This course can be adapted to virtual classroom mode

Lubricating Greases Automotive & Industrial Applications

3 days **LUBGR-EN-A**

Overview

LEVEL

Expert

PURPOSE

This course provides an overview of the antifriction bearings technologies in automotive and industrial transmissions.

To provide basic knowledge on greases: description, composition, production, testing methods, lubrication mechanism, classifications and specifications and various properties.

To study more particularly the lubrication of bearings with grease, the criteria for the choice of a grease according to the operating conditions.

To learn how to identify the failure causes of bearings.

To study the lubrication of automotive and industrial transmissions with grease.

LEARNING OBJECTIVES

Upon completion of the course, participants will be able to:

understand the main points on grease: structure, properties, production modes, testing methods and performance characterization, different types of greases and criteria for the choice according to the applications,

know the applications of grease other than bearings (gears, automotive and industrial transmissions, couplings),

recommend a bearing grease according to the operating conditions and to calculate the lubrication intervals and the life time,

recognize the bearing failures and identify the origins.

WAYS AND MEANS

Interactive exercises with the teacher for the determination of a bearing grease, the lubrication intervals, the lifetime calculation of bearings according to the operating conditions.

Interactive exercises of questions-answers between the participants using sets of play cards to synthetize the essential points of the lectures.

Agenda

LUBRICATING GREASES — 1 d

Structure and properties following the type.
Composition: base oils, thickeners, additives.
Characterization: physico-chemical and mechanical testing methods.
Classifications and specifications: ISO 6743-9, ISO 12924, DIN 51502, DIN 51825.
Manufacture: description of the manufacturing equipment, principles of manufacture, manufacturing steps, packaging and quality control.
Grease cleanliness: definition, characterization, manufacturing problems.
Description of the different types of greases: properties following the composition, respective advantages and drawbacks, compatibility between greases.

ANTIFRICTION BEARINGS & LUBRICATION — 1 d

Succinct refresher of bearing technology: different types of bearings according to the loads supported, hub units, tightness of bearings, bearing nomenclature.
Bearing lubrication: oil or grease? Modes of application of grease. Mechanism of the lubrication with grease. Choice of a grease according to the functioning conditions. Lubrication intervals and grease quantity to inject. Bearing life: influence of the grease and its cleanliness.
Lubrication of automotive hub units.
Bearing failures: identification of the different types of failures and root causes.

OTHER APPLICATIONS OF GREASES THAN ANTIFRICTION BEARINGS

0.5 d

Technology of automotive transmissions: joints (RZEPPA, tripods). Grease for automotive transmissions.
Technology of couplings and universal joints and associated greases.
Gear greases: enclosed and open gears.

APPLICATION EXERCISES

0.5 d

Exercises of grease definition and selection as a function of the running conditions.