



***Strength of Materials***  
***Course #: MEC K250 T1 CRN 30200***  
***Wednesday: 6:00 PM – 8:45 PM, Room D124***

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**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 Instructor:**

Mark Vesligaj

OFFICE: C128  
PHONE: (860) 215 9442  
EMAIL: [mvesligaj@trcc.commnet.edu](mailto:mvesligaj@trcc.commnet.edu)  
OFFICE HOURS: Monday from 4:15 – 5:15 pm  
Tuesday from 12:00 – 1:00 pm  
Wednesday from 4:15 – 5:15 pm ...  
...or by appointment. **Please set appointments in advance.**

**Course Textbook:**

Hibbler, R.C., Statics and Mechanics of Materials, 5th Edition, Pearson Hall Publishers, 2017

**Course Outcomes:**

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.

**Special Needs:**

Any student in the class who may have special needs should feel free to contact me. I am interested in any situation which may impact your ability to be successful in this course. If

you are a student with a disability and you believe you will need accommodations for this class, it is your responsibility to please contact one of the college's Disability Service Providers (DSP) as soon as possible. Please note that accommodations cannot be provided until you provide written authorization from a DSP.

<b>College Disabilities Service Providers</b>	
Matt Liscum, Counselor (860) 215-9265 Room A113	<ul style="list-style-type: none"> <li>• Learning Disabilities</li> <li>• ADD/ADHD</li> <li>• Autism Spectrum</li> <li>• Mental Health Disabilities</li> </ul>
Elizabeth Willcox, Advisor (860) 215-9289 Room A113	<ul style="list-style-type: none"> <li>• Medical Disabilities</li> <li>• Mobility Disabilities</li> <li>• Sensory Disability</li> </ul>

**Digication:**

All students are required to maintain an online learning portfolio in Digication that uses the college template. Through this electronic tool students will have the opportunity to monitor their own growth in college-wide learning. The student will keep his/her learning portfolio and may continue to use the Digication account after graduation. A Three Rivers General Education Assessment Team will select and review random works to improve the college experience for all. Student work reviewed for assessment purposes will not include names and all student work will remain private and anonymous for college improvement purposes. Students will have the ability to integrate learning from the classroom, college, and life in general, which will provide additional learning opportunities. If desired, students will have the option to create multiple portfolios.

**Class Cancellation:**

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

**MyCommNet Alert:**

*MyCommNet* is a system that sends text messages and emails to anyone signed up in the event of a campus emergency. Additionally, TRCC sends messages when the college is delayed or closed due to weather. All students are encouraged to sign up for *MyCommNet* Alert. A tutorial is available on the Educational Technology and Distance Learning Students page of the web site.

[http://www.trcc.commnet.edu/div\\_it/educationaltechnology/Tutorials/myCommNetAlert/MIR3.html](http://www.trcc.commnet.edu/div_it/educationaltechnology/Tutorials/myCommNetAlert/MIR3.html)

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

**Statement of Policy for 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. It is the intent of the BOR and each of its colleges or universities to provide safety, privacy and support to victims of sexual misconduct and intimate partner violence.”

**United States Department of Education and Office of Civil Rights Title IX Statement of Policy:**

“Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination based on sex in education programs and activities in federally funded schools at all levels. If any part of a school district or college receives any Federal funds for any purpose, all of the operations of the district or college are covered by Title IX.

Title IX 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 (as well as other persons) at recipient institutions 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 a recipient’s educational programs and activities.”

If any student experiences sexual misconduct or harassment, and/or racial or ethnic discrimination on Three Rivers Community College Campus, or fears for their safety from a threat while on campus, please contact Edward A. Derr, the Diversity Officer and Title IX Coordinator:

Edward A. Derr, Title IX Coordinator and Diversity Officer  
Admissions Welcome Center \* Office A116  
574 New London Turnpike, Norwich CT 06360  
860.215.9255 \* [EDerr@trcc.commnet.edu](mailto:EDerr@trcc.commnet.edu)

**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.

**Withdrawal:** A student who finds it necessary to discontinue a course must complete a "Withdrawal Request Form" available in the Registrar's office within the time limits of the semester calendar. Students who do not withdraw, but stop attending will be assigned an "UF" which may impact their financial aid status. The last day to withdraw from classes can be found on the Academic Calendar the college website.

**Attendance:**

Attendance is required to succeed in this course. If you miss class on the day of a quiz or exam you will not be allowed to make it up. Attendance will be taken and

it may be used in determining part of the final grade, i.e. Participation Component.

**Grading Policy:**

Your final grade will be earned by the following component breakdowns:

<b>TOTAL</b>	<b>100%</b>
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**Grading Equivalents:**

Your final letter grade will be determined according to the following equivalents:

A: 93 – 100, A-: 90 – 92

B+: 87 – 89, B: 83 – 86, B-: 80 – 82

C+: 77 – 79, C: 73 – 76, C-: 70 – 72

D+: 67 – 69, D: 63 – 66, D-: 60 – 62

F: below 60

N: if the student completed less than 60% of work.

**PROJECTED COURSE CONTENT:**

<b>Chapter</b>	<b>Concepts</b>	<b>Chapter Reference</b>	<b>Assignments</b>
1 – 6	Basic Concepts, Statics Review	All	
7	Stress and Strain	Sections: 1-8	
8	Mechanical Properties of Materials	Sections: 1-6	
9	Axial Load	Sections: 1-4, 6	
10	Torsion	Sections: 1-4	
11	Bending	Sections: 1-5	
12	Transverse Shear	Sections: 1-2	
13	Combined Loadings	Sections: 1-2	
14	Stress and Strain Transformation	Sections: 1-5	
16	Deflection of Beams and Shafts	Sections: 1-2, 4	
17	Buckling of Columns	Sections: 1-2	