

ROXBY



Training Solutions

Speedtronic Mark II
Operations and
Maintenance

Course Content

Introduction

This course covers the operations of a Gas Turbine as controlled by a Mark II Speedtronic Control System. The course will introduce the candidates to the Major Components of a Gas Turbine and associated systems. Operational sequences will be discussed for the major varieties of GE Gas Turbines and Gas Turbine applications. The use of a Gas Turbine Calibrator will allow participants to introduce the concepts of basic troubleshooting and fault finding.

Objectives

- Become familiar with the types of Gas Turbines and their applications.
- Understand and read Gas Turbine schematics and identify instrumentation devices/uses.
- Acquire knowledge of the various Gas Turbine Systems and explain operating requirements for Lube Oil, Hydraulic Oil and Fuel Systems.
- Be able to explain startup, synchronizing and loading procedures
- Learn the concept of logic tracing using Elementary diagrams and the Mark II panel.
- Identify the main causes of turbine trips including vibration, over temperature, combustion profiling

Pre-Requisites

This course is aimed at plant operators/technicians responsible for the day-to-day operations of a Gas Turbine. The course will also benefit maintenance personnel who are involved in the troubleshooting of operational problems, along with shift supervisors and team leaders.

Course Duration

This course is of 5 days in duration

Optimum Numbers

Maximum of 6 candidates is recommended.

Training Aids

A PowerPoint Presentation, course notes, hand-outs, portable visual aids, electronic images, problem solving exercises.

Course Syllabus

GT Speedtronic Control Principles

- Digital Control Elements
- Analogue Control Elements
- Fuel Control
- Gas Fuel Control
- Speed Control
- Temperature Control
- Master Protection
- Digital Setpoint (Governor)
- Liquid Fuel Control

Gas Turbine Control Sequencing

- Startup and Shutdown Sequences
- Start Checks and Ready to Start logics
- On-Base Permissive Signals
- MCC Sequencing
- Input and Output Signals
- Turbine Start Sequencing
- Master Protection
- Turbine Starting Means and Ratchet
- Turbine Control Sequencing
- Atomising and Fuel Purge
- Elementary diagrams. Logic signal tracing

GT Control

- Handling of Control cards
- Test Equipment
- LVDT Oscillator (SOSG)
- speed Control (SVSE)
- Temperature Control (STKC)
- Fuel Splitter
- Liquid Fuel Control
- Gas Fuel Control (SSVF and SSVG)
- Start-up Control (SSKC)
- Ground Fault Detection
- Vibration Protection
- Flame Detection

Course Syllabus Continued

GT Control Troubleshooting

- Introduction to Troubleshooting Concepts
- Speedtronic Power Modules
- Control Function
- Protection Systems
- Power Supply System
- Panel Field Energising
- Troubleshooting Techniques
- Course Evaluation and closure