1. Course Logistics
   • Semester: Spring 2019
   • Section: 010
   • Class Days: Monday, Wednesday, Friday
   • Class Time: 9:00am – 9:50am
   • Location: VIN 162

2. Instructor Information
   • Instructor: Manuel Garcia, PhD
   • Email: manuel.garcia@angelo.edu
   • Phone: (325) 486-5515
   • Office: VIN 273
   • Office Hours: Posted on Dr. Garcia's ASU Faculty Website

3. Required Materials
   • Squarecap is a web based classroom response application that your instructor will be using during your course for in-class Q&A and verifying your attendance. Use any Wi-Fi capable device (connect to classroom Wi-Fi network preferably) and visit http://www.squarecap.com on your web browser

4. Prerequisites
   • PHYS 2425 Fundamentals of Physics I
   • Credit for or concurrent enrollment in MATH 2314 Calculus II

5. Course Description

Catalog: Basic theory of engineering mechanics, using calculus, involving the description of forces, moments, and couples acting on stationary engineering structures; equilibrium in two and three dimensions; free-body diagrams; friction; centroids; centers of gravity; and moments of inertia.

Objective: The objective of this course is to apply the principles of statics (the study of physical bodies subjected to balanced force systems) to engineering problems.
6. **Student Learning Outcomes**

When you complete this class you should be able to:

1. Calculate resultant force vectors in two and three dimensions
2. Construct accurate free body diagrams and identify the loads/support conditions acting on structural systems
3. Apply equilibrium equations to particles and rigid bodies
4. Analyze internal forces in trusses and beams
5. Analyze impending motion of rigid bodies including the effect of friction
6. Determine the centroid and moment of inertia of member cross sections

7. **Course Outcome Mapping**

The mapping of the Student Learning Outcomes for the course to the ABET Criterion 3 Student Outcomes is shown in Table 1.

Table 1: Student Learning Outcome Mapping to ABET Criterion 3

<table>
<thead>
<tr>
<th>Course Learning Outcome</th>
<th>1 Solve Problems</th>
<th>2 Design</th>
<th>3 Communication</th>
<th>4 Ethics &amp; Professionalism</th>
<th>5 Teamwork</th>
<th>6 Experimentation</th>
<th>7 Acquire Knowledge</th>
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<tbody>
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</table>

8. **Course Structure, Communication, Policies**

The course will meet three times a week for class, where the instructor will be communicating engineering theories and information to the students.

Attendance at lectures is required. Some of the material presented will correlate with the textbook, but other material will not and/or may be presented differently. You are responsible for all topics that are covered in class.

Important course announcements and changes will be sent by email via Blackboard. Students are expected to regularly check their Angelo State University email for these messages.

Academic integrity is expected from all students at all times in accordance with Part I, Section B.1 of the Angelo State University Code of Student Conduct.

Respect for your fellow classmates is required. Do not act in a manner that may distract others, including but not limited to: talking during lecture, texting, receiving obnoxious phone calls, watching YouTube videos, eating noisily, listening to loud music, walking to the front of the room during lecture.
just to turn your homework in because you were late to class, etc… If you need to do any of these activities, you are free to leave the classroom.

9. Professionalism

Professional engineering standard apply in this class. You are expected to demonstrate a behavior consistent with the conduct of an individual practicing in the engineering profession. You are expected to: (1) come prepared for class; (2) respect faculty and peers; (3) demonstrate responsibility and accountability for your own actions; (4) demonstrate sensitivity and appreciation for diverse cultures, backgrounds, and life experiences; (5) offer and accept constructive criticism in a productive manner; (6) demonstrate an attitude that fosters professional behavior among peers and faculty; (7) be punctual to class meetings; (8) maintain a good work ethic and integrity; and (9) recognize the classroom as a professional workplace.

