



VBR
Turbine Partners

LM6000 Gas Turbine Training Course – Familiarization

All LM6000 Models (including SAC and DLE)



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1 Course objectives

This course is designed for customer personnel responsible for the daily on-site operations and maintenance of GE LM6000 aero-derivative gas turbine models. The training aims to equip participants with the knowledge needed to ensure reliable, consistent performance of the engine and its associated equipment.

Upon completing this training, participants will:

- Understand the principles, construction, operation, and maintenance aspects of the LM6000 (PA – PF) (SAC & DLE) gas turbines.
- Gain an introduction to the gas turbine control and protection systems.

2 Target Audience

This course is intended for operators and maintenance engineers, including both mechanical and instrumentation & control (I&C) specialists. It is particularly suited for individuals who require a comprehensive understanding of the LM6000 gas turbines and their associated auxiliary systems.

3 Entry level

Participants should have a basic understanding of the operation and maintenance of rotating equipment, although prior experience with gas turbines is not required.

4 Location

The training course will be conducted at VBR in Elst (Gld.), The Netherlands. Additionally, upon request, the course can be delivered at the customer's site as an in-house company training.

5 Duration

The standard training course spans 5 days. However, the in-house company training is condensed into 4 days.

5 days training

- Monday/Tuesday/Wednesday/Thursday 09:00 – 16:00
- Friday 09:00 – 14:00
- Lunch provided by VBR 12:00 – 13:00

6 Course content

- **Introduction and Program Overview**
 - Acquaintance and presentation of the course agenda
- **Introduction to Gas Turbines**
 - Historical background and origins
 - Overview of various GT models including LM6000 (SAC & DLE)
 - Basic principles of gas turbines
- **Major Components of the LM6000**
 - **Inlet Section**
 - **Variable Inlet Guide Vanes Assembly (VIGV)**
 - **Low Pressure Compressor (LPC)**
 - Principle of operation, rotor parts, and stator parts
 - **High Pressure Compressor (HPC)**
 - Principle of operation, rotor parts, and stator parts
 - **Variable Geometry Control System (VGC)**
 - Principle of operation and details of the VSV system
 - **Combustion System (SAC & DLE)**
 - Principle of operation and system details
 - **High Pressure Turbine (HPT)**
 - Principle of operation, rotor parts, and stator parts
 - **Low Pressure Turbine (LPT)**
 - Principle of operation, rotor parts, and stator parts
 - **Bearings, Sumps, and Frames**
 - Bearings, sump principles, and details of A, B, C, D, and E sumps
 - **Accessory Drive Assembly & Accessories**

- Inlet Gearbox (IGB), Radial Drive Shaft, Transfer Gearbox (TGB), and Accessory Gearbox (AGB)
- **Auxiliary Equipment & Systems of the Gas Turbine**
 - Introduction
 - Flow & Instrument Diagrams (F&ID's / P&ID's) and Device List
 - Instrumentation around the gas turbine
 - Hydraulic starting system
 - Gas turbine lube oil system
 - Generator/load gearbox lube oil system
 - Hydraulic oil system
 - Fuel systems (SAC & DLE)
 - SPRINT system
 - Inlet air and ventilation system
 - Fire protection system
 - Compressor water wash system
- **Gas Turbine Operation**
 - General operating instructions
 - Gas turbine performance calculations
 - Start and stop procedures and graphs
- **Gas Turbine Maintenance**
 - LM gas turbine maintenance philosophy
 - Levels of maintenance
 - Service Bulletins and Service Letters
 - Maintenance manuals
- **Remaining Topics and Q&A Session**
 - Addressing any additional subjects and participant questions
- **Course Evaluation**
 - Course evaluation and issuance of certificates

Note: For the in-house company training, the course will be tailored in close collaboration with the customer to align with their specific setup and to consider the experience level of their employees.

7 Course manual

Upon completion of the training, each participant will gain access to the E-learning course, where all training materials can be reviewed. The course manual includes comprehensive equipment descriptions, schematics, and operating and maintenance instructions. It is richly supplemented with illustrations, drawings, and photographs of the equipment. Additionally, the manual provides extensive reference information for further independent study.

8 Language

The training will be conducted in English, and all course manuals are provided in English as well.

9 Trainer

The course will be delivered by a qualified instructor who is fluent in English.

10 Certificate

Each participant will be awarded a personal certificate upon successful completion of the course.