



**Training Program:**

**Gas Turbine Technology**

[www.btsconsultant.com](http://www.btsconsultant.com)

## Introduction:

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?

Electrical Engineers, Power Generation Engineers, Mechanical Maintenance Personnel, Power System Protection Engineers, Gas turbine newcomers and more experienced persons who desire an overview of the many available gas turbine technologies, Process Control Engineers & Personnel, Electrical and Instrumentation Technicians & Design Engineers, Maintenance Technicians & Supervisors, Plant Operators & Technicians, Oil & Gas Industry Personnel

## Course Objectives:

**By the end of this course delegates will be able to:**

- Gain a detailed understanding of the applications, operations and maintenance of Gas Turbines

- Be able to understand the applications, operations and maintenance of a gas turbine
- Update regarding the latest international standards
- Gain knowledge of basic design and operating principles
- Have an improved understanding of the theory behind the practice
- Gain knowledge of the latest designs and research results
- Learn about monitoring and influencing emissions

## Course Outline

### 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

### **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

### **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

## **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

## **Control Systems**

- Types of Control System
- Evaluating

- Collecting Control System Data
- Evaluating Control System Retrofits/Upgrades
- Pressure
- Temperature

## Accreditation:

**BTS** attendance certificate will be issued to all attendees completing a minimum of 80% of the total course duration.