

LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

ISO 13984 — Liquid Hydrogen Land Vehicle Fuelling System Interface

ISO Certification Programme



LAPT — London Academy of Professional Training

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Reference ENG-HYD-13984 • ISO Energy

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AT A GLANCE

REFERENCE	ENG-HYD-13984
AWARD	Certificate
ASSESSMENT	430 marks — 258 to pass (60%)
PREREQUISITES	None
VALIDITY	Lifetime
AWARDING BODY	LAPT — London Academy of Professional Training

CURRICULUM

1

Hydrogen Fuelling Technologies

5 chapters · 30 classes85 marks

• 1 Fundamentals of Hydrogen as an Energy Carrier — 6 classes

› 1.1 Understand the Properties of Hydrogen as an Energy Carrier

› 1.2 Explore the Production Methods of Hydrogen Fuel

› 1.3 Analyze the Storage Solutions for Hydrogen Energy

› 1.4 Investigate the Transportation Challenges of Hydrogen Fuel

› 1.5 Examine Safety Considerations in Hydrogen Use

› 1.6 Apply Knowledge of Hydrogen Technologies to Real-World Scenarios

• 2 Overview of Hydrogen Fueling Infrastructure — 6 classes

› 2.1 Identify Key Components of Hydrogen Fueling Infrastructure

› 2.2 Explain the Functionality of Hydrogen Dispensing Equipment

› 2.3 Discuss Safety Protocols in Hydrogen Fueling Stations

› 2.4 Analyze Current Standards and Regulations for Hydrogen Fueling

› 2.5 Evaluate the Challenges of Implementing Hydrogen Fueling Infrastructure

› 2.6 Propose Solutions for Enhancing Hydrogen Fueling Efficiency

• 3 ISO Standards for Hydrogen Fuelling Systems — 6 classes

› 3.1 Explore the Importance of ISO Standards in Hydrogen Fuelling Systems

› 3.2 Identify Key ISO 13984 Requirements for Liquid Hydrogen Interfaces

› 3.3 Analyze the Components of Liquid Hydrogen Fuelling Systems

› 3.4 Compare Best Practices for Compliance with ISO 13984

› 3.5 Evaluate Real-World Applications of ISO Standards in Fuelling Technology

› 3.6 Develop a Strategy for Implementing ISO 13984 in Existing Systems

• 4 Technical and Operational Considerations in Fuelling Technology — 6 classes

› 4.1 Analyze the Key Components of Liquid Hydrogen Fuelling Systems

› 4.2 Explore Safety Protocols for Hydrogen Fuelling Operations

› 4.3 Examine Technical Standards for Liquid Hydrogen Infrastructure

› 4.4 Assess Operational Challenges in Hydrogen Vehicle Refuelling

› 4.5 Design a Hydrogen Fuelling Station Layout Using Best Practices

› 4.6 Evaluate Case Studies on Successful Hydrogen Fuelling Implementation

• 5 Future Trends and Innovations in Hydrogen Fuelling — 6 classes

› 5.1 Explore Emerging Technologies in Hydrogen Fuelling

› 5.2 Analyze the Role of Renewable Energy in Hydrogen Production

› 5.3 Investigate Advances in Liquid Hydrogen Storage Solutions

› 5.4 Evaluate Safety Standards and Regulations for Hydrogen Fuelling

› 5.5 Implement Innovative Practices in Hydrogen Infrastructure Development

› 5.6 Predict Future Trends in Hydrogen Fuelling Market Dynamics

• 1 Understanding Liquid Hydrogen: Properties and Applications — 6 classes

- › 1.1 Explore the Fundamental Properties of Liquid Hydrogen
- › 1.2 Investigate the Chemical Behavior of Hydrogen in Liquid Form
- › 1.3 Analyze Safety Considerations for Handling Liquid Hydrogen
- › 1.4 Examine Current Applications of Liquid Hydrogen in Transportation
- › 1.5 Assess the Environmental Impact of Using Liquid Hydrogen as Fuel
- › 1.6 Innovate Future Applications of Liquid Hydrogen in Sustainable Energy

