules, Specification Limits & Exception Handling • Technical Review, Authorization Workflows & Electronic Approval of Test Results • Management of Result Amendments, Recalculations & Traceable Data Corrections*

1215 – 1230	*Break*
1230 – 1330	***Measurement Uncertainty, Metrological Traceability & Method Management*** *Integration of Measurement Uncertainty Calculations into LIMS Workflows • Management of Calibration Records, Reference Standards & Metrological Traceability • Documentation of Analytical Method Validation, Verification & Performance Characteristics • Management of Detection Limits, Quantification Limits & Decision Rules in LIMS*
1330 – 1420	***Practical Applications: Analytical Data Processing & Quality Control Automation*** *Simulating Instrument Data Acquisition & Automated Results Transfer • Configuring Quality Control Rules, Acceptance Limits & Analytical Alerts • Performing Electronic Result Validation, Technical Review & Approval • Case Study on Analytical Data Integrity, Audit Trail Review & ISO/IEC 17025 Compliance*
1420 – 1430	***Recap*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow*
1430	*Lunch & End of Day Two*

Day 3

0730 – 0830	***Advanced Laboratory Reporting & ISO/IEC 17025-Compliant Test Reports*** *Configuration of Test Reports & Certificates in Accordance With ISO/IEC 17025 • Automated Generation of Analytical Results, Units, Uncertainty & Relevant Report Information • Electronic Report Authorization, Digital Signatures & Controlled Report Distribution • Management of Report Amendments, Version Control & Historical Traceability*
0830 – 0930	***LIMS Validation, Verification & Computerized System Compliance*** *Risk-Based LIMS Validation Strategies & System Lifecycle Management • User Requirement Specifications (URS), Functional Specifications & Traceability Matrices • Installation Qualification (IQ), Operational Qualification (OQ) & Performance Qualification (PQ) • Validation Documentation, Change Control, Periodic Review & System Revalidation*
0930 – 0945	*Break*
0945 – 1100	***Laboratory Performance Monitoring, Dashboards & Advanced Data Analytics*** *Development of Laboratory Key Performance Indicators (KPIs) & Performance Dashboards • Monitoring Sample Turnaround Time, Workload Distribution & Analytical Productivity • Advanced Data Analysis, Trend Identification & Laboratory Performance Benchmarking • Integration of LIMS With Business Intelligence Tools & Automated Management Reporting*
1100 – 1230	***LIMS Integration with Laboratory Quality Management & Audit Systems*** *Integration of LIMS With Document Control, Equipment Management & Personnel Competence Records • Management of Nonconformities, Corrective Actions & Continual Improvement Records • Preparation of Electronic Evidence for Internal Audits & Accreditation Assessments • Supporting Management Reviews, Risk Assessments & ISO/IEC 17025 Compliance Monitoring*
1230 – 1245	*Break*

1245 – 1300	***Advanced LIMS Troubleshooting, Optimization & Cybersecurity*** *Identification & Resolution of Common LIMS Operational & Technical Issues • Database Performance Monitoring, System Diagnostics & Workflow Optimization • Cybersecurity Risk Assessment, Vulnerability Management & Incident Response • Business Continuity Planning, Disaster Recovery Testing & System Reliability Improvement*
1300 - 1345	***Practical Applications: LIMS Implementation, Validation & Continuous Improvement*** *Developing a Comprehensive LIMS Implementation & Migration Strategy • Preparing LIMS Validation Protocols, Test Scripts & Acceptance Criteria • Conducting a Simulated ISO/IEC 17025 LIMS Compliance Audit & Gap Assessment • Final Case Study on End-to-End Laboratory Workflow Automation, Reporting & Performance Improvement*
1345 – 1400	***Course Conclusion*** *Using this Course Overview, the Instructor(s) will Brief Participants about the Course Topics that were Covered During the Course*
1400 – 1415	***POST-TEST***
1415 – 1430	*Presentation of Course Certificates*
1430	*Lunch & End of Course*

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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