Course Outline
IMTC 210
LUBRICATION, LUBRICANTS, AND LUBRICATING SYSTEMS
3 Semester Hours

The Community College of Baltimore County

Description

Lubrication, Lubricants, and Lubricating Systems
Covers the design, operation, and maintenance of automatic lubricating systems as well as manual systems in conjunction with the mechanical principles, which underlie these systems; examines the physical properties and industrial applications of lubricants along with various classification schemes.
Prerequisite: IMTC 101

Overall Course Objectives

Upon completion of this course the student will be able to:

A. Define the basic principles such as pressure, vacuum, flow and temperature and their interrelationship in lubricating systems.
B. Identify the various types of friction.
C. Define the principles of lubrication.
D. Define oil film and state how it functions in hydrodynamic lubrication.
E. Define the role of viscosity in lubrication.
F. State the properties of a lubricating oil.
G. Identify additives for lubricants and what they do.
H. Identify the various types of greases and their performance characteristics.
I. Discuss the differences in lubricants, both oils and greases, where they are used and why.
J. Identify the various classification systems used to categorize lubricants, including SAE Motor Oil, SAE Transmission Oil, NLGI Grease Penetration, ISO Viscosity Grades, AGMA Gear Oil and SAE Motor Oil Quality Levels.
K. Discuss the ABC's of lubricant identification based on TYPE and BASIC PROPERTY and the benefits of "Lubricant Application Codes".
L. Cite the advantages and disadvantages of oil and grease in lubricating plain bearings, anti-friction bearings and gears.
M. Identify the uses of solid lubricants such as graphite, molybdenum disulfide, talc, etc.
N. Identify methods of dispensing oils and greases.
O. Define the key role the Oil House plays in lubricant conservation.
P. Describe the use and selection criteria for air operated barrel pumps for oils and greases.
Q. Describe the design, operation and maintenance of various types of lubrication systems, including Trabon grease systems, Alemite Oil Mist systems and conventional Circulating Oil systems.
R. Describe the processes of filtration and oil reconditioning.
S. Describe what constitutes a suitable grease filter.
T. Describe how air line filters and lubricators function.
U. List typical problems experienced with oils and greases.
V. Use O.H.S.A safety rules on the preceding tasks.

Major Topics

List all major topics in outline form if appropriate

I. Introduction & basic principles
II. Lubricants and their properties
III. Storage, handling and dispensing of lubricants
IV. Circulating oil systems
V. Grease systems
VI. Oils mist systems
VII. Filters & oil reconditioning
VIII. Air line filters, regulators and lubricators
IX. Bearings and gears
X. Seals and packing
XI. Lubrication of automotoive engines, air compressors, electric motors, machine tools, etc.
XII. Lubrication conservation and the lubrication program.

Course Requirements

Exams 75%
Quizzes 25%
(Subject to revision by the instructor)

Other Course Information