**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**  

**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. *(a, e, i)*
2. Design/Select machine components according to the motion and stress requirements.*(a, c, e, i)*
   a. Bearings
   b. Gears
   c. Shafts
   d. Springs
   e. Bolts
3. Write formal technical report and convey engineering message efficiently. *(g)*
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

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Date

30 September 2015