Internal Combustion Engines Operation & Maintenance

Course general description:

Course address a detailed knowledge of Internal combustion engines, describe its principles , glossary ,terminologies, operation, maintenance (corrective, preventive, predictive), overhauling criteria , post overhauling acceptance testing and troubleshooting.

Audience:

This course is designed for:

1. Mechanical engineers
2. Process engineers
3. Maintenance Engineers
4. Supervisors from different disciplines

Course objectives:

By end of the course participants will gain:

1. Clarify various types of engines
2. Identify all common engine components and their functions.
3. Describe operating principles of various types of engines
4. Identify difference between Spark ignition engines & self ignition engines
5. Know common Engine terminology
6. How to use appropriate tools & equipment to maintain engines
7. Know how four and two stroke engines work
8. Describe the operating parameter of Each engine
9. Know how the engine oil, water, fuel air, exhaust systems work
10. Be familiar with Items found in datasheets of Engines
11. Evaluate and interpret performance and integrity data of engines
12. Learn how to make engines are more efficient.
13. Learn how to deal with Troubleshooting and repairing activities
14. Learn Preventive maintenance for engine
15. Learn Testing for engines
16. Recognize and respond to abnormal condition and take relevant remedy

Course duration:

5 days

Course location:

Cairo-Dubai-Istanbul

Course contents:

Day-1

- Pretest
- Various types of engines
- Difference between Spark ignition engines & Self ignition engines
- Operating principles of various types of engines
- All common engine components and their functions

Day-2

- Engines concepts
- Common engines terminology.
- Appropriate tools & equipment to maintain engines

- Diff. between four and two stroke engines
- Operating parameter of Each engine

Day-3

- Internal parts of Lubrication system of engines
- Items found in datasheets of diesel engine
- Different designs for Cooling system of engines
- Engineering calculations for engine
- Ignition system of S.I.E

Day-4

- Evaluation of performance and integrity data of engines
- Efficiency of engines
- Troubleshooting and repairing activities
- Fuel system of CIE
- Preventive maintenance for engines

Day-5

- Testing for engines
- Predictive maintenance for engines
- Exhaust system of Engine
- Recognizing and responding to abnormal conditions with taking relevant remedy
- Posttest

Methodology:

50% lectures & concepts
10% Videos
10% Case studies
10% Exercises
10% Discussions
10% Software (if applicable or examples)

Course code: (TEME024)