Technology of Gas Turbines

Design, Control, Implementation, and Issue Resolution

Introduction

This training course on gas turbine technology will improve your proficiency in operating, controlling, and troubleshooting gas turbines while imparting solid knowledge of the subject. Through this training programme, participants will gain a basic grasp of many elements of the performance of stationary gas turbine engines that are relevant to their operation and control.

The goal of the training programme is to impart gas turbine operation principles to the learners. Additionally, to teach them how to observe the gas turbine's behaviour, which will enable them to improve its performance. Through the development of a foundation in gas turbine operation, participants in this training course will be able to appropriately analyse operating faults and implement the necessary remedial action.

In order to assist students fully comprehend how each system component operates, the training course will also cover the tools and troubleshooting strategies that must be used. We'll go over the gas turbine control philosophy.

This training session on Course N Carry Technology of Gas Turbines will emphasise:

- The fundamentals of gas turbine operation
- Modern gas turbine design
- Gas turbine protection and control system
- The various phases of a gas turbine cycle's functioning
- Issues with gas turbines and suggested fixes

Objectives

Upon completion of this training programme in technology of gas turbine, you will be able to:

- List the various gas turbine technologies and applications.
- Determine which variables affect a gas turbine's performance.
- Determine the prerequisites and the protocols for the turbine's safe startup and shutdown.
- Recognise the significance of the TMR control system for gas turbine reliability.

- Recognise the causes of and solutions for gas turbine issues.

Training Methodology

The delivery of this training course on technology gas turbine will follow workshop principles, incorporating interactive lectures and roundtable discussions on specific themes. Case studies are used to emphasise specific topics, and relevant video content is utilised to show specific circumstances. All participants will be able to apply the knowledge they have acquired to demonstrate their proficiency in operating, controlling, and troubleshooting gas turbine systems through interactive worked examples.

Organizational impacts

Your staff members' newfound knowledge and abilities as a result of this training programme will:

- Boost machine availability and dependability
- Help significantly reduce the operating expenses of gas turbines.
- Maintain the equipment in proper working order.
- Boost the equipment's efficiency
- Permit measurements of the state of the equipment
- Gain more proficiency in troubleshooting to save time and money.

Personal Imapct

The following are a few key advantages for those taking this training course:

- Enhancing their foundational understanding of gas turbine operation and maintenance
- Increased aptitude for troubleshooting gas turbine issues and preventing recurrence
- Helping to maintain excellent plant safety records and compliance with emissions
- A deeper comprehension of the processes manufacturers use to create and produce gas turbines
- Increased capacity to run gas turbines safely and effectively
- Gaining more assurance while interacting with contractors and suppliers

Who should attend?

A wide range of professionals can profit from this Course N Carry Technology of Gas Turbine training course, however the following are the main advantages:

- All personnel engaged in the design, operation, control, and troubleshooting of gas turbine technology are mechanical engineers
- Supervisors, Control Engineers, Foremen, Operators

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Day 1

Fundamentals of Turbines

- Overview of Gas Turbines
- Basic Cycle Gas Turbine
- Heavy Duty Gas Turbine
- Industrial Gas Turbine
- Gas Turbine with aerodynamic derivative
- Contemporary Gas Turbine
- Temperature at Firing and Pressure Ratio

Day 2

How to Design a Gas Turbine

- Split, Spool, and Single Shaft Gas Turbines: The Fundamentals of Axial Compressor Operation
- Design of Can, Annular, and Can-Annular Combustors; IGV; Stators; and Rotors
- Nozzles for fuel
- The Fundamentals of an Axial Turbine's Pulse and Reaction Turbine Blade Operation
- Methods for Cooling the Blades Inside

Day 3

Protection, Control, and Auxiliary Systems

- System of Lubrication
- Fuel System for Gas
- Fuel System for Oil
- The hydraulic system
- System Startup
- Simplex Control System and TMR
- Vital Redundant Sensors
- Safety Measures

Day 4

The operation and performance parameters of a gas turbine

- Variables Impacting a Gas Turbine's Performance

- Pre-checkout list in advance
- Starting and Stopping Processes
- Procedure for synchronisation
- Temperature and Normal Loading Speed Control
- Trip Oil Mechanism

Day 5

Monitoring System and Diagnostics Vibration Analysis

- Monitoring Unusual Situations with a Gas Turbine
- Issues with Axial Compressors
- Issues with Combustors
- Anisotropic Turbine Issues