

# GAS TURBINE DEVELOPMENT PROGRAM (8WEEKS)

## Course Objectives

The aim is to produce Graduates that have a broad-based understanding, both theoretical and practical, of the Operations and Maintenance of Generator Drive Gas Turbines.

## Course Description

This programme covers, over a series of weeks, both theoretical and practical, the Operations and Maintenance of Generator Drive Gas Turbines. It covers many aspects of Gas Turbines including fault finding and operational procedures.

## Who Should Attend

This course is aimed specifically at new recruits to the Gas Turbine industry. For further information on the practical training offered on this course please see the facilities at our MJB Workshop.

## Pre-Requisites

All Attendees should have a basic engineering background.

## Course Outcome

At the end of this course you will be able to operate and maintain Generator Drive Gas Turbines.

## Course Outline

### Week 1 - Introduction to Gas Turbines

- Introduction
- Gas Turbine Theory
- Gas Turbine Applications
- Major Components of a Gas Turbine
- Major Accessory Components of a Gas Turbine

### Week 2 - Gas Turbine Operations

- Gas Turbine Piping Schematics
- Gas Turbine Operations
- Gas Turbine Special Operations
- Practical Sessions using Gas Turbine Simulator

### Week 3 - Turbine Mechanical Maintenance and Repair

- Component Inspection Techniques
- Evaluating Component for Repair
- Gas Turbine Inspections
- Component Repair Techniques
- Types of Bearing

### Week 4 - Bearing Maintenance & Repair

- Bearing Maintenance and Repair
- Gearing
- Coupling Installation

### Week 5 - Installation/ Repair and Maintenance of Pumps/ Motors

- Pump Design and Operation
- Pump Operations
- Pump Disassembly/Reassembly Procedures
- Disassembly and Reassembly
- AC and DC Motors
- Practical Sessions at OEL Workshop

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## **Week 6 - Gas Turbine Instrumentation & Calibration**

Gas Turbine Instrumentation Overview  
Pressure/Temperature Switches  
Pressure/Temperature Transducers  
Linear Variable Differential Transformer (LVDT'S)  
Thermocouple and RTD's  
Miscellaneous Instrumentation Devices  
Control Valves

## **Week 7 - Gas Turbine Control Systems (Speedtronic)**

Gas Turbine Control Systems  
Control System Functions  
Control System Protection Functions  
Introduction to Ladder Logic (Rung Display)  
Control System Troubleshooting  
Practical Sessions using Gas Turbine Simulator

## **Week 8 - Generator Control & Protection**

Generator Construction  
Generator Operations

Protection Devices  
Excitation Systems  
Voltage Regulation  
Practical Session using Gas Turbine Simulator  
Course Review and Feedback

**Note: As an open registration course, this programme will be conducted as 4 x 2 week courses**