

# LAPT

LONDON ACADEMY OF PROFESSIONAL TRAINING

CERTIFICATE

## ISO 19880 — Gaseous Hydrogen Fuelling Stations

*ISO Certification Programme*



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### LAPT — London Academy of Professional Training

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**Reference** ENG-HYD-19880 • ISO Energy

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AT A GLANCE

|               |                                                |
|---------------|------------------------------------------------|
| REFERENCE     | ENG-HYD-19880                                  |
| AWARD         | Certificate                                    |
| ASSESSMENT    | 430 marks — 258 to pass (60%)                  |
| PREREQUISITES | None                                           |
| VALIDITY      | Lifetime                                       |
| AWARDING BODY | LAPT — London Academy of Professional Training |

CURRICULUM

1

Commercialisation of Hydrogen Technologies

5 chapters · 30 classes 45 marks

• 1 Understanding Hydrogen Technologies and Market Fundamentals

— 6 classes

› 1.1 Define and Explore the Basics of Hydrogen Technologies

› 1.2 Identify Key Components of Gaseous Hydrogen Fuelling Stations

› 1.3 Examine the Historical Development of Hydrogen as an Energy Source

› 1.4 Analyze Current Market Trends in Hydrogen Technologies

› 1.5 Evaluate the Role of Policy and Regulation in Hydrogen Commercialisation

› 1.6 Develop Strategies for Market Entry in Hydrogen Solutions

• 2 Regulatory Landscape and ISO Standards for Hydrogen

— 6 classes

› 2.1 Explore the Importance of ISO 19880 in Hydrogen Commercialisation

› 2.2 Identify Key Regulatory Bodies Governing Hydrogen Technologies

› 2.3 Analyze the Role of ISO Standards in Ensuring Safety and Compliance

› 2.4 Compare International Regulatory Approaches to Gaseous Hydrogen Fuelling

› 2.5 Evaluate the Challenges of Implementing ISO Standards in the UK

› 2.6 Develop a Strategic Plan for Compliance with Hydrogen Regulations

• 3 Economic Viability of Hydrogen Fuelling Stations

— 6 classes

› 3.1 Assess the Current Market for Hydrogen Fuelling Stations

› 3.2 Identify Key Economic Drivers for Hydrogen Infrastructure

› 3.3 Evaluate Cost Structures of Hydrogen Production and Distribution

› 3.4 Analyze Funding Sources and Investment Opportunities

› 3.5 Explore Case Studies of Successful Hydrogen Fuelling Projects

› 3.6 Develop a Business Model for a Viable Hydrogen Fuelling Station

• 4 Market Strategies for Commercial Hydrogen Deployment

— 6 classes

› 4.1 Analyze Market Demand for Hydrogen Solutions

› 4.2 Identify Key Stakeholders in Hydrogen Deployment

› 4.3 Evaluate Competitive Landscape for Hydrogen Technologies

› 4.4 Develop Strategic Partnerships for Hydrogen Market Entry

› 4.5 Formulate Pricing Strategies for Hydrogen Products

› 4.6 Create a Marketing Plan for Commercial Hydrogen Deployment

• 5 Future Trends and Innovation in Hydrogen Commercialisation

— 6 classes

› 5.1 Explore Emerging Trends in Hydrogen Technology

› 5.2 Assess Market Potential for Hydrogen Fuelling Stations

› 5.3 Investigate Government Policies Supporting Hydrogen Commercialisation

› 5.4 Analyse Technological Innovations Impacting Hydrogen Deployment

› 5.5 Design Strategic Partnerships for Hydrogen Market Growth

› 5.6 Plan a Pilot Project for Hydrogen Fuelling Station Implementation

**• 1 Fundamentals of Hydrogen and Energy Systems** — 6 classes

- › 1.1 Explore the Basics of Hydrogen as an Energy Source
- › 1.2 Understand the Properties of Hydrogen in Energy Systems
- › 1.3 Analyze the Role of Hydrogen in the Transition to Clean Energy
- › 1.4 Examine Hydrogen Production Methods and Their Applications
- › 1.5 Investigate Energy Storage Solutions for Hydrogen Systems
- › 1.6 Apply Knowledge to Design Sustainable Hydrogen Fuelling Stations

