# GAS TURBINE TECHNOLOGY (REF:OTSGTT001)

**Course Objectives**

The primary function of this course is to allow the attendee a detailed understanding of the applications, operations and maintenance of Gas Turbines.

**Course Description**

The use of Gas Turbines in the Power Generation, Petrochemical and Pipeline Industries has increased considerably in the last few years. The development, in particular, of Combined Cycle and Combined Heat and Power applications has accelerated the use of Industrial Gas Turbines. This course will cover the design, operation and maintenance of the various types of Gas Turbine and Gas Turbine applications. Advances in Gas Turbine Technology will also be discussed with focus being on latest machine types and emission control technology. Presenting this course at our facility will allow attendees to see practical examples of Gas Turbine Components, types of component faults and associated repair techniques.

**Who Should Attend**

This course is targeted at technicians and engineers involved in the operation and maintenance of Gas Turbines. Experienced engineers and maintenance specialists will also benefit from attending this course as will those managers concerned with the maintenance scheduling and repair aspects of Gas Turbines.

**Pre-requisites**

All trainees should have a sound Power Generation background.

**Course Outcome**

At the end of this course you will be able to understand the applications, operations and maintenance of a gas turbine.

**Course Outline**

**Day 1**

Introduction

Types of Gas Turbine and Gas Turbine Applications
Heavy Duty Gas Turbines
Aero-Derivative Gas Turbines
Two-shaft Gas Turbines
Simple Cycle/Combined Cycle/ Combined Heat and Power Applications

*Major Components of a Gas Turbine*

Compressor/Combustor/Turbine
Compressor Components
Compressor Design/Effects on Performance
Compressor Washing Techniques/Philosophies

**Day 2**

*Combustion Components*

Combustion Liner Design/Types
Combustion Liner Materials/Repair
Fuel Nozzle Design/Repair

*Environmental Control for Combustion Systems*

Types Of Environmental Control
Installation/Retrofitting Environmental Control Systems

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**Day 3**

*Hot Gas Path Components*

Blade Materials/Design
Nozzle Materials/Design
Blade/Nozzle Inspection Techniques (Dye Penetrate, Eddy Current)
Blade/Nozzle Defects (Corrosion, Erosion, Oxidation)
Coatings and Coating Application Techniques
Evaluating Components for Repair
Repair Techniques and Materials

**Day 4**

*Gas Turbine Systems*

*Lubrication Systems*

Lube Oil Types
Oil Monitoring and Cleaning

*Fuel Systems*

Fuel Properties and Selection
Fuel Measurement
Supply Systems
Heavy Fuels and Fuel Dosing
Fuel Performance Impacts
Environmental Considerations

*Bearings*

Types of Bearing
Bearing Materials and Repairs

*Additional Systems*

Starting Systems
Inlet Air Systems/Filtering

**Day 5**

*Control Systems*

Types of Control System
Evaluating/Collecting Control System Data
Evaluating Control System Retrofits/Upgrades
Pressure, Temperature and Vibration Monitoring

**Course Review and Feedback**

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