

INDUSTRIAL GAS TURBINES

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OBJECTIVE

Gas Turbines are widely used as prime movers for Industrial Applications, driving generators, pumps and gas compressors. The tutorial explains the aerodynamic and thermodynamic relationships, as well as the function of individual components, together with their impact on the performance characteristics.

TUTORIAL OUTLINE

In this tutorial we will give an overview of industrial gas turbine applications, explain the general concepts of single and two shaft gas turbines, and how aeroderivative gas turbines fit into this picture. We then explain the working principles of the major gas turbine components, and how they interact. This is the foundation to explain the performance characteristics of gas turbines. Other topics relevant to the industrial use of gas turbines, including a more specific look into applications, include a discussion of fuels, maintenance and condition monitoring. The tutorial closes with an outlook to development requirements and roadmaps to future industrial gas turbines.

- Industrial Applications-Overview
- Single and Two Shaft Gas Turbines
 - Industrial and Aero-Derivative Gas Turbines
- Thermodynamics of the Gas Turbine Cycle
- Components
 - Compressor
 - Combustor
 - Turbine
- Component Interaction
- Off design Performance
 - Part Load
 - Speed
 - Ambient conditions

- Applications
 - Power Generation Applications
 - Mechanical Drive Applications
 - Applications- Upstream, Midstream
- Fuels
- Maintenance, Air Filtration, Condition Monitoring, Water Washing
- The Future
 - What is a roadmap?
 - Roadmapping Process Definitions
 - Key Voice of Customer Trends