

E- 577

▲ Who should attend?

Graduate engineers and managerial staff involved in gas turbines operation, maintenance, engineering and for technical part of purchasing.

▲ Duration

5 days

▲ Dates & Location

Non scheduled

May only be organised for a single company

▲ Tuition Fees

to be agreed upon

▲ Course Coordinator

Jacques TIBERGHEN

Ref. **MTE / TAG-E**

GAS TURBINE TECHNOLOGY

OBJECTIVES

To bring improved knowledge of gas turbine technology and a better skill to select, to operate and to maintain gas turbines.

On completion of the course, the participants:

- have gain an understanding of gas turbine operation
- will be able to identify main selecting features according to process and on site conditions
- will participate to troubleshooting.

COURSE CONTENT

GAS TURBINE EQUIPMENT

2 days

Classification: typical cycles, heavy duty and aeroderivative designs, applications.

Presentation: main components. Typical machineries on the market.

Construction and design: compression, combustion, expansion. Rotor dynamics, coupling.

Ancillaries equipments: internal cooling, lubrication, control system with typical parallel control loops and firing temperature calculation, speed, combustion, fire detection, gas detection, lube oil mist safety devices. **External ancillaries:** filtering, exhaust stack, fire fighting, fuel supply.

This chapter is illustrated with a manufacturer workshop visit.

PERFORMANCE AND OPERATION

1.5 days

Thermodynamics: ideal and actual gas, evolution through compression and expansion, according isentropic and polytropic processing.

Centrifugal and axial compression. Performance, stability and other limits.

Combustion: types of combustors, combustion operation. Fuel type influence. Cogeneration process. Low NOx designs.

Expansion: one shaft or two shafts design expansion operation.

Performance according to actual atmosphere data, fuel selection. API charts. Available load characteristics: rotation speed, firing temperature, IGV influences. Open cycle, combined cycle examples.

This chapter is illustrated with studies to identify actual performance with basic design and troubleshooting basis.

SELECTION

0.5 day

Selection criteria according availability, operation and maintenance requirements.

Bidding: significant informations for data sheet writing.

OPERATION

1 day

Start-up and shut-down operation: sequences steps, trip actors.

Air filtering, lubrication and fuel systems.

Performance and mechanical operation monitoring.

Maintenance during operation: compressor cleaning devices.

Maintenance objectives and planning: operation, load, fuel influences.