MEEN 3230 - SOLID MECHANICS LABORATORY
Department of Engineering
Spring 2020

A. COURSE INFORMATION
Course number/section: MEEN 3230.201
Class meeting time: MW 2:00 - 3:50 pm
Class location: CI-208
Course Website: Blackboard

B. INSTRUCTOR INFORMATION
Instructor: Dr. Gauhar Sabih
Office location: EN 321
Office hours: TR 11:00 a.m. – 1:00 p.m. & W 4:00 p.m. – 5:00 p.m.
Telephone: (361) 825-3294
e-mail: gauhar.sabih@tamucc.edu
Appointments: Send an e-mail request for appointment, with proposed time as needed.

C. COURSE DESCRIPTION
Catalog Course Description

D. PREREQUISITES AND COREQUISITES
Prerequisites / Corequisites: MEEN 3330 Solid Mechanics. Offered in Fall and Spring.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
Required Textbook(s): No separate textbook is required for the course
Optional Textbook(s) or Other References:
Applied Strength of Materials, Fifth edition by Robert L. Mott
Supplies: None.

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 be able to:

1. Understand stress and strain relation of an industrial material
2. Calculate and verify area moment of inertia
3. Design and analyze the strength of truss structures
4. Understand change of shear force and bending moment diagrams for beams for concentrated load
5. Understand change of shear force and bending moment diagrams for beams for distributed load
6. Calculate torsional stress
7. Calculate beam deflection and identify Young’s modulus of a beam
8. Understand buckling and calculate critical load
9. Understand combined stresses by Mohr’s circle
10. Design a shaft and validate design by testing
11. Calculate fatigue and validate the result by testing

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Course will be based primarily on lectures, lab reports, homework, and tests. Class projects may also be assigned.

H. MAJOR COURSE REQUIREMENTS AND GRADING

Weekly quizzes will count 25% of the final course grade. Assigned and graded lab reports (which may include projects and writing assignments) will count 50%, and the comprehensive final exam will count for 20% of the final course grade. Grades will be assigned on a 10-point scale: 90-100 = A, 80-89 = B, 70-79 = C, 60-69 = D, below 60 = F.

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<thead>
<tr>
<th>ACTIVITY</th>
<th>% of FINAL GRADE</th>
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<tbody>
<tr>
<td>Lab Reports</td>
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<td>Quizzes</td>
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I. COURSE CONTENT/SCHEDULE

Weeks / Topics
1. Tensile testing of metal specimens
2. Area moment of inertia calculation
3. Truss bridge design, building and testing
4. Calculation and experimental determination of shearing force and bending moment in a simply supported beam
5. Calculation and experimental determination of bending stress distribution in a beam with a T-cross-section
6. Calculation and experimental determination of torsional stresses and torsional deflections of a cylindrical road
7. Calculation and experimental determination of bending stresses and deflections of a cantilever beam
8. Buckling calculation and experimental verification
9. Shaft design and testing
10. Fatigue testing

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

Attendance/Tardiness
Attendance will be taken on a daily basis. Students are expected to arrive on time for the beginning of the class. Each student is responsible for what takes place in class each day, whether or not the student is present.

Late Work and Make-up Exams
The only graded exercises in the class will be the lab reports (including projects), the quizzes, and the final exam. Tests missed as a result of unexcused absences will result in a score of zero. The absence must be excused in advance except in case of extreme emergency. No makeup exams will be given, except under unusual circumstances and entirely at the discretion of the instructor.

Cell Phone Use
Cell phones should be turned off and put away during class.

Laptop Use
Laptops should be turned off during class, unless a student is using the electronic form of the textbook.

Missed Exam
See “Late Work and Make-up Exams,” above.
Communications
All outside-of-class communications from the instructor to the students will be conducted through the message and e-mail functions of the Blackboard site for the class. Each student should make sure his or her preferred e-mail address is the one in the Blackboard system, and each student should check e-mail and the Blackboard message site regularly. Students may contact the instructor via e-mail using any e-mail utility they wish.

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.
  See Full University Policy at http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

- 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 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.

- 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 be 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 [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 at [http://sci.tamucc.edu/students/GradeAppeal.html](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/](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 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.
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

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.