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
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)
<table>
<thead>
<tr>
<th>Lecture Topics</th>
<th>1. Introduction</th>
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<tbody>
<tr>
<td></td>
<td>2. Static failure</td>
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<td>3. Fatigue failure</td>
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<td>4. Shafts, keys and keyways</td>
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<td>5. Bearings</td>
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<td>6. Gears</td>
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<td>7. Springs</td>
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<td>8. Bolts</td>
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- **Computer Usage**: Low
- **Laboratory Experience**: None
- **Design Experience**: High
- **Coordinator**: Nashwan T. Younis, Ph.D.
- **Date**: 28 March 2018