

Training Title

Gas Turbines Technology (Operations, Troubleshooting, Inspection and Maintenance)

Training Duration

5 days

Training Certificate

Define Management Consultants Certificate of course completion will be issued to all attendees.

Training Venue and Dates

Gas Turbine Technology	5	21-25 February	\$3,300	Abu Dhabi
Gas Turbine Technology	5	November 28 - December 2	\$3,300	Dubai

Training Fees

3300 US\$ per participant for Public Training includes Materials/Handouts, tea/coffee breaks, refreshments & Buffet Lunch

Introduction

The gas Turbine is a power plant that has found increasing service in past 40 years as a power generation plant and as a mechanical drives for other turbomachinery like pumps and compressors. Its compactness, low weight, and multiple fuel application make it a natural power plant for offshore platforms. The last 20 years has seen a large growth in Gas Turbine Technology, new coatings and new cooling schemes. This with the conjunction of increase in compressor pressure ratio has increased the gas turbine thermal efficiency from about 15% to over 45%.

The utilization of gas turbine exhausts gases, for steam generation or for heating applications, advances the gas turbine application and increases the combined cycle power plant efficiency up to 60%, making it as the obvious choice in comparison with other power plant options.

Pushing the gas turbine power plant to the limits, high compression ratio, and high firing temperature make it more susceptible to failures and required a very effective monitoring system plus a very effective and complicated control and protection systems.

Understanding the performance characteristics, steady and transient operation of GT is a must to achieve more availability and reliability of the plant. It requires deeper knowledge and understanding of the function of different components of the gas turbine plant, plus the auxiliary



systems which responsible for lubrication, seals, and cooling to enable troubleshooting the GT better and preventing failures of gas turbines.

Who Should Attend the Course?

Technicians, senior technicians, engineers and senior staff who are directly and indirectly involved in the operation, inspection and maintenance and they requiring knowledge of gas turbines.

Objectives

At the end of the course, the delegates will be able to:

1. Describe the different gas turbine cycles and their features
2. Identify the types of gas turbines based on its technology
3. Describe the most important factors affecting the gas turbine performance
4. Identify gas turbine configurations
5. identify major components/assembly and their function
6. differentiate between single-shaft and two-shaft gas turbines
7. describe key parameters affecting gas turbine performance
8. describe basic control and protection systems used in gas turbines
9. perform troubleshooting and suggest solution for common problems in gas turbines
10. list typical maintenance procedures and inspection techniques

Training Methodology

The course will be delivered over five days. Topics will be discussed with delegates in interactive way, allowing all possible questions and discussions. Delegates will be asked to prepare some presentations every day in form of the most asked questions pertaining a particular topic, and allow others to suggest answers for the same, then presentation will be delivered. At the end of the session, another discussion panel will be held for conclusions.

A post course assessment in forms of short presentation by the delegates will be arranged.

Training Outcome

Delegates will gain a lot of information and knowledge out of the course. This will reflect positively on their performance concerning the gas turbine operation and maintenance.

Daily outline & daily schedule

Day 1

Gas Turbine Overview

Gas Turbine Applications

Gas Turbine Cycles

Gas Turbine Power Augmentation Techniques

**Gas Turbine Emission Reduction
Gas Turbine Configurations
Gas Turbine Operation Envelop**

Day 2

Gas Turbine Mechanical Components

Axial-Flow Turbo-compressors

Combustors

Gas Turbines

Auxiliary Systems

Loop oil System

Bearings

Seals

Fuel Systems

Day 3

Gas Turbine Control Systems

Normal Operation

Load and Frequency Fluctuations

Start-up Sequencing

Shutdown Sequencing

Gas Turbine Protection System

Day 4

Gas Turbine Monitoring System

Instrumentation and Measurements

Scheduled Inspection

Borescope Inspection

Maintenance Strategies

Day 5

Gas Turbine Troubleshooting

Performance Deterioration

High Temperature Effects

Fouling Problems

Fatigue Problem

Vibration Problems

Case Studies, Discussions, Last Day Review and Assessments will be carried out.

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