• 2 Regulatory Framework: ISO 13984 Standards and Compliance — 6 classes

- › 2.1 Analyze the Key Elements of ISO 13984 Standards
- › 2.2 Examine Regulatory Compliance Requirements for Liquid Hydrogen Fuelling
- › 2.3 Identify Stakeholders in the ISO 13984 Compliance Process
- › 2.4 Assess the Impact of Non-Compliance with ISO 13984 Standards
- › 2.5 Develop Strategies for Meeting ISO 13984 Regulatory Requirements
- › 2.6 Innovate Safety Protocols for Liquid Hydrogen Land Vehicle Interfaces

• 3 Impact Assessment Methodologies for Hydrogen Systems — 6 classes

- › 3.1 Analyze the Importance of Impact Assessment in Hydrogen Systems
- › 3.2 Identify Key Impact Assessment Methodologies for Hydrogen Technologies
- › 3.3 Evaluate Life Cycle Assessment (LCA) in Hydrogen System Impact
- › 3.4 Compare Environmental and Economic Impact Assessment Techniques
- › 3.5 Apply Impact Assessment Methodologies to Real-World Hydrogen Scenarios
- › 3.6 Innovate Solutions Based on Impact Assessment Findings in Hydrogen Systems

• 4 Innovations in Liquid Hydrogen Infrastructure — 6 classes

- › 4.1 Analyze Current Liquid Hydrogen Infrastructure Technologies
- › 4.2 Explore Innovations in Hydrogen Production Methods
- › 4.3 Assess Safety Protocols for Liquid Hydrogen Transport
- › 4.4 Evaluate the Role of Regulations in Infrastructure Development
- › 4.5 Design a Conceptual Fuelling System Interface for Vehicles
- › 4.6 Propose Sustainable Solutions for Future Hydrogen Infrastructure

• 5 Future Trends: Driving Sustainable Hydrogen Solutions**• 1 Foundations of Project Management in the Hydrogen Sector** — 6 classes

- › 1.1 Explore Key Concepts of Project Management in Hydrogen Sector
- › 1.2 Identify Stakeholders in Hydrogen Fueling Projects
- › 1.3 Assess Risks and Challenges in Hydrogen Project Management
- › 1.4 Develop Effective Project Plans for Hydrogen Systems
- › 1.5 Implement Best Practices for Project Execution in Hydrogen Sector
- › 1.6 Evaluate Project Outcomes and Sustainability in Hydrogen Initiatives

• 2 Understanding Liquid Hydrogen Fuelling Systems — 6 classes

- › 2.1 Identify Key Components of Liquid Hydrogen Fuelling Systems
- › 2.2 Explore Safety Standards in Liquid Hydrogen Usage
- › 2.3 Analyze the Fuelling Process for Liquid Hydrogen Vehicles
- › 2.4 Compare Liquid Hydrogen Fuelling Systems with Other Alternative Fuelling Methods
- › 2.5 Assess Regulatory Requirements for Liquid Hydrogen Fuelling Operations
- › 2.6 Design a Basic Liquid Hydrogen Fuelling Station Layout

• 3 Risk Management in Hydrogen Project Implementation — 6 classes

- › 3.1 Identify Potential Risks in Hydrogen Project Implementation
- › 3.2 Analyze the Impact of Risks on Project Objectives
- › 3.3 Develop a Risk Assessment Matrix for Hydrogen Projects
- › 3.4 Formulate Strategies for Risk Mitigation in Hydrogen Projects
- › 3.5 Implement Monitoring Techniques for Risk Management
- › 3.6 Evaluate and Revise Risk Management Plans in Hydrogen Initiatives

• 4 Stakeholder Engagement and Communication in Hydrogen Projects — 6 classes

- › 4.1 Identify Stakeholder Groups in Hydrogen Projects
- › 4.2 Analyze Stakeholder Interests and Influence
- › 4.3 Develop Effective Communication Strategies for Stakeholders
- › 4.4 Engage Stakeholders Through Interactive Workshops
- › 4.5 Evaluate the Impact of Stakeholder Feedback on Project Outcomes
- › 4.6 Create a Stakeholder Engagement Plan for Hydrogen Initiatives

• 5 Evaluating Project Success and Sustainability in Hydrogen Initiatives — 6 classes

