Advanced Well Integrity Management Training Course

Professional Development Training Course Outline

Category	Oil and Gas	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

An advanced well integrity management training course is vital for ensuring the **long-term containment of hydrocarbons** and preventing **catastrophic failures** in the oil and gas industry. By focusing on a **proactive, risk-based approach**, this course equips professionals with the **cutting-edge knowledge** and **practical skills** needed to manage well integrity throughout its entire lifecycle from design and construction to operation and abandonment. It goes beyond the basics to address complex challenges such as **sustained casing pressure**, **corrosion mitigation**, and **annular pressure management** using **advanced technologies** and **data-driven decision-making**. This training is not just about technical competence; it's about fostering a **safety-first culture** and enhancing operational excellence to protect assets, personnel, and the environment.

Advanced Well Integrity Management Training Course is designed to deliver a deep dive into **well integrity lifecycle governance**, leveraging **industry best practices** and **international standards** to build a robust **well integrity management system (WIMS)**. Participants will master key aspects like **well barrier verification**, **anomaly management**, and **risk assessment methodologies**, ensuring they can effectively **troubleshoot** and implement **remedial solutions**. The curriculum integrates **real-world case studies** and **hands-on exercises** to provide a holistic understanding of how to apply **advanced integrity principles** for **optimized production**, **cost reduction**, and **regulatory compliance**. By the end of this course, attendees will be well-prepared to lead **well integrity initiatives** and make a significant, lasting impact on their organization's operational safety and efficiency.

Programme Curriculum

Advanced Well Integrity Management Training Course

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Course Duration

5 days

Course Objectives

- Master the principles of well integrity lifecycle governance and WIMS development.
- Analyze and mitigate key well integrity threats and failure modes.
- Implement advanced well barrier verification and management techniques.
- Evaluate and apply risk-based assessment methodologies for well categorization.
- Diagnose and manage sustained casing pressure (SCP) and annular pressure.
- Develop effective strategies for corrosion mitigation and erosion control.
- Utilize digital transformation tools, including digital twins and AI/ML for predictive maintenance.
- Apply real-time monitoring and data analytics for proactive anomaly management.
- Execute well integrity audits and ensure regulatory compliance.
- Design and implement effective well intervention and remedial solutions.
- Optimize well abandonment and plug & abandonment (P&A) operations for long-term integrity.
- Review and learn from major well integrity incidents and lessons learned.
- Formulate a cost-benefit analysis for well integrity programs and initiatives.

Organizational Benefits

- Minimize the likelihood of **catastrophic failures** and **uncontrolled releases**, safeguarding personnel, assets, and the environment.
- Extend the operational lifespan and performance of wells through **proactive maintenance** and **optimized integrity programs**.
- Streamline **well integrity workflows** and **decision-making processes** with a standardized, **risk-based approach**.
- Prevent costly failures, reduce unscheduled downtime, and optimize repair and **remedial solutions**.
- Ensure adherence to **international standards** and **industry best practices**, avoiding penalties and reputational damage.

- Cultivate a highly skilled workforce capable of leading **advanced well integrity initiatives** and driving innovation.

Target Audience

1. Well Integrity Engineers & Specialists
2. Drilling & Completion Engineers
3. Production & Operations Engineers
4. HSE (Health, Safety, and Environment) Professionals
5. Asset Managers & Operations Managers
6. Regulatory Body Personnel
7. Senior Technicians and Field Supervisors
8. Technical Staff from service companies

Course Outline

Module 1: Foundations of Well Integrity

- Well Integrity Fundamentals and Industry Standards (API, ISO).
- Understanding Well Barriers: Primary, Secondary, and Tertiary Barriers.
- **Well Integrity Lifecycle** Governance: From Design to Abandonment.
- Roles, Responsibilities, and Establishing a **Well Integrity Management System (WIMS)**.
- **Case Study**: The Macondo Deepwater Horizon Incident - Root causes of **well integrity failure** and key lessons learned.

Module 2: Well Design & Construction Integrity

- Designing for Integrity: Casing, Cementing, and Tubular Selection.
- Cementing Quality Control and Evaluation Tools (**CBL/VDL**).
- Wellhead and Christmas Tree Integrity.
- Managing Well Handover and Data Management.
- **Case Study**: Substandard Cementing and its Impact on Well Longevity and Integrity.

Module 3: Annular Pressure Management

- Diagnosis and Classification of **Sustained Casing Pressure (SCP)**.
- Sources and Causes of Annular Pressure.
- Mathematical Models and **MAASP (Maximum Allowable Annulus Surface Pressure)** Calculations.
- Mitigation and Remedial Strategies for Annulus Pressure.
- **Case Study**: Managing a high-pressure, high-temperature (HPHT) well with significant SCP and implementing an effective bleed-off program.

Module 4: Well Integrity Threats & Failure Modes

- Corrosion Mechanisms: **CO?éé**, **H?ééS**, and Microbiologically Influenced Corrosion (MIC).
- **Corrosion Mitigation** and Monitoring Technologies.
- Erosion, Scale, and Hydrate Formation.
- Mechanical Failures: Tubing/Casing Leaks and Connection Failures.
- **Case Study**: A pipeline leak caused by severe internal corrosion and the subsequent implementation of a chemical inhibition program and integrity monitoring.

Module 5: Well Integrity Monitoring & Diagnostics

- **Real-time Monitoring** and Surveillance Systems.
- Advanced **Logging Tools** and Inspection Techniques.
- Data Analytics and **Predictive Maintenance**.
- Remote Sensing and Digital Technologies for Well Integrity.
- **Case Study**: Using fiber optic sensing and digital twins to monitor wellbore conditions and predict potential integrity issues in a deep-water asset.

Module 6: Well Integrity Risk Assessment & Anomaly Management

- **Risk-Based Well Categorization** and Prioritization.
- Developing a **Well Anomaly Management** Process.
- Failure Mode and Effects Analysis (**FMEA**) and Root Cause Analysis (**RCA**).
- Management of Change (**MOC**) in Well Operations.
- **Case Study**: A well anomaly is detected in an offshore platform. Participants work through the RCA process, from data collection to recommending remedial actions and updating the WIMS.

Module 7: Well Intervention & Remedial Solutions

- Planning and Executing **Well Intervention** Operations.
- Mechanical and Chemical **Remedial Solutions**.
- Wellhead and Tree Replacement/Repair.
- **Temporary and Permanent Abandonment**.
- **Case Study**: A complex remedial operation involving a tubing leak that requires a coil tubing intervention and setting a straddle packer for isolation.

Module 8: Advanced Integrity and Future Trends

- **Digital Transformation** in Well Integrity: **IoT**, **AI**, and **Machine Learning**.
- Integrated Asset and **Well Integrity Management**.
- **Subsea Well Integrity** Challenges and Solutions.
- **Abandonment Optimization** and Permanent P&A Strategies.
- **Case Study**: A company leverages an AI-powered platform to predict and prevent failures across its entire well stock, showcasing the financial and safety benefits.

Training Methodology

This course employs a highly interactive and practical training methodology, combining theoretical lectures with a strong emphasis on real-world application. The approach includes:

- Interactive Lectures.
- Group Workshops & Exercises.
- Real-World Case Studies.
- Hands-on Software Demonstrations.
- Q&A and Open Discussions.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call *+254769199797*

Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
23 Nov 2026	27 Nov 2026	Online	$1,000
23 Nov 2026	27 Nov 2026	Physical	$1,500
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$3,000
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$4,500
23 Nov 2026	27 Nov 2026	Physical	$6,000
23 Nov 2026	27 Nov 2026	Physical	$6,000

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