Class Meeting: 10:30-11:20 MWF, PSCI 208


Instructors: Vivek Tandon, Ph.D., P.E.  
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E-mail: vivek@utep.edu  
Phone: 747-6924  
Office Hours: MW 11:30 am-12:15 pm

Prerequisite: MATH 1411 Calculus

Course Objectives
At the end of the course, students will learn the principles that govern the behavior of rigid-body mechanical engineering systems in static equilibrium. Specifically, students will be able to do the following:

1. Identify an engineering problem appropriate for engineering mechanics analysis;
2. Draw a free-body diagram and identify all forces and moments acting on an object at rest;
3. Represent force and moment systems with equivalent systems;
4. Perform an analysis to identify all forces and moments acting internally or externally on an object; and
5. Determine geometric properties of one, two and three dimensional objects.

Topics covered
1. General Principles (Chapter 1)  
2. Force Vectors (Chapter 2)  
3. Equilibrium of a Particle (Chapter 3)  
4. Force System Resultants (Chapter 4)  
5. Equilibrium of a Rigid Body (Chapter 5)  
6. Structural Analysis (Chapter 6)  
7. Internal Forces (Chapter 7)  
8. Friction (Chapter 8)  
9. Center of Gravity and Centroid (Chapter 9)  
10. Moment of Inertia (Chapter 10)
Grades

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Number of assignments</th>
<th>Content</th>
<th>Percent of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>14</td>
<td>Sections covered during the week. Home Works will be assigned and collected but will not be evaluated. TA will count number of problems worked on and if all the assigned problems have been submitted, a 100% grade will be assigned to that Home Work</td>
<td>20%</td>
</tr>
<tr>
<td>Regular Exams</td>
<td>4</td>
<td>Refer to Exam Outline</td>
<td>50%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>1</td>
<td>Comprehensive</td>
<td>30% but need to get 50% to pass the course</td>
</tr>
</tbody>
</table>

Solutions to the homework will be posted on the Civil Engineering Bulletin Board. Three exams will be given during the semester. No Make-up exam will be given. Every student is required to take the final exam at the end of the semester and pass it. On May 10\textsuperscript{th}, your grades not including finals will be posted in front of my office to let you see accuracy of the grades. Any discrepancy has to be resolved by the end of the business day on May 12\textsuperscript{th}. After May 12\textsuperscript{th}, issues related to your Final exam grade will only be entertained.

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

- A \( >88.5 \)
- B \( >78.5 \) but \( <88.5 \)
- C \( >68.5 \) but \( <78.5 \)
- D \( >58.5 \) but \( <68.5 \)
- F \( <58.5 \)

The instructor reserves the right to revise this grading plan. However, students will be informed of any changes during the semester.

Attendance and Tardiness

Attendance is mandatory. Absence can be checked by the instructor through exams, roll calling, randomly picked names for problem solving in class, or other mechanisms. **You could receive an F grade if you miss more than three classes without the instructor’s consent.** The instructor appreciates all efforts to attend the class. Part of being a professional is being on time and being prepared to do your job. This applies to your career as a student as much as it does to your future career as an engineer. Coming to class late is unprofessional and is very disruptive to the class. It interferes with the instructor's presentation, but more important, it interferes with the other students’ concentration. You are expected to be in class and prepared to participate when the class bell rings. If you are late to class, you are to come in quietly and take a seat in the back of the room. There will be no penalty for being late. However, all exams, and quizzes will be given at the beginning of the classes. No additional time will be allowed for late attendees.
**Study Aids**

**Instructor's Office Hour**
You are always welcomed to visit the instructors at the posted hours or by making an appointment.

**Teaching Assistant**
There will be a teaching assistant (TA) assigned to each session of the course. The TA will assist the instructor in grading quizzes, proctoring exams, and answering questions. In addition to the instructor’s office hour, there will be TA’s office hours to answer your questions. The TA’s schedule will be announced in the second week of the class.

**ACES and the Tutoring Center**
Students are reminded of the tutoring services available in the ACES and the library. These services are provided to you by the University. Check the schedules and make use of the services.

**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 8 to 10 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 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.

**References**
Students are encouraged to study materials related to the subjects discussed in the class. There are many books that can help students to improve their understanding of the subjects and their problem solving skills. Some of the books that you can find in the library are:

- Wolstenholme and Cantab, *Elementary Vectors*. QA433.W64
- Davis and Snider, *Introduction to Vector Analysis*. QA433.D38

**Internet Learning**
One of the web sites the students may want to visit is [http://cw.prenhall.com/hibbeler/](http://cw.prenhall.com/hibbeler/). There are many exercise (multiple-choice and true-or-false) problems designed to help the students.

In addition, look at this website for further understanding of the topics covered in the class. [http://web.mst.edu/~bestmech/index.html](http://web.mst.edu/~bestmech/index.html)
## Class Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Ch.</th>
<th>Sections</th>
<th>HW #</th>
<th>Assigned Problems*</th>
<th>Due Date</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>1/18-1/22</td>
<td>1 &amp; 2</td>
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<td>2.2,2.3,2.10,2.17,2.26, 2.33,2.37,2.42,2.47,2.55,2.59,2.62,2.66,2.73,2.82</td>
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<td>2</td>
<td>1/25-1/29</td>
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<td>2.5-2.9</td>
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<td>4.6-4.9</td>
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<td>10.5-10.6 10.8</td>
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<td>16</td>
<td>May 14th</td>
<td>Final</td>
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* Problems are organized in bold and italics to show groups of problems. You are supposed to work on three problems from each group for homework credit. Students are encouraged to work on all the problems because they might be used in the exams.

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.