10. Graded Material

10.1. Final Grades

<table>
<thead>
<tr>
<th>Item</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Homework</td>
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</tr>
<tr>
<td>Quizzes</td>
<td>12</td>
</tr>
<tr>
<td>Exams: 3 x 18</td>
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<td>Final exam</td>
<td>26</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
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The instructor reserves the right to adjust the weights given to the assignments/homework/exams listed above. Any adjustments will be applied evenly to the entire class and never to the detriment of your grade.

10.2. Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
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<tr>
<td>A</td>
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<tr>
<td>B</td>
<td>$[80 - 90)$</td>
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<tr>
<td>C</td>
<td>$[70 - 80)$</td>
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<tr>
<td>D</td>
<td>$[60 - 70)$</td>
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<tr>
<td>F</td>
<td>$&lt; 60$</td>
</tr>
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</table>

10.3. Class Attendance, Participation, Timeliness, and In-Class Assignments

- Students are expected to arrive to class on time and adequately prepared, meaning that any assigned readings and/or homework are already completed by the time the class period begins.
- In-class assignments will be given periodically during lecture to help identify student understanding of the material.
- Students may work together on in-class assignments, but may have to turn in his or her own problem work.
• If you will be absent, please make prior arrangements with the instructor. Make-up participation or in-class assignments will not be given.

10.4. **Homework**

• Homework should be turn-in at the beginning of the class on the day it is due (course schedule)

• If turn-in during class, will have 10% deducted

• If turn-in one day later will have 20% deducted

• A quiz will be done with a problem similar to the homework

• Any handwritten homework should be performed on one side 8.5” x 11” (letter-size) *engineering graph paper*.

• You should staple all pages together

• Your homework grade will primarily be based on thoroughness, neatness and completeness.

• Neatness counts! As an engineer and a professional, your work will often be read and scrutinized by others. In some instances, it could be a legal document or a piece of evidence in a court of law. It is your responsibility that the work you prepare is presented in a legible, methodical, and logical manner.

• Each problem should be performed on a separate page.

• The solution should include: the problem statement, solution steps, and answer. Key intermediate values should be indicated by underlining or some other means, and the final answer should be boxed/circled.

• Units should be included with all answers.

• Sketches/diagrams should be made with a straight edge.

• Name, course, date, and data set should be included in the top of the first page.

• Name, date, and problem info should be included on each page.

• Students may collaborate to complete the homework; however each student must turn in his/her own assignment for grading. Direct copying of other’s work is not allowed and may be subject to disciplinary actions.

• At the end of the semester, the lowest homework grade will be dropped. This will account for any lost points or missed problems.

• To facilitate the return of graded homework, a folder containing all graded papers will be passed from student to student at the beginning of class. While the grade will not appear on the front page, it is possible that other students could view your grade for the homework. In accordance with the Family Educational Rights and Privacy Act of 1974 (FERPA), students must consent to disclose these educational records. If you do not consent, please notify me by email and I will separate your homework from the others and return it individually. Otherwise, it is assumed that you consent to this mechanism of return. Graded exams and/or lab reports will be returned individually.
10.5. Quizzes

There will be in-class quizzes. The quizzes will be unannounced and unscheduled. The quizzes are intended to determine whether or not you are understanding the concepts exposed in class and also will serve to verify that you have completed homework assignment.

10.6. Exams

• Make-up exams will only be given for extenuating circumstances, unless prior arrangements with the instructor are agreed upon. Proof, such as a doctor’s note or other official document, may be required for unexcused absences during an exam.
• Exams will not be open textbook or notes, but a formula sheet will be provided. Details will be discussed closer to the exam time.
• Exams I, II, and III will be 50 minutes long and will be given during the class periods indicated on the course schedule. The final exam will be given during the university specified exam time, which for this course will be Wednesday, May 8, 2019 from 8:00am-10:00am

11. Classroom and University Policies and Student Support

11.1. General Policies

All students are required to follow the policies and procedures presented in the Angelo State University Student Handbook and Angelo State University Catalog.

11.2. Student Disability Services

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student’s responsibility to initiate such a request by contacting Ms. Dallas Swafford, Director of Student Disability Services, at 325-942-2047 or Dallas.Swafford@angelo.edu, or visit the Student Disabilities Services website.