**• 2 Regulatory Frameworks and Standards for Hydrogen Fuelling** — 6 classes

- › 2.1 Identify Key Regulatory Bodies Involved in Hydrogen Fuelling
- › 2.2 Analyze Current Regulations Impacting Hydrogen Fuelling Stations
- › 2.3 Explore International Standards Governing Hydrogen Infrastructure
- › 2.4 Assess Safety Requirements for Hydrogen Fuelling Operations
- › 2.5 Review Environmental Impact Regulations for Hydrogen Stations
- › 2.6 Apply Compliance Strategies for Meeting Hydrogen Station Standards

**• 3 Design Considerations for Hydrogen Fuelling Stations** — 6 classes

- › 3.1 Analyze Site Selection Criteria for Hydrogen Fuelling Stations
- › 3.2 Evaluate Safety Measures in Hydrogen Storage and Handling
- › 3.3 Design Efficient Hydrogen Dispensing Systems
- › 3.4 Assess Environmental Impact of Hydrogen Fuelling Stations
- › 3.5 Integrate Renewable Energy Sources in Hydrogen Station Design
- › 3.6 Develop Maintenance Protocols for Safe Operations of Fuelling Stations

**• 4 Safety Management Systems in Hydrogen Infrastructure** — 6 classes

- › 4.1 Understand Key Components of Safety Management Systems
- › 4.2 Identify Risks Associated with Hydrogen Infrastructure
- › 4.3 Implement Hazard Analysis and Risk Assessment Techniques
- › 4.4 Develop Emergency Response Procedures for Fuelling Stations
- › 4.5 Evaluate Safety Performance Indicators and Metrics
- › 4.6 Create a Continuous Improvement Plan for Safety Practices

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

- › 5.1 Explore Emerging Hydrogen Production Technologies
- › 5.2 Evaluate Advanced Storage Solutions for Hydrogen Fuel
- › 5.3 Analyze Safety Innovations in Hydrogen Fuelling Stations
- › 5.4 Discover Smart Infrastructure in Hydrogen Distribution
- › 5.5 Implement Strategies for Sustainable Hydrogen Supply Chains
- › 5.6 Design Future-Ready Hydrogen Fuelling Station Models

**• 1 Introduction to Hydrogen Safety Standards** — 6 classes

- › 1.1 Define Hydrogen Safety Standards and Their Importance
- › 1.2 Identify Key Components of ISO 19880 Certification
- › 1.3 Examine Common Hazards Associated with Hydrogen Fuelling Stations
- › 1.4 Discuss Best Practices for Hydrogen Safety Management
- › 1.5 Explore Risk Assessment Techniques for Hydrogen Operations
- › 1.6 Apply Hydrogen Safety Standards Through Case Studies

**• 2 Understanding ISO 19880 Framework** — 6 classes

- › 2.1 Explore the Purpose of ISO 19880 for Hydrogen Fuelling Stations
- › 2.2 Identify Key Components of the ISO 19880 Framework
- › 2.3 Analyze Safety Standards within ISO 19880
- › 2.4 Evaluate Compliance Requirements in Hydrogen Fuelling Stations
- › 2.5 Discuss Implementation Strategies for ISO 19880 Standards
- › 2.6 Apply ISO 19880 Guidelines to Real-World Scenarios

**• 3 Risk Assessment and Management for Hydrogen Technologies** — 6 classes

- › 3.1 Identify Key Risks in Hydrogen Technologies
- › 3.2 Analyze Consequences of Hydrogen Incidents
- › 3.3 Evaluate Existing Risk Management Strategies
- › 3.4 Implement Control Measures for Risk Mitigation
- › 3.5 Develop a Comprehensive Risk Assessment Plan
- › 3.6 Review and Update Risk Management Protocols

**• 4 Safety Measures and Technologies in Hydrogen Fuelling Stations** — 6 classes

- › 4.1 Identify Key Safety Regulations for Hydrogen Fuelling Stations
- › 4.2 Explain the Role of Safety Measures in Hydrogen Handling
- › 4.3 Analyze Technologies Used for Leak Detection in Hydrogen Stations
- › 4.4 Demonstrate Emergency Response Procedures for Hydrogen Incidents
- › 4.5 Evaluate Safety Equipment Required for Optimal Operation in Hydrogen Stations
- › 4.6 Integrate Safety Protocols into Daily Operations of Hydrogen Fuelling Stations

**• 5 Compliance and Best Practices for ISO 19880 Implementation** — 6 classes

- › 5.1 Identify Key ISO 19880 Compliance Requirements
- › 5.2 Analyze Best Practices for Hydrogen Safety Management
- › 5.3 Evaluate Risk Assessment Procedures for Fuelling Stations
- › 5.4 Implement Safety Protocols Based on ISO Guidelines
- › 5.5 Develop Training Programs for Staff on Safety Standards
- › 5.6 Review Case Studies of Successful ISO 19880 Implementation

