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## MECH 3334: Mechanical Design

Textbook:	<b><u>Mechanical Engineering Design: Shigley's 10<sup>th</sup> ed.</u></b> by Richard G. Budynas and J. Keith Nisbett
CRN:	34775
Class/Lab Meeting:	1:15 pm to 2:20 pm, MTWRF
Class Room:	Classroom Building, C205
Prerequisite:	Mechanicals of Materials
Instructor:	Methaq Abed, Ph.D., P.E. Department of Mechanical Engineering Office: A226 E-mail: msabed@tep.edu Office Hours: (10:45 to 11:15 am, & 2:30 pm to 3:00 pm) MTWR

### Topics covered

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|---|-------------|
| 1. Introduction                             | (Chapter 1) |
| 2. Materials                                | (Chapter 2) |
| 3. Load and stress analysis                 | (Chapter 3) |
| 4. Deflection and stiffness                 | (Chapter 4) |
| 5. Failures resulting from static loading   | (Chapter 5) |
| 6. Failures resulting from variable loading | (Chapter 6) |
| 7. Shafts and shaft components              | (Chapter 7) |

### Grades

Your grade for this course will be assessed based on your performance in:

**Mid-term exams (60 %)**

**Quizzes (10 %)**

**Homework (10%)**

**Projects (20 %)**

Several quizzes will be given during the semester. The content of a quiz could be the materials covered in previous sessions. There will be no **make-up** quizzes. Three exams will be given during the semester. No Make-up exams will be given [if you miss one of the tests for an emergency issue, will duplicate the grade of the next exam].

Your final grade is calculated based on the criteria below,

Your final grade will be calculated based on the points you have accumulated as follows:

A	$\geq 88$
B	$\geq 78$ but $< 88$
C	$\geq 68$ but $< 78$
D	$\geq 58$ but $< 68$
F	$< 58$

**The instructor reserves the right to revise this grading plan.** However, students will be informed of any changes during the semester. **The instructor has the right to drop any student from the class if he/she missed 4 classes.**

### Allowed Calculators

The following will be the only calculators allowed in exams:

- Casio: All fx-115 models. Any Casio calculator must contain fx-115 in its model name.
- Hewlett Packard: The HP 33s and HP 35s models, but no others.
- Texas Instruments: All TI-30X and TI-36X models. Any Texas Instruments calculator must contain either TI-30X or TI-36X in its model name.

These are the same calculators that are currently being allowed in the Fundamental of Engineering (FE) and Professional Engineering (PE) exams (<http://www.ncees.org/exams/calculators/>). It is your responsibility to get acquainted with the features of the calculator you decide to use. I recommend that you use this calculator for all your work (including other courses) since this will help you learn how to use all the features of your calculator.

### Study Guide

Read the text to be discussed prior to the scheduled class and review the subject thoroughly after the class. Read the textbook carefully. Work on all examples given in the text and solve as many unassigned problems as you can. Expect to spend 10 to 15 after-class hours each week on the subject. Establish a good studying habit and you will do very well in the class.

### Policy on Cheating

Students are expected to be above reproach in all-scholastic activities. Students who engage in scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from the university. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts (Regents= Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22). Scholastic dishonesty harms the individual, all students, and



the integrity of the university; policies on scholastic dishonesty will be strictly enforced

### Class Schedule (Tentative)

Exam #1: Wednesday, June 28<sup>th</sup>

Exam #2: Monday, July 17<sup>th</sup>

Exam #3: Monday, July 31<sup>th</sup>

**Project Due Date:** Thursday & Friday, July 13 & 14<sup>th</sup>

**The above schedule, policies, and assignments in this course are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students.**

H.W. No.	Assigned Problems	Anticipated Due Date
H.W.#1	1-9, 1-12, 1-16, 1-18, 1-24, 1-31	Friday, June 16 <sup>th</sup>
H.W.#2	2-1c, 2-3, 2-8, 2-11, 2-14, 2-20c	Monday, June 26 <sup>th</sup>
H.W.#3	3-2, 3-5, 3-6, 3-15b, 3-23, 3-25, 3-18b, 3-29	Monday, July 3 <sup>rd</sup>
H.W.#4	3-34b, 3-34c, 3-36, 3-37, 3-39a, 3-43, 3-45, 3-53, 3-62	Monday, July 10 <sup>th</sup>
H.W.#5	4-7, 4-10, 4-14, 4-20, 4-21, 4-67, 4-80, 4-86	Monday, July 24 <sup>th</sup>
H.W.#6	5-1c, 5-7, 5-16, 5-63, 6-2c, 6-5, 6-16, 6-21, 6-40	Monday, July 31 <sup>st</sup>
H.W.#7	7-1d, 7-3, 7-17, 7-20	Only For Practice

**Additional problems may be added to the homework assignments.**