

**Course Overview:**

Gears and gear boxes are widely used for power transmission in various equipment and machines (hand watch, machine tools, automobiles, heavy cranes, ships, cement plants. Their size, geometry, loading conditions and performance requirements, etc change in a wide range. This course is designed to help, train and update practicing engineers in the specification, installation and operation of gears and gearboxes in modern systems. It will cover an introduction to gear operation, current design standards and manufacturing methods, but also consider on how to specify and how to use a gearbox. It will review installation, lubrication, health monitoring, and failure interpretation issues pertaining to gear and gearbox technology.

**Course Objective:**

- Explain the fundamentals of gear contacts, geometry and of the materials employed.
- Review the major types of gears and their diverse operational properties.
- Discuss the main factors affecting gear design
- Describe how to select a gearbox for a given application and the factors that need to be considered.
- Show the methods of manufacturing gears.
- Discuss the vibration problem in gears.
- Learn what the common gear failures are and how to avoid them.

**Course Outline:**

- Introduction To Gears
- Classification Of Gears
- Design Of Gears
- Gear Failure
- Heat Treatment Of Gear Material
- Gear Boxes
- Vibration Analysis Of Gears
- Maintenance and Operation

**Who Should Attend:**

Maintenance, Operation, and Production Engineers & Senior Technicians whose works are connected with power transmission systems including gears and gear boxes in addition to those who wish to be familiar with these systems. Senior staff can update and refresh their knowledge by attending this course.

**Training Language:**

EN / AR

**Training Methodology:**

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