**• 1 Overview of Hydrogen as an Energy Carrier** — 6 classes

- › 1.1 Define Hydrogen's Role as an Energy Carrier
- › 1.2 Explore the Properties of Hydrogen Fuel
- › 1.3 Examine the Advantages of Hydrogen as an Energy Source
- › 1.4 Investigate Current Applications of Hydrogen Fuel Technology
- › 1.5 Analyze the Challenges and Limitations of Hydrogen Fuel
- › 1.6 Evaluate Future Innovations in Hydrogen Energy Solutions

**• 2 Principles of Hydrogen Fuelling Station Design** — 6 classes

- › 2.1 Identify Key Components of Hydrogen Fuelling Stations
- › 2.2 Explore Safety Regulations and Standards in Station Design
- › 2.3 Analyze Hydrogen Storage and Dispensing Technologies
- › 2.4 Evaluate Environmental Considerations in Design
- › 2.5 Integrate Renewable Energy Sources into Hydrogen Fuelling Stations
- › 2.6 Design a Conceptual Hydrogen Fuelling Station Layout

**• 3 Safety Standards and Regulations for Hydrogen Infrastructure** — 6 classes

- › 3.1 Identify Key Safety Standards for Hydrogen Infrastructure
- › 3.2 Analyze Regulatory Frameworks Impacting Hydrogen Fuelling Stations
- › 3.3 Evaluate Risk Assessment Procedures for Hydrogen Safety
- › 3.4 Implement Emergency Response Protocols in Hydrogen Stations
- › 3.5 Assess Compliance with ISO 19880 Standards in Practice
- › 3.6 Develop a Safety Management Plan for Hydrogen Fuelling Operations

**• 4 Innovative Technologies in Hydrogen Compression and Storage**

— 6 classes

- › 4.1 Explore Emerging Technologies in Hydrogen Compression
- › 4.2 Analyze Key Innovations in Hydrogen Storage Solutions
- › 4.3 Evaluate the Efficiency of Compressed Hydrogen Systems
- › 4.4 Investigate Safety Measures in Hydrogen Compression Technologies
- › 4.5 Compare Conventional vs. Advanced Hydrogen Storage Methods
- › 4.6 Design a Concept for an Innovative Hydrogen Storage Facility

**• 5 The Future of Hydrogen Fuelling: Trends and Innovations** — 6 classes

- › 5.1 Analyze Current Trends in Hydrogen Fuelling Technologies
- › 5.2 Evaluate Innovations in Hydrogen Production Methods
- › 5.3 Explore Safety Standards and Regulations for Hydrogen Stations
- › 5.4 Investigate the Role of Renewable Energy in Hydrogen Infrastructure
- › 5.5 Examine Case Studies of Successful Hydrogen Fuelling Stations
- › 5.6 Propose Solutions for Future Challenges in Hydrogen Adoption

**• 1 Foundations of Hydrogen Fuelling: Understanding ISO 19880** — 6 classes

- › 1.1 Define Key Terms in Hydrogen Fuelling Standards
- › 1.2 Explore the Structure of ISO 19880 Certification
- › 1.3 Identify Core Requirements for Hydrogen Fuelling Stations
- › 1.4 Assess the Impacts of ISO 19880 on Safety Standards
- › 1.5 Compare ISO 19880 with Other Fuelling Standards
- › 1.6 Analyze Case Studies of Successful ISO 19880 Implementation

**• 2 Planning Project Lifecycle for Hydrogen Stations** — 6 classes

- › 2.1 Define Project Objectives for Hydrogen Stations
- › 2.2 Identify Key Stakeholders in Hydrogen Fuelling Projects
- › 2.3 Develop a Comprehensive Project Timeline for Hydrogen Stations
- › 2.4 Assess Risks and Challenges in Hydrogen Station Implementation
- › 2.5 Allocate Resources and Budget for Hydrogen Projects
- › 2.6 Evaluate Project Success and Implement Continuous Improvement Strategies

