MEEN 3130 – Machine Elements  3 credit hours  Fall 2016

Instructor:
Dr. Mark Wasikowski (mark.wasikowski@unt.edu)  Class: TR 1-2:20 PM (B140) & TR 4-5:20 (D212) Office: F101L  TBD

Required Text:
Shigley’s Mechanical Engineering Design, 10th Ed
Budynas and Nisbett; McGraw Hill

Pre-requisite: MEEN 1000 Discover MEE
Pre-requisite: ENGR 2332 Mechanics of Materials (and statics)

Catalog Course Description: Applications of the principles of mechanics and mechanics of materials to machine design. The elements of machines are analyzed in terms of their dynamic behavior. Selection and sizing of machine elements. Students use the finite element technique for the analysis of machines and their counterparts.

Course Topics: Loads, stress, deflection, static and fatigue failures, driveshaft’s, bearings, gears, drive trains, fasteners, and springs.

ABET Criteria: MEEN 3130 addresses several ABET program outcomes, including applying knowledge of mathematics, engineering and science as well as identifying, formulating and solving engineering problems. Upon successful course completion, students will be able to:

- State the fundamental principles used in the study of elements for machine design
- Apply principals of mechanics, materials, stress analysis, statics, and dynamics to machine sizing
- Determine loads applied and define, evaluate, and select appropriate materials for design.
- Determine failure and deformation mode of a design.
- Apply static and dynamic failure theories in design analysis.
- Select appropriate dimensions and size of machine elements.

Course Format: Mix of Lecture Slides and Problem Solving. Slides are available on BB and document short learning objectives, glossary of terms, application examples, reading assignments, and homework. Student learning history is documented in a 3 ring binder which includes modules, lecture notes, homework, and exams. Download, print, and read lectures before class. Insert lectures, along with ruled and engineering graph paper, into binder. Bring binder and textbook to each class for organized note taking, readings, and group problem solving. Students are expected to spend several hours each week outside class in reading, homework, and studies. Homework is collected and quizzes taken during class. New material is then presented, typically via on-line lectures available on BB. Homework and example problems are solved in class, both by instructor and students together. Adequate preparation by reading the text ahead of lecture improves learning from lecture. Reading assignments and comprehension goals are documented in the lectures. UNT attendance policy followed. Attendance is student responsibility. Attendance is inferred from quizzes and class participation. Instructor may automatically drop a student with a WF grade for non-attendance, even if student is otherwise earning a passing grade. Homework documented in each module and due at beginning of each class. Volume is reasonable but requires frequent attention. Problems carefully selected to illustrate key concepts. Group collaboration on homework is encouraged. However, homework largely an individual exercise and should be submitted individually. Homework NOT accepted in the office or via email. Late homework = 0 grade because homework problems may be solved in class on due date. Copying solution manual = 0 grade. Two or more students with identical homework = 0 grade for all involved. The single lowest homework grade is dropped. Given during class and cover reading comprehension and problem solving of material from previous few classes, as well as broader material. Any re-grade request must be made in class day is returned. No re-grade requests permitted after class is dismissed. It should be noted that entire exam will be re-graded, which may result in lower score than originally assigned. Make-up is NOT allowed with only exception being University excused absences with documentation provided in advance. Closed assessments and are typically not from textbook. Calculators may be used. An equation sheet is provided. The single lowest quiz grade is dropped.

Grades: Grades are calculated and automatically updated using BB. There is no curve.

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<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Description</th>
<th>Weight</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
<td>Lecture Binder</td>
<td>5%</td>
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<tr>
<td>B</td>
<td>80-89%</td>
<td>Quizzes</td>
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<td>C</td>
<td>70-79%</td>
<td>Exam 1</td>
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<td>F</td>
<td>&lt; 60%</td>
<td>Final</td>
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Disability Policy: Reasonable accommodation will be made to facilitate special needs. If special accommodations are required, student must meet with Office of Disability Accommodation (ODA), (940) 565-4323. After that meeting, please contact me to discuss what accommodations will be necessary. For more information, see http://www.unt.edu/oda.

Academic Dishonesty: UNT core values of trust, honesty, and integrity are necessary for learning to occur. Each student is expected to complete their own work. Cheating of any kind on quizzes and exams will not be tolerated and will result in a score of zero for the exam. The student will also be reported to Provost Office, Office of Academic Integrity, for appropriate disposition. No exceptions.

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