



Steam Turbine Operation

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| 17 Aug -21 Aug 2025 | London | 5500 | Register Now |

Course Overview

Steam Turbines of several types, which have widely varying configurations and applications, are used extensively in the process industries. These and steam turbines represent a significant part of the capital and operating costs of most plants, so that optimizing their selection is of major economic importance.

The course is devoted to design features, efficiencies, operating characteristics, reliability and maintenance implications of centrifugal and steam turbine drivers.

This course will cover the operating principles of centrifugal and steam turbines, specifications, their design, thermodynamics, effects of efficiency on operating costs, energy usage, effect on plant costs, special materials of construction, selection, troubleshooting, and maintenance.

Course Objective

Upon completion of this course, participants will have gained a thorough understanding of the various steam turbine configurations available to virtually every industrial user. Items discussed include mechanical design features, sizing and application criteria, maintainability, reliability, vulnerability and troubleshooting issues. Participants will learn simple techniques and short-cut methods of machinery selection, which can take the place of tedious hand calculations and will serve as rapid means to determine sensitivity or influence of parameter changes on equipment performance. Participants will be able to determine the most appropriate and efficient matching of compressor to steam turbine driver. Participants will also acquire knowledge of operating and maintenance issues by getting to know mechanical design, machinery components, piping design, as well as proven approaches to monitoring, troubleshooting, and maintenance of compressor installations.

Who Should Attend?

This application and component course is intended to be of direct use by persons in staff (Senior Technicians, Operators, Supervisors, Superintendents) and corporate engineering, plant planning and design, systems design, equipment selection and evaluation, and equipment maintenance areas. It will also be of value to equipment and systems specialists in engineering contractor firms. This course should also be valuable to managerial and supervisory individuals responsible for operations and maintenance functions. The industries most directly involved with the subject matter are those producing chemicals, petrochemicals, petroleum products, natural gases, manufacturing gases, steel and other metals, and plants requiring process refrigeration. Throughout the course participants will have ample opportunity to have equipment-related questions answered by the instructor.


Course Outline

- TEAM TURBINES:
Operating Principles, Impulse Turbines, Reaction Turbines, Application Ranges, Configurations, Application Constraints


- TURBINE COMPONENTS: Turbine Rotors, Blading, Diaphragms, Nozzles, Steam Chests, Glands and Gland§
- Systems, Bearings, Balancing, Rotor Dynamics, Governing Systems, Lube Oil Management
- OVERVIEW OF SELECTION AND SIZING OF STEAM TURBINES FOR RELIABILITY:§
Thermodynamics, Steam (Water) Rates, Condensing and Backpressure Turbines, Single and Multistage Types, Process Considerations
- OPERATION AND MAINTENANCE OF STEAM TURBINES:§
Commissioning, Startup, Run-In and Shut-down, Surveillance and Health Monitoring, Performance Measurement, Monitoring and Tracking, Steam Turbine Washing, Steam Turbine Inspection, Maintenance, Overhaul and Repair (IMO&R)
- DESIGN§
- PREDICTIVE VS. PREVENTIVE MAINTENANCE TECHNIQUES:§
Determination of Which Method to Use
- MACHINERY RELIABILITY AUDITS AND REVIEWS:§
- Overview; Reliability Impact on Plants§

Training Methodology

- Presentation & Slides
- Audio Visual Aids
- Interactive Discussion
- Participatory Exercise
- Action Learning
- Class Activities
- Case Studies
- Workshops
- Simulation

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