



Fall 2019 Syllabus

Strength of Materials –MEC–K250/CRN 30200

Room D124, Wednesdays 6:00 – 8:45 p.m.

Instructor: Bob Shepherd
Contact Methods: EMAIL: RShepherd@trcc.commnet.edu
Office Hours: by Appointment

Course Textbook:

- **Statics and Mechanics of Materials, 5th Edition, Pearson Hall Publishers, 2017**
R.C. Hibbeler
ISBN: 9780134382593

Course Description:

This course instills knowledge of moments of inertia, torsion, bending and columns, and how it applies to stress and the structural properties of materials. The relationship of these properties to common engineering problems is reviewed.

Course Expectations:

After completing this course, students should be able to:

1. Determine the internal reactions of rigid, static members.
2. Identify and determine normal, shear, and bearing stresses from direct loadings on a member.
3. Understand and use the relationships of stress, strain, elastic modulus, Poisson's Ratio, material strengths and factors of safety to analyze and design simple members.
4. Determine thermal expansion/contraction and/or thermal stresses when analyzing and designing members.
5. Analyze and design circular shafting based on angular twist.
6. Determine beam stresses and beam deflections and safely design beams for strength and stiffness requirements.
7. Draw shear and moment diagrams.
8. Analyze beams for transverse shear.
9. Analyze and safely design simple columns.
10. Determine stresses from 2-D combined loadings and use stress elements to represent the results.
11. Determine principle stresses and maximum shear stress from 2-D combined loadings and use Mohr's Circle to determine orientations of the principle stress element and the maximum shear stress element.

Grading Policy:

Final letter grade determined by the following:

- 10% Attendance & Participation
- 25% Homework and Quizzes
- 45% Exams (3 at 15% each)
- 20% Final Exam

100% Total

Grades will be assigned according to the following scale:

94 - 100	A
90 - 93	A -
87 - 89	B +
83 - 86	B
80 - 82	B -
77 - 79	C +
73 - 76	C
70 - 72	C -
67 - 69	D +
63 - 66	D
60 - 62	D -
Below 60	F
If <60% of work completed	N

Class Participation and Discussion: Attendance will be taken at each class meeting. Each student is expected to attend every class. Leaving class early without Instructor approval will result in a recorded absence for that class. This course is designed in such a way that a student should get more from the in-class activities than from the textbook alone. If you miss a class, you are responsible for obtaining notes, handouts and assignments. Course materials including syllabus, lectures, assignments and notes are located in Blackboard Learn. If you cannot attend a lecture due to extraordinary events, notify the instructor in advance of the class you will miss. Unless special arrangements have been made with the instructor in advance, the due date for coursework will remain as indicated. **Excessive unexcused absences will result in a failing grade at the discretion of the Instructor.**

Digication: All students are required to maintain a learning portfolio in Digication that uses the (Three Rivers) College Template.

Classroom Policies: Use of **cell phones**, texting, surfing the Internet or playing computer games **are Not Permitted** during class! Language and behavior that is disrespectful, or disruptive, to others is unacceptable. Students should refer to their Student Handbook for examples of such behavior as well as additional school policies.

Instructor Assistance: Seeking help from the instructor outside of class is encouraged if you are having difficulty understanding course material. You are encouraged to seek assistance during class as well as other times by appointment.

Course Withdrawal: A student who simply stops submitting work will receive the grade earned on that work, usually a failing grade. To receive a "W" grade instead, apply for a withdrawal through the registrar's office by November 5th. A "W" will be entered on the student transcript but will not be included in the calculation of the GPA.

Academic Integrity: Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to succeed in the classroom and beyond. Furthermore, academic dishonesty erodes the legitimacy of every degree awarded by the College. In this class and in the course of your academic career, present only your own best work; clearly document the sources of the material you use from others; and act at all times with honor.

Students with Disabilities: If you are a student with a disability and believe you will need support services and/or accommodations for this class, please contact the Disabilities Support Services at TRCC. Please note that the instructor cannot provide accommodations based upon disability until the instructor has received an accommodation letter from the Disabilities Counselor.

BOARD OF REGENTS FOR HIGHER EDUCATION AND CONNECTICUT STATE COLLEGES AND UNIVERSITIES POLICY REGARDING SEXUAL MISCONDUCT REPORTING, SUPPORT SERVICES AND PROCESSES POLICY

Public Act No. 14-11: An Act Concerning Sexual Assault, Stalking and Intimate Partner Violence on Campus:

“The Board of Regents for Higher Education (BOR) in conjunction with the Connecticut State Colleges and Universities (CSCU) is committed to insuring that each member of every BOR governed college and university community has the opportunity to participate fully in the process of education free from acts of sexual misconduct, intimate partner violence and stalking.”

Title IX Statement of Policy:

“Title IX of the Education Amendments Act of 1972 protects students, employees, applicants for admission and employment, and other persons from all forms of sex discrimination, including discrimination based on gender identity or failure to conform to stereotypical notions of masculinity or femininity. All students are protected by Title IX, regardless of their sex, sexual orientation, gender identity, part or full-time status, disability, race, or national origin, in all aspects of educational programs and activities.”

Class Cancellation:

In case of inclement weather, check the college website for class cancellations or call 860-215-9000 for recorded message.

Strength of Materials MEC K250 T1 CRN 30200 - Course Outline				
Week #	Date	Homework	Assignment Topics	Text Reading
1	8/28/19		Introduction, and syllabus review. Statics Review – Chapters 1-2	Chapters 1 through 2
2	9/4/19		Statics Review - Chapters 3 - 6	Chapters 3 through 6
3	9/11/19		Stress – Sections 7-1 through 7-6	Chapter 7
4	9/18/19		Strain – Sections 7-7 through 7-8	Chapter 7
5	9/25/19		Exam #1 Mechanical Properties of Materials – Sections 8-1 through 8-6	Chapter 8
6	10/2/19		Axial Load – Sections 9-1 through 9-4 & 9-6	Chapter 9
7	10/9/19		Torsion – Sections 10-1 through 10-4	Chapter 10
8	10/16/19		Bending – Sections 11-1 through 11-5	Chapter 11
9	10/23/19		Exam #2 Transverse Shear – Sections 12-1 through 12-2	Chapter 12
10	10/30/19		Combined Loadings – Sections 13-1 through 13-2	Chapter 13
11	11/6/19		Stress and Strain Transformation – Section 14-1 through 14-5	Chapter 14
12	11/13/19		Exam #3	
13	11/20/19		Deflection of Beams and Shafts – Sections 16-1, -2 & -4	Chapter 16
14	12/4/19		Buckling of Columns – Sections 17-1 through 17-3	Chapter 17
15	12/11/19		Final Exam	