11.3. Title IX Statement

Angelo State University is committed to the safety and security of all students. If you or someone you know experience sexual harassment, sexual assault, domestic or dating violence, stalking, or discrimination, you may contact ASU’s Title IX Coordinator: Ms. Michelle Boone, Director of Title IX Compliance, at 325-486-6357, or Michelle.Boone@Angelo.Edu.

11.4. Observance of Religious Holy Day

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Day for more information.
11.5. Incomplete Grade Policy
It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

11.6. Student Conduct Policies

11.6.1. Academic Integrity
Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject to disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the Statement of Academic Integrity.11

11.6.2. Plagiarism
Plagiarism is a serious topic covered in ASU's Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the ASU Writing Center.9

11.6.3. Copyright Policy
Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

12. Course Specific Information

12.1. Photo/Video Policy

- Lectures, classroom activities, and laboratory experiments throughout the course may be photographed/filmed by the instructor for educational purposes pertaining to research and scholarship. Personally identifying information will not be used. An informed consent form and copyright release form will be forthcoming.

- Some pictures/videos may be included on social media by the ENGR department and/or professor. In general, students will be informed prior to public posting of this content.

- Students are allowed to take photos/videos of lectures and classroom activities provided the following conditions are met:
  - The capturing of the photo/video is not disruptive to other students or the professor.
  - The photos/videos are for personal use only (not posted publicly), unless otherwise discussed.
  - Fun photos/videos are shared with the professor 😊
13. Instructor Prerogative

The instructor reserves the right to change the policies and procedures of this course when he deems it necessary. Any such changes will be implemented fairly and will typically not be a detriment to your grade. The instructor will notify you of any such changes in a timely manner.

14. Course Outline

The course outline is presented in Table 2. Detailed homework assignments along with updates to this schedule will be provided via Blackboard.

Table 2 ENGR 2301 Statics, Course Schedule

<table>
<thead>
<tr>
<th>Lsn</th>
<th>Date</th>
<th>Topic</th>
<th>Reading / HW</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 14</td>
<td>Introduction, basic quantities, Units</td>
<td>1.1-1.6</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
<td>Vectors, Operations, Force Addition</td>
<td>2.1-2.3</td>
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<tr>
<td>3</td>
<td>18</td>
<td>Coplanar Force Addition</td>
<td>2.4</td>
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<td></td>
<td>21</td>
<td>MLK</td>
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<tr>
<td>4</td>
<td>23</td>
<td>Cartesian Vectors</td>
<td>2.5, 2.6</td>
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<td>5</td>
<td>25</td>
<td>Position Vectors, Force along a line</td>
<td>2.7-2.8</td>
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<td>6</td>
<td>28</td>
<td>Dot Product</td>
<td>2.9</td>
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<tr>
<td>7</td>
<td>30</td>
<td>Particle Equilibrium</td>
<td>3.1-3.3</td>
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<td>8</td>
<td>Feb 1</td>
<td>3D Particle Equilibrium</td>
<td>3.4</td>
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<td>2.7, Ch1. 9,15, 20, Ch2. 23, 28, 40, 45, 52, 59</td>
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<td>Moment of force, cross product</td>
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<td>Principle of moments</td>
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<td>HW4: Ch4. 14, 24, 44,</td>
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<td>HW5: Ch4. 57,63, 86, 87, 94</td>
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<td>Two- and three-force members</td>
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<td>Mar 1</td>
<td>Free body diagrams, Equilibrium</td>
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<td>Trusses- Method of Joints, ZFM</td>
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<td><strong>HW9. Ch6 75, 82,89,98,109</strong></td>
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1. **Final Exam**
   
   Wednesday May 8, 2019
   
   from 8:00am-10:00am

15. End Notes: Complete Hyperlinks From Syllabus

1. http://www.angelo.edu/content/profiles/6463-anthony-d-battistini


7. http://www.angelo.edu/content/files/14197-op-1011-grading-procedures
