PURDUE UNIVERSITY FORT WAYNE | Department of Civil and Mechanical Engineering

Course	ME 36900 – Design of Machine Elements
Type of Course	Required for ME program
Catalog Description	Application of principles of strength of materials to the design of typical mechanical components.
Credits	3
Prerequisite Courses	ME 25200, ME 30300, and ME 36100
Corequisite Courses	ME 30400
Prerequisites by Topics	Combined loading stresses Kinematics of machinery Dynamics of machinery Deflections Properties and selection of materials
Textbook	*Shigley's Mechanical Engineering Design*, R. G. Budynas and J. K. Nisbett, McGraw Hill, current edition.
Course Objectives	To present static and fatigue failure theories and to help the students apply the failure theories to the design of different machine components.

Course Outcomes	Students who successfully complete this course will have demonstrated an ability to:
	1. Understand the different modes of machine components failure. **(1)**
	2. Understand the basics of GD&T. **(2)**
	3. Design/Select machine components according to the motion and stress requirements.**(1,2,7)**
	  a. Bearings
	  b. Gears
	  c. Shafts
	  d. Springs
	  e. Bolts
	4. Write formal technical report and convey engineering message efficiently. **(3)**

Lecture Topics	1. Introduction 2. Static failure 3. Fatigue failure 4. Shafts, keys and keyways 5. Bearings 6. Gears 7. Springs 8. Bolts
Computer Usage	Low
Laboratory Experience	None
Design Experience	High
Coordinator	Zhuming Bi, Ph.D.
Date	28 March 2018