

GAS TURBINE OPERATION & MAINTENANCE TECHNIQUES



OUR ACCREDITATION & PARTNERS



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OVERALL DESCRIPTION:

Mastery of gas turbine technology is the foundation of operational excellence. This course is designed to empower your team with the hands-on expertise and diagnostic skills necessary to become truly indispensable. We believe that a deep understanding of these complex machines leads to confident, proactive decision-making—which in turn prevents costly failures, optimizes performance, and ensures seamless operations. By providing your professionals with a practical, in-depth look at gas turbine maintenance and troubleshooting, you're not just training them; you're cultivating a team of experts ready to tackle any challenge and drive your business forward.

Course Objectives:

Upon completion of this course, participants will have the knowledge and skills to:

- **Apply** fundamental gas turbine principles to real-world operational and maintenance challenges.
- **Execute** safe and professional startup, shutdown, and emergency procedures.
- **Identify** common operational issues and perform efficient, systematic troubleshooting to minimize downtime.
- **Implement** proactive maintenance and inspection techniques to maximize asset reliability and service life.
- **Adhere** to the highest standards of safety and environmental compliance in all operational activities.

Course Outline:

- **Gas Turbine Fundamentals & System Components:**
 - We'll establish a solid foundation by exploring the core principles of gas turbine technology, including thermodynamics and aeromechanics. This module provides a detailed look at the function and interaction of each major component—from the compressor and combustor to the turbine and auxiliary systems—to build a holistic understanding of the unit.



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Course Outline:

- **Operational Procedures & Performance Monitoring:**
 - This section provides practical, step-by-step guidance on all aspects of operation. Participants will learn how to perform pre-startup checks, execute controlled startup and shutdown sequences, and effectively monitor performance data to identify and address anomalies before they escalate.
- **Proactive Maintenance, Inspections & Tools:**
 - Moving beyond reactive fixes, we'll focus on a proactive maintenance philosophy. You'll learn advanced inspection techniques, including the use of borescope technology and vibration analysis. The module also covers the development of robust maintenance schedules to prevent failures and extend the lifespan of your turbines.
- **Systematic Troubleshooting & Fault Diagnosis:**
 - We'll tackle the inevitable challenges of operation by providing a structured approach to problem-solving. Through case studies and practical scenarios, participants will learn how to accurately diagnose issues—from sensor faults to combustion instability—and implement corrective actions with confidence and speed.
- **Safety, Compliance & Risk Management:**
 - A non-negotiable aspect of this course is safety. We will cover critical safety protocols, including LOTO (Lockout/Tagout) procedures, fire prevention, and handling hazardous materials. We also address key environmental regulations and best practices for sustainable operation.

WHO SHOULD ATTEND?

- Mechanical & Electrical Engineers seeking to enhance their practical, hands-on knowledge.
- Maintenance Technicians responsible for the daily care and inspection of turbines.
- Plant Operators & Supervisors who need to ensure safe, reliable, and efficient daily operations.
- Reliability Engineers focused on improving asset performance and extending service life.

Course Methodology:

We utilize a variety of proven adult learning techniques to ensure maximum understanding, comprehension and retention of the information presented. This training course will be conducted as a highly interactive workshop session. A variety of training methodologies will be used Before and during the course whenever applicable. Some of these methods are gamification, online pre-post test, role plays, self-assessment instruments, group exercises & case studies.

