STRENGTH OF MATERIALS  
School of Engineering and Computing Sciences  
Summer II 2016

A. COURSE INFORMATION
Course number/section: ENTC-3408.001  
Lecture meeting time: MTWR 2:00-3:15 PM  
Lecture location: EN 108  
Lab meeting time: MTW 3:25-6:10 PM  
Lab location: EN 118  
Course Website: TBD

B. INSTRUCTOR INFORMATION
Instructor: Dr. Petru A. Simionescu  
Office location: EN 207 B  
Office hours: MTWR 12:30 p.m. – 1:45 p.m.  
Telephone: (361) 825-5899  
e-mail: pa.simionescu@tamucc.edu  
Appointments: By email

C. COURSE DESCRIPTION
Catalog Course Description: Concepts in strength of materials, stress, strain; deformation under load, direct, shear, and combined stresses; stress concentrations, bending stresses and torsional shear stresses, deflection in beams and shafts; columns, and pressure vessels.

D. PREREQUISITES AND COREQUISITES
Prerequisites
1. ENGR 2325 – Statics  
2. ENGR 2326 - Dynamics  
Co-requisites: None

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
Optional Textbook(s) or Other References: None.  
Supplies: Calculator, engineering paper, ruler, and protractor.

F. STUDENT LEARNING OUTCOMES AND ASSESSMENT
Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts.
This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should:

1. Learn about the basic concepts in strength of materials
2. Understand design properties of materials
3. Understand direct stress, deformation, and design
4. Perform calculations on torsional shear stress and torsional deformation
5. Perform calculations on forces and bending moments in beams
6. Apply the concepts of centroids and moments of areas
7. Perform calculations on stress due to bending
8. Perform calculations on shearing stresses in beams
9. Perform calculations on deflection of beams
10. Perform calculations on pressure vessels

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Lectures, weekly tests, lab reports and final exams.

H. MAJOR COURSE REQUIREMENTS AND GRADING

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
</tr>
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<tbody>
<tr>
<td>Weekly Tests</td>
<td>35</td>
</tr>
<tr>
<td>Lab Reports</td>
<td>35</td>
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<tr>
<td>Professionalism &amp; Course Folder</td>
<td>5</td>
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<tr>
<td>Comprehensive Final Exam</td>
<td>25</td>
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</tbody>
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Grading scales: A, 90-100; B, 80-89; C, 70-79; D, 60-69; and F, below 60.

I. COURSE CONTENT/SCHEDULE

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>TOPIC</th>
<th>ASSIGNMENTS</th>
<th>EXAM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7/5</td>
<td>Basic Concepts in Strength of Materials</td>
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<tr>
<td>1</td>
<td>7/6 – 7/7</td>
<td>Design Properties of Materials</td>
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<tr>
<td>2</td>
<td>7/11</td>
<td>Direct Stress, Deformation, and Design</td>
<td>Lab 1</td>
<td>Test 1</td>
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<tr>
<td>2</td>
<td>7/12</td>
<td>Torsional Shear Stress and Torsional Deformation</td>
<td>Lab 2</td>
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<tr>
<td>2</td>
<td>7/13 – 7/14</td>
<td>Shearing Forces and Bending Moments in Beams</td>
<td>Lab 3</td>
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<tr>
<td>3</td>
<td>7/18</td>
<td>Centroids and Moments of Inertia of Areas</td>
<td>Lab 4</td>
<td>Test 2</td>
</tr>
<tr>
<td>3</td>
<td>7/19 – 7/21</td>
<td>Stress Due to Bending</td>
<td>Lab 5</td>
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<tr>
<td>4</td>
<td>7/25 – 7/26</td>
<td>Shearing Stresses in Beams</td>
<td></td>
<td>Test 3</td>
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<tr>
<td>4/5</td>
<td>7/27 – 8/2</td>
<td>Deflection of Beams</td>
<td>Lab 6</td>
<td>Test 4</td>
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Important Dates:

July 5, Tuesday    Classes begin
July 22, Friday    Last day to drop a class
August 4, Thursday Last day of classes
August 5, Friday   Summer Session II final examinations

Note: Changes in this course schedule may be necessary and will be announced to the class by the Instructor. The assignments and exams shown are directly related to the Student Learning Outcomes described in Section F.

J. COURSE POLICIES

Exams: Instructions and date of each exam will be given in advance. No makeup exam is allowed unless for extreme situations with sufficient proof.

Homework

Format

1) Use ENGINEERING PAPERS and have them properly stapled. If you use square papers, they must be exact same size as engineering papers and without torn sides or ends.
2) Write a STATEMENT of the problem as it appears in textbook.
3) Draw the given diagram to the best of your capacity. You may photocopy and paste/glue the given diagram.
4) State what is GIVEN.
5) State what we need to FIND.
6) Work problem in an orderly fashion (i.e. top/down).
7) BOX results to highlight solved variables with proper engineering units and format.

Submission – Assignments are due as stated by the instructor. Late submission is not accepted. Your will receive a zero on assignments turned in after the due date unless permission is secured prior to the due date. Assignments may be turned in before the due date. If the class is missed, you may leave your assignments in the wall pocket outside the Instructor’s office and send an email notice.

Attendance/Tardiness: You are responsible for any materials covered or handed out or announcements made in your absence. Being tardy consistently can be basis not be permitted to enter classroom.

Course Folder: Course folder should be a two-pocket folder that contains all graded assignments, quizzes and exams for the semester. For each category, materials should be in order based on their time of submission. The course folder must be turned in on the day of final exam.

Cell Phone Use: Cell phones and beepers must be turned off or set on silent/vibrate mode during lectures and exams. During midterm and final exams, cell phones and beepers must be put in your backpack or in the front of the classroom.
Food in Class: Food and drinks are not permitted in classroom.

K. COLLEGE AND UNIVERSITY POLICIES

- Academic Integrity (University): 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.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

- 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: Texas A&M University-Corpus Christi has a diverse student population. 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.

- Deadline for Dropping a Course with a Grade of W (University): The grade of W will be assigned to any student officially dropping a course. Please consult with the instructor before you decide to drop to be sure it is the best thing to do. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Should dropping the course be the best course of action, visit the Office of the University Registrar for the Course Drop Form that must submitted. No student is eligible to receive a W without completing the official drop process by this deadline. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

- Grade Appeals (College of Science and Engineering): 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
www.tamucc.edu/provost/university_rules/index.html, and the College of Science and
Engineering Grade Appeals webpage at 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.

- **Disability Services:** 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
(361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

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.

http://disabilityservices.tamucc.edu/

- **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 electronic means. 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.

L. **OTHER INFORMATION**

- **Academic Advising:** The College of Science & Engineering requires that students meet
with an Academic Advisor as soon as they are ready to declare a major. The Academic
Advisor will set up a degree plan, which must be signed by the student, a faculty mentor,
and the department chair. Meetings are by appointment only; advisors do not take walk-ins.
Please call or stop by the Advising Center to check availability and schedule an
appointment. The College’s Academic Advising Center is located in Center for Instruction
350 or can be reached at (361) 825-3928.

**GENERAL DISCLAIMER**

This syllabus is subject to change. I reserve the right to modify the information, schedule,
assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce
such changes in a timely manner during regularly scheduled lecture periods.