

ME 322 Machine Design (2-0-2-6)

Pre-requisite: ME 314 or equivalent

Design of Gears; Lubrication and Wear consideration in Design; Design and selection of Bearings: Hydrodynamic lubrication theory, Hydrostatic and Hydrodynamic bearings (e.g., journal), Rolling Element Bearings; Systems Approach to Design: Decision Making, Simulation of mechanical systems using CAD tools, Sensitivity analysis of design parameters, Value Analysis and Value Addition to designed components and systems; Exercises of mechanical systems design with examples; Overview of Optimization in Design; Reliability and Robust Design; Communicating the Design.

Texts:

- [1] Design Data Book of Engineers, Compiled by Faculty of Mechanical Engineering, PSG College of Technology, Publisher Kalaikathir Achchagam, Coimbatore, 2009
- [2] J. E. Shigley, Mechanical Engineering Design, McGraw Hill, 1989

References:

- [1] M.F Spotts, T.E Shoup, L.E. Hornberger, S.R Jayram and C V Venkatesh, Design of Machine Elements, 8th Ed., Person Education, 2006.
- [2] V. B. Bhandari, Design of Machine Elements, 2nd Ed., Tata McGraw Hill, 2007.
- [3] R. C. Juvinall and K. M Marshek, Fundamentals of Machine Component Design, 3rd Ed., Wiley Student Edition, 2007.
- [4] V. Ramamurti, Computer Aided Mechanical Design and Analysis, 3rd Ed., Tata McGraw Hill, 1996.
- [5] A. H. Burr and J. B. Cheatham, Mechanical Analysis and Design, 2nd Ed., Prentice Hall, 1997.
- [6] J. R. Dixon, Design Engineering: Inventiveness, Analysis and Decision Making, TMH, New Delhi, 1980.