- › 5.1 Define Success Criteria for Hydrogen Projects
- › 5.2 Assess Key Performance Indicators in Hydrogen Initiatives
- › 5.3 Analyze Stakeholder Perspectives on Project Outcomes
- › 5.4 Evaluate Environmental Impact of Hydrogen Initiatives
- › 5.5 Explore Economic Viability and Cost-Benefit Analysis
- › 5.6 Develop Strategies for Long-term Sustainability in Hydrogen Projects

• 1 Overview of ISO 13984 Standards and Regulatory Framework — 6 classes

- › 1.1 Define ISO 13984 Standards and Their Importance
- › 1.2 Identify Key Regulatory Bodies Involved in Liquid Hydrogen Standards
- › 1.3 Explain the Safety Protocols Associated with Liquid Hydrogen Fuelling
- › 1.4 Analyze the Scope and Limitations of ISO 13984 Standards
- › 1.5 Compare ISO 13984 with Other Relevant Standards in Hydrogen Technology
- › 1.6 Apply ISO 13984 Standards to Real-World Fuelling System Scenarios

• 2 Fundamentals of Liquid Hydrogen Properties and Behaviors — 6 classes

- › 2.1 Analyze the Unique Properties of Liquid Hydrogen
- › 2.2 Examine the Behaviors of Liquid Hydrogen Under Various Conditions
- › 2.3 Identify Key Safety Considerations for Liquid Hydrogen Use
- › 2.4 Explore Regulatory Standards Impacting Liquid Hydrogen Systems
- › 2.5 Assess Risks Associated with Liquid Hydrogen Fuelling Systems
- › 2.6 Implement Best Practices for Handling Liquid Hydrogen Safely

• 3 Risk Assessment and Safety Protocols for Hydrogen Fueling Systems — 6 classes

- › 3.1 Identify Hazardous Conditions in Hydrogen Fueling Systems
- › 3.2 Analyze Risk Factors Associated with Liquid Hydrogen
- › 3.3 Evaluate Existing Safety Protocols for Hydrogen Fuelling
- › 3.4 Develop a Comprehensive Risk Assessment Plan
- › 3.5 Implement Safety Measures in Hydrogen Fueling Operations
- › 3.6 Review and Update Safety Protocols Regularly

• 4 Compliance and Certification Processes in Hydrogen Systems — 6 classes

- › 4.1 Explore Regulatory Frameworks for Hydrogen Systems
- › 4.2 Identify Key Standards in Liquid Hydrogen Safety
- › 4.3 Analyze Compliance Requirements for Fuelling Interfaces
- › 4.4 Examine Certification Processes for Hydrogen Vehicles
- › 4.5 Evaluate Best Practices in Safety Management
- › 4.6 Develop a Compliance Checklist for Certification Readiness

• 5 Future Trends and Innovations in Hydrogen Regulation and Safety Standards — 6 classes

- › 5.1 Identify Emerging Trends in Hydrogen Regulation
- › 5.2 Analyze Current Safety Standards for Hydrogen Vehicles
- › 5.3 Evaluate the Impact of Technological Innovations on Safety Protocols
- › 5.4 Compare Global Hydrogen Regulatory Frameworks
- › 5.5 Propose Recommendations for Enhanced Hydrogen Safety Standards
- › 5.6 Develop a Strategic Implementation Plan for Future Regulations

• 1 Understanding the Hydrogen Economy and Its Strategic Importance — 6 classes

- › 1.1 Explore the Basics of the Hydrogen Economy
- › 1.2 Analyze the Key Components of Hydrogen Production
- › 1.3 Examine Current Technologies for Hydrogen Storage and Transport
- › 1.4 Assess the Role of Hydrogen in Decarbonizing Transport
- › 1.5 Investigate Strategic Leadership in Hydrogen Infrastructure Development
- › 1.6 Implement Best Practices for Liquid Hydrogen Fuelling Systems

• 2 Regulatory Framework and ISO Standards for Hydrogen Fuelling Systems — 6 classes

- › 2.1 Understand the Role of ISO Standards in Hydrogen Fuelling Systems
- › 2.2 Analyze the Regulatory Framework Governing Hydrogen Fuelling Interfaces
- › 2.3 Examine ISO 13984: Key Requirements for Fuelling Systems
- › 2.4 Implement Best Practices for Compliance with Regulatory Standards
- › 2.5 Evaluate Case Studies on Effective Leadership in Regulatory Compliance
- › 2.6 Develop a Strategic Action Plan for ISO 13984 Certification

