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


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. Understand the basics of GD&T. *(c)*
3. 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
4. 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
Nashwan T. Younis, Ph.D.

### Date
16 May 2017