Statics

COURSE DESCRIPTION
Theory of engineering mechanics involving forces, moments, and couples on stationary structures; equilibrium in two and three dimensions; free body diagrams; truss analysis; friction; centroids; centers of gravity and moments of inertia.

PREREQUISITES: PHYS 2425, University Physics I

TEXTS

Note: Bring text book to class, we will be using it during class.

STUDENT LEARNING OUTCOMES
At successful completion of this course, students will have demonstrated their ability to:

1. Learn equilibrium of forces.
2. Learn about Equilibrium of System of Forces on a Rigid Body.
3. Learn and Calculate Moment Force and Couple Moment
4. Learn about structures - Method of Joints and Sections
5. Learn about Dry Friction, Wedges and Belts
6. Find Center of Gravity, Mass and Centroid -- Composite Bodies
7. Determine Moments of Inertia (time permitting)

INSTRUCTIONAL METHODS AND ACTIVITIES
Methods and activities for instruction include the following: lectures, group discussions, homework assignments/solutions.

Tools: Scientific Calculator, Engineering paper, ruler, protractor

HW Format: The following will be required for submission of homework.
1) Use Engineering paper for submission of homework. (Not accepted with torn side/ends)
2) Write statement of problem as it appears in textbook. (Note: This is a recommendation that helps for review).
3) Draw (to the best of your capacity) diagram given. Also you may photocopy and paste. This is required when a FBD is needed.
3) State what is GIVEN.
4) State what is REQUIRED or FIND.
5) May state METHOD, required if we are covering different methods (use methods from textbook or lectures).
6) Work problem in an orderly fashion (i.e. top/down). You may solve in a column fashion, if I am able to follow problem.
7) BOX results showing variable being solved with proper engineering units and format.
   Example: \( F=100 \text{ kN} \)

Note: It is very important to keep up with the assignments since each subsequent assignment builds on the previous one.
ENGINEERING LIBRARY RESOURCES
The Mary and Jeff Bell Library houses substantial engineering reference materials available for research and coursework support. Designated coursework will require access and use of these resources as a portion of the grade for assigned work.

EVALUATION AND GRADE ASSIGNMENT
Evaluation of student performance is based on homework assignments, quizzes, three midterms, lab experiments/exercises, a project, and a final exam. Tests, except the final, are graded and returned within a week from the date they are taken. No makeup exams are given in this course. You may examine the final exam within four weeks after the final grades are mailed to you. The final grade is assigned as follows.

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
<th>If Total Range</th>
<th>Tentative Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - Exams</td>
<td>45</td>
<td>$90 \geq \text{Total}$</td>
<td>A</td>
</tr>
<tr>
<td>Homework/Quiz</td>
<td>20</td>
<td>$80 \leq \text{Total} &lt; 90$</td>
<td>B</td>
</tr>
<tr>
<td>Final exam</td>
<td>30</td>
<td>$70 \leq \text{Total} &lt; 80$</td>
<td>C</td>
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<tr>
<td>Attendance*</td>
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<td>$60 \leq \text{Total} &lt; 70$</td>
<td>D</td>
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<tr>
<td>Course Folder</td>
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<td>$\text{Total} &lt; 60$</td>
<td>F</td>
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* Review Attendance/tardiness below

Attendance/tardiness POLICY
You must attend all lectures. You are responsible for any materials covered or handed out or announcements made in your absence, therefore make arrangements with classmates when this happens. Records of your attendance will be maintained. Tardiness without the prior consent of the instructor is not accepted and will be penalized. Being tardy consistently without consent can be basis to be removed from class or not be permitted to enter class. This is a disruption to other classmates, impolite and not of an ethical person. Grading for Attendance will be deducted after the first absence without a legitimate excuse/cause. Starting with the second absence a $\frac{1}{4}$% deduction from final grade will apply.

Course Folder
Course Folder consists of all graded assignments (Homework, Quizzes, & Exams) for the semester placed inside a 2 pocket folder. This must be turned in the day of your final exam. Assignments should be in order, starting with the first assignment for each category. Include HW on the left and the rest on the right. Missed assignments are obviously not included.

Grade Appeals (College of Science and Engineering Version)***
As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at [http://www.tamucc.edu/provost/university_rules/index.html](http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

Disabilities Accommodations*
The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation
requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Driftwood 101.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.