• 3 Strategic Planning for Hydrogen Infrastructure Development — 6 classes

- › 3.1 Assess Current Hydrogen Infrastructure Needs
- › 3.2 Identify Key Stakeholders in Hydrogen Development
- › 3.3 Define Strategic Goals for Hydrogen Infrastructure
- › 3.4 Analyze Regulatory Frameworks Impacting Hydrogen Usage
- › 3.5 Develop Action Plans for Infrastructure Implementation
- › 3.6 Evaluate and Adapt Strategies for Future Growth

• 4 Risk Management and Safety Protocols in Hydrogen Fuelling Systems — 6 classes

- › 4.1 Identify Key Risks in Hydrogen Fuelling Systems
- › 4.2 Analyze Safety Protocols for Liquid Hydrogen Handling
- › 4.3 Evaluate Risk Assessment Techniques in Energy Leadership
- › 4.4 Develop Safety Measures for Emergency Response
- › 4.5 Implement Best Practices for Staff Training in Safety
- › 4.6 Create a Risk Management Plan for Hydrogen Fuelling Operations

• 5 Innovations and Future Trends in Hydrogen Fuelling Technologies — 6 classes

- › 5.1 Explore Innovations in Hydrogen Production Technologies
- › 5.2 Analyze Current Hydrogen Storage Solutions
- › 5.3 Evaluate Emerging Hydrogen Transportation Methods
- › 5.4 Investigate Safety Protocols in Hydrogen Fuelling Systems
- › 5.5 Assess Integration of Renewable Energy Sources in Hydrogen Fuelling
- › 5.6 Design a Strategic Plan for Implementing Future Hydrogen Solutions

• 1 Understanding Team Roles in Hydrogen Fuelling Systems — 6 classes

- › 1.1 Identify Key Team Roles in Hydrogen Fuelling Systems
- › 1.2 Analyze the Importance of Communication in Team Dynamics
- › 1.3 Explore Decision-Making Processes within Hydrogen Fuelling Teams
- › 1.4 Evaluate the Impact of Leadership Styles on Team Performance
- › 1.5 Develop Collaborative Strategies for Effective Teamwork
- › 1.6 Design a Team Action Plan for Hydrogen Fuelling Projects

• 2 Communication Strategies for Effective Collaboration — 6 classes

- › 2.1 Analyze Key Communication Models for Team Dynamics
- › 2.2 Identify Barriers to Effective Collaboration in Teams
- › 2.3 Develop Active Listening Techniques for Team Engagement
- › 2.4 Employ Assertive Communication to Enhance Team Interaction
- › 2.5 Create Collaborative Communication Plans for Project Success
- › 2.6 Evaluate Real-World Scenarios to Practice Communication Strategies

• 3 Conflict Resolution in Multidisciplinary Teams — 6 classes

- › 3.1 Identify Common Sources of Conflict in Multidisciplinary Teams
- › 3.2 Analyze the Impact of Team Dynamics on Conflict Escalation
- › 3.3 Explore Effective Communication Strategies for Conflict Resolution
- › 3.4 Implement Active Listening Techniques to Address Team Disputes
- › 3.5 Develop Collaborative Problem-Solving Approaches in Diverse Groups
- › 3.6 Create an Action Plan for Managing Future Conflicts in Teams

• 4 Facilitating Team Dynamics in Project Management — 6 classes

- › 4.1 Assessing Team Roles for Project Success
- › 4.2 Enhancing Collaboration Through Effective Communication
- › 4.3 Identifying and Resolving Team Conflicts
- › 4.4 Building Trust Among Team Members
- › 4.5 Utilizing Feedback Loops to Improve Team Performance
- › 4.6 Implementing Collaborative Tools in Project Management

• 5 Evaluating Team Performance and Continuous Improvement — 6 classes

- › 5.1 Assessing Team Performance Metrics
- › 5.2 Identifying Strengths and Weaknesses in Team Collaboration
- › 5.3 Implementing Feedback Mechanisms for Team Improvement
- › 5.4 Analyzing Case Studies of Team Success and Failure
- › 5.5 Developing Action Plans for Continuous Team Development
- › 5.6 Creating a Culture of Accountability and Improvement