



## Course Content

### One Day Courses on Lubrication Management & Oil Analysis for Plant & Machinery Reliability

#### Introduction

##### **The role of lubrication and oil analysis in an overall reliability programme**

- Predictive & proactive maintenance strategies
- Financial, reliability & productivity benefits of best practice lubrication and lube oil analysis
- Ensuring compliance in ISO9000/14000/Responsible Care, etc
- Health & safety and environmental benefits

#### Part 1: Lubrication Management

##### **Lubricant roles and formulations**

- Wear mechanisms (adhesive, abrasive, surface fatigue)
- Functions of a lubricant
- Lubrication flow regimes
- Base stock options (mineral, semi-, synthetic and vegetable base)
- Additives and their functions (most common additive types)
- Greases (base-stocks, additives and thickeners)
- Some common myths about oils, such as cross-mixing, aftermarket additives, service life, etc

##### **Understanding a lubricant's product or technical data sheet**

- A guide to interpreting the information
- Understanding the ASTM/ISO/API/SAE specs
- Using the information in trouble-shooting and identifying problems.

##### **Best practice lubricant storage & handling to minimise contamination**

- Sources and impacts of contamination
- Selecting and implementing storage, handling and dispensing best practices to include setting up colour coding systems and design of storage areas
- Selecting contamination control seals, breathers, filters, etc

##### **Best practice lubrication**

- Best practices for greasing bearings, with a focus on electric motors
- Best practice oil lubrication; best practices on storage of machinery
- Best practices for oil changes, top-ups and flushing

## Part 2: Oil Analysis

### **Oil analysis tests and the information they provide**

- Lubricant condition monitoring (inc. viscosity, AN/BN, Oxidation, additive depletion)
- Contaminant monitoring (inc. particles, moisture, fuel, soot, glycol)
- Machine health monitoring (inc. elemental analysis, wear debris analysis, ferrography)
- Applying proactive and predictive targets and limits

### **Best practice sampling methods**

- Bottle sampling procedures for accurate laboratory analysis
- Identifying sampling locations
- Sampling equipment

### **Designing an oil analysis programme**

- When to apply oil analysis
- Setting sampling intervals based on asset criticality and reliability needs
- Selecting when to use laboratory analysis, on-site analysis or online sensor technology
- Choosing relevant tests
- Identifying and trouble-shooting machinery problems via the oil analysis information.
- Combining the oil analysis information with other diagnostic techniques.
- Setting targets for equipment reliability through the oil analysis programme
- Identifying machinery failure root causes related to contamination and lubrication

## Assessment of Learning

As part of the course, we provide an internally developed test to assess the attendees' understanding of the training and, where applicable, to prepare them for the ICML MLA1 examination. Note, however, that an ICML qualification requires a minimum of 3 days of training.

Certificates of attendance will be provided by TelLab/ KEW Engineering Ltd.

*This course is approved by Engineers Ireland and provides 7 CPD hours.*