



Power System Protection Training

19 – 23 October 2026
Amsterdam (Netherlands)



Power System Protection Training

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Introduction:

Ensuring the safety and reliability of power systems is paramount in the oil and gas industry. A comprehensive power system protection course is critical in this sector, addressing the intricate mechanisms and protocols required to protect power systems and safeguard vital infrastructure.

In this power system protection training, participants will delve into advanced power system protection, equipping participants with the knowledge and skills to navigate the complex interplay of electrical components, environmental factors, and operational demands.

Participants of this power system protection training are typically professionals entrenched within the oil and gas industry, including power system protection engineers, technicians, and managers responsible for overseeing power systems within various facets of extraction, refinement, and distribution processes.

Their roles require a thorough understanding of the fundamentals of power system protection to mitigate risks, ensure operational continuity, and uphold industry standards amidst the dynamic challenges inherent to the oil and gas landscape. The importance of power system protection cannot be overstated.

Power system protection is a cornerstone of operational safety and reliability that has significant implications for the efficiency and resilience of energy infrastructure. With advancing technology, power system protection continues to evolve, highlighting the need for ongoing education and training in this dynamic field.

Targeted Groups:

- Engineers design, implement, and maintain power systems within oil and gas facilities.
- Technicians are responsible for troubleshooting, testing, and maintaining power protection systems within the industry.
- Managers oversee power system operation, maintenance, and optimization to ensure efficiency and safety.
- Safety Personnel ensure compliance with industry regulations and implement safety protocols related to power system protection.
- Maintenance Crews uphold operational integrity by performing routine inspections, repairs, and upgrades of power protection equipment.
- Field Operators require power systems and protection knowledge to ensure uninterrupted operations and respond effectively to emergencies.
- Regulators are responsible for enforcing compliance with safety standards and regulations governing power system protection in the oil and gas sector.

Course Objectives:

By the end of this power system protection course, participants will:

- Understand the fundamentals of power system protection specific to the oil and gas industry.
- Learn to identify potential risks and vulnerabilities in power protection systems within oil and gas facilities.
- Gain proficiency in selecting and implementing appropriate protection schemes for power system components.
- Acquire skills in fault analysis, power system protection, relaying, and troubleshooting in power systems.
- Familiarize with industry best practices and standards for power system protection.
- Develop strategies for preventive maintenance and proactive risk management.
- Enhance crisis response capabilities through effective power protection system strategies.
- Improve overall operational efficiency and reliability of power systems in oil and gas environments.

Targeted Competencies:

At the end of this power system protection training, participants competencies will:

- Risk Assessment.
- Fault Analysis.
- Protection Scheme Design.
- Troubleshooting Techniques.
- Industry Standards Compliance.
- Preventive Maintenance.
- Emergency Response.
- System Reliability Enhancement.

Course Content:

Unit 1: Introduction to Power System Protection:

- Overview of advanced power system protection in the oil and gas industry.
- Key concepts and power system protection basics.
- Understand the importance of power system protection for operational safety and reliability.
- Historical development and advancements in power system protection technology.
- The role of power system protection in minimizing downtime and financial losses.

Unit 2: Protection Devices and Schemes:

- Types of power system protection devices: relays, circuit breakers, fuses.
- Protection schemes for various components: transformers, generators, motors.
- Selection criteria for power system protection equipment.
- Coordination between various protective relaying devices to ensure selective isolation.
- Integration of digital and microprocessor-based power system protection systems.

Unit 3: Fault Analysis and Troubleshooting:

- Methods for detecting and analyzing faults in power systems and protection.
- Common faults in oil and gas power system protection and relaying.
- Troubleshooting techniques and tools.
- Case studies on fault analysis and resolution in oil and gas facilities.
- The impact of environmental factors on fault occurrence and protection effectiveness.

Unit 4: Standards and Best Practices:

- Industry standards for power system protection: IEEE, IEC, NERC guidelines.
- Regulatory requirements and compliance with local and international power system protection regulations.
- Best practices for implementing and maintaining power system protection and control systems: periodic testing, calibration, and upgrades.
- Documentation and reporting protocols for power system protection performance.
- Continuous training, power system protection, and engineer competency development are needed to maintain high protection standards.

Unit 5: Preventive Maintenance and Emergency Response:

- Strategies for the preventive maintenance of power system protection systems.
- Emergency response planning and execution related to power system protection and control.
- Case studies on successful and failed power system protection scenarios.