Course Code : **ME 758**

Course Title : **Tribology**

Credit Hours : **3**

Course Description

Lubricants and their composition, Hydrostatic lubrication, Computational hydrodynamics, Elastohydrodynamic lubrication, Solid lubrication and surface treatments, Fundamentals of contacts between solids, Abrasive, erosive and cavitation wear, Wear mechanisms, and Wear of non-metallic materials.

Course Objectives

Apply the basic concepts and mechanisms of lubrication, friction and wear with emphasis on practical engineering applications.
Solve tribological aspects in engineering design problems.

Course Topics

Week no. 1: Introduction.

Week no. 2: Lubricants and their composition.

Week no. 3: Lubricants and their composition (Cont.).

Week no. 4: Hydrostatic lubrication.
Week no. 5: Hydrodynamic lubrication.

Week no. 6: Hydrodynamic lubrication (Cont.).

Week no. 7: Computational hydrodynamics. / 7th week evaluation.

Week no. 8: Computational hydrodynamics (Cont.).

Week no. 9: Elastohydrodynamic lubrication.

Week no. 10: Solid lubrication and surface treatments.

Week no. 11: Fundamentals of contacts between solids.

Week no. 12: Abrasive, erosive and cavitation wear. / 12th week evaluation

Week no. 13: Wear mechanisms.

Week no. 14: Wear of non-metallic materials.

Week no. 15: Wear of non-metallic materials.

Week no. 16: Final Examination

References

Dowson D. and Higginson G. Elasto-hydrodynamic lubrication. (Pergamon Press)

Szeri A. Tribology. Lubrication, friction and wear. (Hemisphere corporation)

Comeron A. “The principles of Lubrication”, Wiley & Sons.

Pinkus O. Sternlicht, “Theory of Hydrodynamic Lubrication”, Mc. Graw Hill.

- Rainoiouf E., “Friction & Wear of Materials”, Wiley.