Specialized Maintenance for the Oil and Gas Industry Training Course



19 - 23 Oct 2026

Madrid

5900 € (Per Person)

Ref: #INM3532_58177

Course Introduction / Overview:

This course is an intensive program tailored to the unique and demanding environment of the oil and gas industry. It goes beyond general maintenance principles to focus on the specialized equipment, stringent safety regulations, and unique operational challenges faced in this sector. Participants will gain a deep understanding of preventive maintenance strategies, asset integrity management, and the crucial role of safety in every maintenance task. The curriculum covers a wide range of topics from pump and valve maintenance to pipeline integrity and corrosion control. It also addresses the complexities of working with high-pressure systems and hazardous materials. By integrating the latest industry standards and best practices, this course prepares professionals to meet the high demands for safety and reliability in oil and gas operations. The program draws on foundational texts such as "Oil and Gas Pipelines and Piping Systems: Design, Construction, Management, and Maintenance" by L. M. N. Bakhvalov, providing a solid academic and technical basis for the material. BIG BEN Training Center has designed this course to be highly practical, with a focus on real-world scenarios and hands-on problem-solving, ensuring participants can immediately apply their new skills to their work.

Target Audience / This training course is suitable for:

- Maintenance and reliability engineers.
- Oil and gas technicians and supervisors.
- Plant and field operators.
- Asset integrity and inspection specialists.
- Safety and quality assurance personnel.
- Project managers in the oil and gas sector.
- Government agency staff overseeing energy infrastructure.

Target Sectors and Industries:

- Upstream oil and gas (exploration and production).
- Midstream (transportation and storage).
- Downstream (refining and processing).
- Petrochemicals.
- Marine and offshore.
- Pipeline and infrastructure management.
- Government agencies.

Target Organizations Departments:

- Maintenance and reliability.
- Operations.
- Asset management.
- Health, safety, and environment (HSE).
- Engineering.
- Quality assurance.

Course Offerings:

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

- Implement specialized maintenance practices for oil and gas equipment.
- Apply asset integrity management principles to ensure operational reliability.
- Perform effective maintenance on pumps, compressors, and valves.
- Identify and mitigate common issues like corrosion and erosion in pipelines.
- Adhere to strict safety protocols and industry regulations.
- Conduct advanced troubleshooting for complex equipment failures.
- Develop and execute preventive and predictive maintenance schedules.

Course Methodology:

This course uses a focused and interactive methodology that combines theoretical instruction with practical, industry-specific case studies. The training is designed to simulate the challenges faced by maintenance professionals in the oil and gas sector. Participants will engage in group discussions and problem-solving exercises related to real-world scenarios, such as managing a high-pressure valve failure or troubleshooting a pipeline leak. The instructor, an expert with extensive experience in the field, will provide personalized feedback and guidance. The program incorporates practical workshops where participants can practice their skills in a controlled environment. The curriculum also includes interactive sessions on safety procedures and regulatory compliance, which are essential in this industry. BIG BEN Training Center believes this blend of targeted theory, real-world application, and expert mentorship ensures that participants leave with a high level of confidence and competence, ready to tackle the specific demands of their jobs and contribute to a safer, more efficient work environment.

Course Agenda (Course Units):

Unit One: Introduction to Oil and Gas Maintenance

- Overview of the oil and gas industry and its maintenance challenges.
- The role of maintenance in ensuring operational safety and reliability.
- Fundamentals of asset integrity management.
- Key maintenance strategies: reactive, preventive, and predictive.
- Understanding the life cycle of oil and gas assets.
- Safety regulations and risk management in maintenance operations.
- Introduction to the different types of equipment in the industry.

Unit Two: Mechanical Equipment Maintenance

- Specialized maintenance for pumps and pumping systems.
- Maintenance and troubleshooting of compressors.
- Valves: types, functions, and maintenance procedures.
- Inspection and repair of turbines and rotating machinery.
- Sealing technology and leakage prevention.
- Best practices for lubrication and fluid management.
- Case studies on common mechanical failures and repairs.

Unit Three: Pipeline and Piping Systems

- Fundamentals of pipeline integrity management.
- Corrosion control and monitoring techniques.
- Erosion and its effects on piping systems.
- Inspection methods for pipelines, including non-destructive testing (NDT).
- Maintenance of pipe supports and hangers.
- Repair methods for pipeline defects and leaks.
- Compliance with pipeline safety regulations.

Unit Four: Electrical and Instrumentation Systems

- Maintenance of electrical equipment in hazardous areas.
- Inspection and calibration of process instruments.
- Troubleshooting control systems and sensors.
- Maintenance of electrical motors and generators.
- Safety procedures for working with electrical systems.
- Understanding and maintaining SCADA and DCS systems.
- Practical exercises on instrument calibration.

Unit Five: Reliability, Safety, and Emerging Trends

- Implementing a reliability-centered maintenance (RCM) program.
- Failure modes and effects analysis (FMEA).
- Root cause analysis (RCA) techniques.
- Safety management systems and permit-to-work procedures.
- Emerging technologies in maintenance, such as IIoT and drones.
- Final review of key maintenance concepts and skills.
- Case study on improving safety and reliability at a plant.

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:

In an industry where safety and reliability are paramount, how can a comprehensive maintenance strategy not only prevent catastrophic failures but also drive operational efficiency and profitability?

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

This course stands apart by its deep specialization and exclusive focus on the maintenance challenges of the oil and gas sector. While general maintenance training exists, this program is meticulously designed to address the unique complexities of working with high-pressure systems, hazardous materials, and remote locations. The curriculum goes beyond basic theory and provides practical, real-world solutions for equipment specific to the industry, from specialized valves to complex pipeline systems. Our case studies are drawn directly from the field, allowing participants to work through scenarios that mirror their daily job challenges. The emphasis on safety, regulatory compliance, and asset integrity management is a central pillar of the training, which is a critical differentiator. This is not just a course on fixing things; it is a program on how to manage assets in one of the most demanding industrial environments in the world. With its expert instructors and hands-on approach, BIG BEN Training Center ensures participants are not only skilled but also fully prepared to contribute to the safe and reliable operation of their organization's assets.