



# Lubrication Technology

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## **COURSE CONTENT**

### **Aim**

The purpose of this course is to provide a comprehensive insight into the applications of Lubrication Technology and how it is applied to different components and systems.

### **Pre-requisites**

None.

### **Course Duration**

The course is of 5 days in duration.

### **Optimum Number**

Maximum of 12 delegates per course.

### **Training Aids**

PowerPoint Presentations, Course Hand-outs.

## **COURSE SYLLABUS**

### **Basics of Lubrication**

- Solid Friction
- Six Basic Functions of Lubrication
- How to Reduce Friction
- How to reduce Wear
- Absorb & Dampen Shock
- Reduction of Temperature
- Minimising Corrosion
- Seal out Contaminants
- Lubrication of Rubbing Surfaces
- Full Film & Thin Film
- Elastohydrodynamic Film

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- Boundary Film
- How to Lubricate
- Over & Under Lubrication

### **Lubricants**

- Lubricating Oils
- Mineral Oils
- Synthetic Fluids
- Compounded Oils
- Fire Resistant Fluids
- Characteristics of Oils
- Viscosity and Viscosity Grades
- Gravity
- Flash & Fire Points
- Colour
- Cloud & Pour Point
- Additives
- Rust Inhibitors
- Extreme Pressure Additives
- Improvers & Depressants
- Inhibitors & Deactivators
- Demulsifiers
- Detergents & Dispersants
- Fatty Oil Agents
- Solid Additives
- Greases
- Texture
- Lube System Maintenance
- Sources of Contamination
- Changing Oil
- Fluid Levels of Gear Units

### **Tribological Tests**

- Oil Analysis
- Spectroscopy
- Particle Analysis
- Water
- Infrared
- Neutralisation & Precipitation
- Foaming



- Oxidisation
- Sampling
- Signification of Wear Particles

### **Bearings**

- Bearing Requirements
- Load
- Anti-Friction & Friction Bearings
- Bearings Lubrication
- High & Low Speed Limits
- Surface Material Properties
- Journal Bearings & Reciprocating Loads
- Bearings Inspection
- Removal & Disassembly
- Grease Appearance
- Load Distribution in a Bearing
- Axial & Radial Loads
- Lubrication Failures
- Thermal Softening & Discolouration
- Glazing, Pulling & Grooving
- Welded Rollers
- Adhesive Wear
- Spark Erosion

### **Overview of Lubrication Systems**

- Grease / Oil Lubrication
- System Types
- Intermittent Lubrication
- Manual Lubrication
- Self-Contained Lube Units
- Splash Lubrication
- Drop Feed & Wick Oilers
- Bottle Oilers
- Continuous Greasing Devices
- Force-Fed Lubrication
- Mist System
- Air / Oil System
- Filtration Systems
- Selecting Gear Lubricants



## **Filtration**

- Methods of Filtration
- Filter Units
- Levels OF Filtration
- Filter Rating
- Maintenance of Filtration Systems
- Turbulence in Lubrication

**Dates available on request**