Oil and Gas Digital Engineering Asset Management Training Course



14 - 18 Dec 2026

Cape town

4600 € (Per Person)

Ref: #CAD8910_271500

Course Introduction / Overview:

The oil and gas industry is undergoing a profound digital transformation, where physical assets are increasingly mirrored by sophisticated digital counterparts. This shift necessitates a strategic approach to managing digital engineering assets throughout their entire lifecycle, from design and construction to operations and decommissioning. Mismanagement of this critical data can lead to significant operational inefficiencies, increased safety risks, and costly project overruns. This intensive training course provides a comprehensive framework for establishing and maintaining a robust digital asset information management system. Drawing on principles outlined by industry experts like Dr. Anne-Marie J. Ledoux and concepts discussed in foundational texts such as "Chemical Engineering Design" by Gavin Towler, the program delves into data governance, industry standards, and cutting-edge technologies. BIG BEN Training Center has designed this course to equip professionals with the skills to harness the power of digital twins, implement effective data handover processes, and ensure the integrity and accessibility of engineering information, thereby driving operational excellence and competitive advantage in a data-centric energy landscape.

Target Audience / This training course is suitable for:

- Engineering Managers and Team Leads.
- Project Engineers and Managers.
- Operations and Maintenance Supervisors.
- Asset Integrity Engineers.
- Data Managers and Information Analysts.
- IT and Digital Transformation Specialists.
- Document Controllers and Information Management Professionals.
- EPC Contractor Personnel.
- Process and Plant Engineers.

Target Sectors and Industries:

- Upstream Oil and Gas (Exploration and Production).
- Midstream Oil and Gas (Transportation and Storage).
- Downstream Oil and Gas (Refining and Petrochemicals).
- Engineering, Procurement, and Construction (EPC) Companies.
- Energy Technology and Software Providers.
- Governmental Regulatory Bodies and National Oil Companies.
- Renewable Energy sectors adapting oil and gas asset principles.

Target Organizations Departments:

- Engineering and Design.
- Operations and Production.
- Maintenance and Reliability.
- Information Technology (IT) and Digital Strategy.
- Project Management and Controls.
- Health, Safety, and Environment (HSE).
- Data Governance and Information Management.
- Capital Projects Teams.

Course Offerings:

By the end of this course, the participants will have able to:

- Develop a strategic framework for digital engineering asset management.
- Implement robust data governance and quality control procedures.
- Apply key industry standards such as ISO 15926 for data interoperability.
- Evaluate and select appropriate technologies for managing digital assets.
- Master the process of data handover from capital projects to operations.
- Utilize digital twin concepts to enhance operational decision-making.
- Integrate asset information for improved maintenance and reliability programs.
- Develop a roadmap for digital transformation within their organization.
- Mitigate cybersecurity risks associated with digital engineering assets.

Course Methodology:

This training course employs a dynamic and interactive learning methodology designed to foster deep understanding and practical application. The program is built upon a foundation of expert-led instruction, where complex concepts are broken down into clear, manageable modules. At BIG BEN Training Center, we believe in learning by doing. Therefore, theoretical sessions are balanced with a variety of hands-on activities, including in-depth case studies of real-world oil and gas projects, collaborative group workshops to solve complex data management challenges, and practical exercises in data mapping and workflow design. Participants will engage in interactive discussions, sharing their experiences and learning from their peers under the guidance of our seasoned instructors. Continuous feedback is a core component of our approach, ensuring that participants can immediately apply and refine their new skills. The methodology is designed not just to transfer knowledge, but to build confidence and competence in managing digital engineering assets effectively.

Course Agenda (Course Units):

Unit One: Foundations of Digital Engineering Asset Management

- Introduction to Digital Assets in the Oil and Gas Sector.
- The Asset Lifecycle and the Role of Engineering Data.
- Challenges in Traditional Engineering Information Management.
- The Business Case for Strategic Digital Asset Management.
- Key Terminology and Concepts (Digital Twin, Data Handover, etc.).
- Understanding the Digital Thread and its Importance.
- Regulatory and Compliance Requirements for Engineering Data.

Unit Two: Data Governance and Industry Standards

- Establishing a Data Governance Framework for Engineering Assets.
- Defining Roles and Responsibilities in Data Management.
- Implementing Data Quality and Integrity Protocols.
- Introduction to ISO 15926 for Plant Data Integration.
- Understanding Capital Facilities Information Handover Specification (CFIHOS).
- Data Classification, Tagging, and Metadata Management.
- Developing a Master Data Management (MDM) Strategy.

Unit Three: Core Technologies and Platforms

- Overview of Engineering Document Management Systems (EDMS).
- Principles and Applications of Plant Lifecycle Management (PLM).
- The Role of Cloud Computing and Data Lakes in Asset Management.
- Leveraging the Industrial Internet of Things (IIoT) for Real-Time Data.
- Building and Maintaining an Effective Digital Twin.
- Visualization Technologies (3D Models, AR/VR) for Asset Data.
- Choosing the Right Technology Stack for Your Organization.

Unit Four: Managing the Digital Asset Lifecycle

- Information Management during the Capital Project Phase (Design and Build).
- The Critical Process of Engineering Data Handover to Operations.
- Managing As-Built Information and Modifications.
- Integrating Digital Assets with Computerized Maintenance Management Systems (CMMS).
- Leveraging Digital Data for Asset Integrity and Reliability.
- Data Management for Brownfield and Decommissioning Projects.
- Change Management Strategies for Digital Workflows.

Unit Five: Advanced Strategies and Future Trends

- Utilizing Predictive Analytics for Asset Performance Management.
- The Application of Artificial Intelligence and Machine Learning in O&G.
- Cybersecurity Strategies for Protecting Digital Engineering Assets.
- Building a Sustainable Digital Transformation Roadmap.
- Measuring the ROI of Digital Asset Management Initiatives.
- The Future of Autonomous Operations and Smart Fields.
- Final Project: Developing a Digital Asset Management Plan.

FAQ:

Qualifications required for registering to this course?

There are no requirements.

How long is each daily session, and what is the total number of training hours for the course?

This training course spans five days, with daily sessions ranging between 4 to 5 hours, including breaks and interactive activities, bringing the total duration to 20 - 25 training hours.

Something to think about:

How might the integration of real-time operational data with a static engineering digital twin fundamentally change risk assessment and decision-making in hazardous environments?

What unique qualities does this course offer compared to other courses?

This course distinguishes itself by offering a holistic, lifecycle-centric perspective on digital engineering asset management, a departure from programs that focus narrowly on a single technology or project phase. We move beyond theoretical discussions to emphasize the practical implementation of crucial industry standards like ISO 15926 and CFIHOS, equipping participants with the skills to solve real-world data interoperability challenges. The curriculum uniquely bridges the gap between strategic data governance and the application of advanced technologies such as digital twins and IIoT, ensuring that participants understand both the 'why' and the 'how'. Rather than merely listing software tools, the course focuses on developing the critical thinking needed to select, integrate, and manage a technology ecosystem. Furthermore, it adopts a forward-looking stance, dedicating significant time to the strategic implications of AI, predictive analytics, and cybersecurity in the context of asset management. This blend of strategic oversight, practical standards application, and future-focused insights provides a comprehensive and actionable learning experience unmatched in the industry.