**• 3 Risk Management Strategies in Hydrogen Fuelling Projects** — 6 classes

- › 3.1 Identify Key Risks in Hydrogen Fuelling Projects
- › 3.2 Assess the Impact of Identified Risks on Project Success
- › 3.3 Develop Effective Mitigation Strategies for Key Risks
- › 3.4 Evaluate Risk Management Tools and Techniques for Hydrogen Projects
- › 3.5 Implement a Risk Monitoring and Review Process
- › 3.6 Analyze Case Studies of Successful Risk Management in Hydrogen Fuelling

**• 4 Implementing Project Management Methodologies for Hydrogen Stations** — 6 classes

- › 4.1 Define Key Project Management Methodologies for Hydrogen Stations
- › 4.2 Assess the Suitability of Methodologies for Hydrogen Fuelling Projects
- › 4.3 Develop a Project Scope Statement for Hydrogen Station Implementation
- › 4.4 Create a Project Schedule Using Agile Techniques in Hydrogen Projects
- › 4.5 Implement Risk Management Strategies in Hydrogen Station Projects
- › 4.6 Evaluate Project Outcomes and Continuously Improve Hydrogen Station Management

**• 5 Evaluating Project Outcomes and Sustainability in Hydrogen Fuelling** — 6 classes

- › 5.1 Assess Project Success Metrics in Hydrogen Fuelling
- › 5.2 Identify Key Sustainability Indicators for Hydrogen Stations
- › 5.3 Analyze Stakeholder Feedback on Project Outcomes
- › 5.4 Evaluate Environmental Impact of Hydrogen Fuelling Projects
- › 5.5 Develop Strategies for Continuous Improvement in Project Sustainability
- › 5.6 Create a Comprehensive Project Evaluation Report

**• 1 Understanding the ISO 19880 Standard and Its Importance — 6**

classes

- › 1.1 Explore the Purpose of ISO 19880 in Hydrogen Infrastructure
- › 1.2 Identify Key Components of the ISO 19880 Standard
- › 1.3 Analyze the Impact of ISO 19880 on Safety Protocols
- › 1.4 Examine Compliance Requirements for Gaseous Hydrogen Fuelling Stations
- › 1.5 Discuss Benefits of Implementing ISO 19880 in Industry Practices
- › 1.6 Evaluate Case Studies of Successful ISO 19880 Implementation

**• 2 Key Regulatory Bodies and Their Roles in Hydrogen Fuelling — 6**

classes

- › 2.1 Identify Key Regulatory Bodies Governing Hydrogen Fuelling
- › 2.2 Explain the Roles of International Regulatory Agencies
- › 2.3 Analyze the Impact of National Regulations on Hydrogen Infrastructure
- › 2.4 Evaluate the Responsibilities of Local Regulatory Authorities
- › 2.5 Discuss Compliance Requirements for Hydrogen Fuelling Stations
- › 2.6 Assess Best Practices for Engaging with Regulatory Bodies

**• 3 Safety Regulations and Risk Management in Hydrogen Fuelling Stations — 6 classes**

- › 3.1 Identify Key Safety Regulations for Hydrogen Fuelling Stations
- › 3.2 Explore Risk Assessment Methodologies in Hydrogen Environments
- › 3.3 Analyze Hazard Identification Techniques in Hydrogen Fuelling Stations
- › 3.4 Evaluate Mitigation Strategies for Hydrogen Safety Risks
- › 3.5 Implement Monitoring and Compliance Practices for Safety Regulations
- › 3.6 Develop an Emergency Response Plan for Hydrogen Fuelling Stations

**• 4 Environmental Regulations and Sustainability Standards — 6**

classes

- › 4.1 Examine Environmental Regulations Impacting Hydrogen Fuelling Stations
- › 4.2 Analyze Key Sustainability Standards for Energy Infrastructure
- › 4.3 Identify Compliance Requirements for Gaseous Hydrogen Facilities
- › 4.4 Explore Best Practices in Environmental Management Systems
- › 4.5 Develop Strategies for Enhancing Sustainability in Fuelling Operations
- › 4.6 Evaluate Case Studies on Regulatory Compliance Successes in Hydrogen Sector

**• 5 Future Trends and Challenges in Hydrogen Regulatory Frameworks — 6 classes**

- › 5.1 Identify Key Future Trends in Hydrogen Regulation
- › 5.2 Analyze Global Regulatory Challenges for Hydrogen Fuelling Stations
- › 5.3 Assess the Impact of Technological Advancements on Regulation
- › 5.4 Explore Case Studies of Evolving Hydrogen Regulations
- › 5.5 Develop Strategies for Adapting to Regulatory Changes
- › 5.6 Propose Innovations for Future Hydrogen Regulatory Frameworks