

## Pumps & Compressor: Operation, Maintenance & Troubleshooting

### Overview

The comprehensive course program includes different topics, starting from the basics of fluid dynamics and ending with a detailed overview of multistage centrifugal compressor design. To provide students with a better understanding of the materials learned, the course features numerous real-life examples and exercises.

The scope includes:

- Fluid Dynamic Basics
- Centrifugal Compressor Aerodynamic Design
- Centrifugal Compressor Elements (Impeller, Diffuser, Volute) Sizing
- Off-Design Performances Prediction
- Multistage Centrifugal Compressor Design

The ever-expanding demand for minimizing energy consumption set the stage for an augmented role of eco-friendly engineering solutions. The Centrifugal Compressor Fundamentals course was developed to enable mechanical and aerospace engineers to respond the evolving industry needs and produce high-efficiency turbomachinery.

### Who Should Attend

- Engineers specializing in centrifugal compressor design and maintenance of single and multistage compressors for various industrial applications, turbochargers, and centrifugal blowers.
- Engineers involved in the Turbomachinery design and optimization process and interested in finding new, cost-effective solutions.
- Engineering and Turbomachinery scholars seeking to gain a practical understanding of the centrifugal compressor basics, including compressors fluid dynamics, aerodynamics and structural analysis.
- Mechanical and aerospace engineering professors who need valuable course and reference material to ensure comprehensive, industry-focused training for their students.

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## Course outline

### Introduction

### Types of compressors

### The compression process

### Compressors Operation principle

## Pumps

### Types of pumps

### pump operation principle

### Maintenance and troubleshooting

### Vibration monitoring

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