**Statement of Academic Continuity**
In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

**Academic Integrity/Plagiarism**
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) The instructor reserves the right not to grade, or grade partially any of the submitted assignment. During an assignment you are allowed to have only what is permitted by instructor, anything else (cell, notebook, book, etc) encounter in your possession will be considered cheating and a proceeding to penalized and document such an act will take place which could include removal from University.

**Classroom/professional behavior**
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

**Statement of Civility (can be in place of classroom/professional behavior)**
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

**SAFETY**
The safety of students, faculty, staff and visitors to the ET laboratories is of paramount importance to the ET programs. You must follow safety procedures and use personal protective equipment as required in each laboratory. Any student that attempts to use equipment without authorization or that violates any safety policy or regulation will be immediately removed from the laboratory.

**FOOD AND DRINKS**
Eating and/or drinking are not permitted in classroom. Exception is bottled water with cap.
ASSIGNMENTS
Assignments are due at the beginning of class unless otherwise stated. Late assignments are not normally accepted (consideration is given to a student situation). A student will receive a zero on assignments that are turned in after the due date unless permission (by email or other means) was secured from the instructor prior to the due date. Permission will be granted only in extreme situations (i.e. death in family, accident, hospitalization, etc - with proper proof). Assignments may be turned in before the due date (they may be left in my mailbox, inbox, sent with a classmate to class, etc.).

EMAIL ADDRESS
When necessary I will be sending information to your e-mail address as written in your BB9 account. If you prefer you may change this to a personal e-mail address. It is your duty to update this and to check your e-mail at least once a day. Also, I will be using BB9 as a communications tool.

TENTATIVE WEEKLY SCHEDULE *

<table>
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<tr>
<th>WK</th>
<th>Week of (Starts on Monday)</th>
<th>Readings</th>
<th>Topics</th>
<th>Exams</th>
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<tbody>
<tr>
<td>1</td>
<td>8/25</td>
<td>1.1 - 1.6</td>
<td>Course requirements, General Principles</td>
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<tr>
<td>2</td>
<td>9/1</td>
<td>2.1 - 2.9</td>
<td>Force Vectors</td>
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<tr>
<td>3</td>
<td>9/8</td>
<td>2.1 – 2.9</td>
<td></td>
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<tr>
<td>4</td>
<td>9/15</td>
<td>3.1 - 3.4</td>
<td>Equilibrium of a Particle</td>
<td>MID 1</td>
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<tr>
<td>5</td>
<td>9/22</td>
<td>4.1 - 4.9</td>
<td>Force System Resultants</td>
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<tr>
<td>6</td>
<td>9/29</td>
<td>4.1 - 4.9</td>
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<td>7</td>
<td>10/6</td>
<td>5.1 - 5.7</td>
<td>Equilibrium of a Rigid Body</td>
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<tr>
<td>8</td>
<td>10/13</td>
<td>5.1 - 5.7</td>
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<tr>
<td>9</td>
<td>10/20</td>
<td>6.1 - 6.6</td>
<td>Structural Analysis</td>
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<tr>
<td>10</td>
<td>10/27</td>
<td>6.1 - 6.6</td>
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<tr>
<td>11</td>
<td>11/3</td>
<td>8.1 - 8.8</td>
<td>Friction</td>
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<td>12</td>
<td>11/10</td>
<td>8.1 - 8.8</td>
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<td>13</td>
<td>11/17</td>
<td>9.1 – 9.3</td>
<td>Center of Gravity and Centroid</td>
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<td>14</td>
<td>11/24</td>
<td>10.1 – 10.5</td>
<td>Moments of Inertia</td>
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<tr>
<td>15</td>
<td>12/3</td>
<td>Open</td>
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<tr>
<td>16</td>
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<td>Final exam, TBD</td>
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* Any Changes will be announced in class.
* Exam 1, 2, & 3 Dates are tentatively given within that week, not necessarily on Monday. Exact day of Exam is given one week in advance. No exam makeup is given unless for legitimate cause (a scheduled vacation is not a legitimate cause).

NOTE1: Labor Day Holiday 9/1 – No classes
NOTE2: Last day to drop a class 11/7
NOTE3: Campus is closed for Thanksgiving, 11/27-11/28
NOTE4: Last day of classes 12/2

Dropping a Class
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. See Note2 Above.