

ME 314 Design of Machine Elements (3-0-0-6)

Prerequisites: ME 212 Solid Mechanics I or Equivalent

Principles of mechanical design: Strength, Rigidity, Fracture, Wear, Material considerations, Standardization, Limits and Fits. Factor of safety. Stress concentrations. Design for static and fatigue strength. Design of shafts, axles, keys, riveted joints, bolted joints, welded joints, springs, brakes and clutches. Couplings and power screws.

Text:

[1] Richard G Budynas and J Keith Nisbett, Shigley's Mechanical Engineering Design, 10th Ed., McGraw Hill, 2015.

References:

[1] V. B. Bhandari, Design of Machine Elements, 4th Ed., McGraw Hill, 2016.

[2] 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.

[3] Faculty of Mechanical engineering, PSG College of Technology, Design Data Book of Engineers, Kalakathir Achchagam Publishers, Coimbatore, 2009.

[4] A. H. Burr and J. B. Cheatham, Mechanical Analysis and Design, 2nd Ed., Prentice Hall, 1995.

[5] R. C Juvinall and K. M Marshek, Fundamentals of Machine Component Design, 3rd Ed., Wiley Student Edition, 2000.

[6] O. P. Grover, Maleev & Hartman's Machine Design 5th Ed., CBS Publishers, 2011.