

**Statics – MEC K114**  
**Spring 2012 Syllabus**  
**Room D126, Monday/Wednesday, 2:00 – 3:15 pm**

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**Instructor:** Prof. Wanda Short  
**Office:** C 128  
**Email:** wshort@trcc.commnet.edu  
**Telephone:** (860) 885-2349 office  
**Office Hours:** Wednesdays 11:00 am – Noon; Thursdays 1:00 – 3:00 pm; Other Dates/Times by Appointment

**Course Description:**

This course helps students develop the ability to analyze problems using the basic principles of static systems in order to provide a foundation for stress analysis. The forces on structures in equilibrium and concepts of centroids, center of gravity, and moment of inertia are studied. The concept of stress and strain in axial, torsional and bending loading is also introduced.

Prerequisites: MAT\* K137 and PHY\* K114. Corequisite: MAT\* K186.

**Text Book:**

Hibbeler, R.C., *Engineering Mechanics, Statics*, 12<sup>th</sup> Edition, Pearson/Prentice Hall, 2010, ISBN: 978-0-13-607790-9

**Reference Books:**

Any statics or structural mechanics text.

**Course Topics:**

- I. VECTORS
- II. EQUILIBRIUM
- III. RESTRAINTS
- IV. STRUCTURAL ANALYSIS
- V. INTERNAL FORCES
- VI. FRICTION
- VII. CENTROIDS

**Course Objectives:**

- Demonstrate the ability to solve problems related to Statics in an accurate, organized and neat manner,
- Demonstrate an understanding of the concept of a resultant force for systems of forces and proficiency in performing calculations,
- Demonstrate an understanding of the concept and calculations of the components of a force,
- Understand the principle of moments and solve for the moment caused by a force acting on a rigid body,
- Understand the principle of transmissibility and demonstrate the use of the principle of transmissibility to solve for reaction or for forces causing stress in members of a truss,
- Calculate the reaction forces at the supports of a rigid body at rest,
- Display competence in the determination of the force in members of a truss using the Method of Joints and the Method of Sections,
- Evidence of expertise in locating centroid and the center of gravity for rigid bodies at rest,
- Demonstrate proficiency in determination of moment of inertia or radius of gyration of a composite area and proficiency in their application in beam analysis.

**Instructor Assistance:**

Seeking help from the instructor outside of class is encouraged if you are having difficulty understanding course material. Feel free to Email/call for an appointment during office hours and other times depending upon availability.

**Academic Integrity:**

Academic integrity is essential to a useful education. Failure to act with academic integrity severely limits a person's ability to success 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. A grade of "0" may be assigned upon infraction of this policy.

**Attendance:**

This course is designed in such a way that a student should get more from the in-class activities than from the textbook alone. Therefore, students are expected to attend class regularly. Though students will not be penalized for non-attendance, they will be responsible for material covered in their absence. It will be the student's responsibility to determine what assignments have been missed and to ensure that they are made up in a timely manner. Attendance will be noted for each class and may be used for extra-credit of 1 to 3 points in determining final grades.

**Class Room Policies:**

Cell phones brought to class shall be off and out of site (no texting). 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 additional school policies.

**Assignments:**

Quizzes, homework or exams missed for any reason cannot be made up unless **prior** arrangements have been made with the instructor. Assignments not received on date due will result in alternate assignment with reduction of grade of 5% (100% total) per day late.

**Grading Policy:**

Homework and four exams will be given during the semester along with exam reviews. The exams will be closed book and closed notes except the use of one (1) 8 ½ x 11 page of notes, double-sided, will be permitted.

➤	50%	Homework
➤	50%	Exams
	100%	Total

**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 "F" signifying a failing grade.

**Disabilities Statement:**

If you are a student with a disability and believe you will need accommodations for this class, you must contact the Disabilities Counseling Services at (860) 823-2830. To avoid any delay in the receipt of accommodations, you should contact the counselor as soon as possible. The instructor cannot provide accommodations until an accommodation letter from the Disabilities Counselor is received.

**Lecture Schedule – Spring 2012**  
**Statics, MEC K114**  
**Monday/Wednesday, 2:00 – 3:15 pm**  
**Room D126**

Week #	Date	Event	Topic	Section Reading Prior to Class
1	Mon Jan 23		General Principles	1.1 – 1.6
	Wed Jan 25		Force Vectors	2.1 – 2.4
2	Mon Jan 30	HW #1 due	Equilibrium of a Particle	3.1 – 3.3
	Wed Feb 1	HW #2 due	Force System Resultants	4.1 – 4.4; 4.6; 4.7
3	Mon Feb 6	HW #3 due	Equilibrium of a Rigid Body	5.1 – 5.4
	Wed Feb 8	HW #4 due		
4	Mon Feb 13	HW #5 due		
	Wed Feb 15	Exam Review due		
Mon Feb 20			Class <u>Not</u> in Session – President’s Day	
5	Wed Feb 22	<b>Exam #1</b>	<b>Exam Covering Chapters 1 - 5</b>	
	Mon Feb 27			
6	Wed Feb 29	HW #6 due	Trusses Method of Joints; Zero-Force Members	6.1 – 6.3
	Mon Mar 5	HW #7 due	Trusses Method of Sections	6.4
7	Wed Mar 7	HW #8 due	<b>Exam Covering Chapter 6 (Sections 6.1 – 6.4)</b>	
	Mon Mar 12	Exam Review due		
8a	<b>Wed Mar 14</b>	<b>Exam #2</b>		
Mon Mar 19 Wed Mar 21			Class <u>Not</u> in Session – Spring Break	
8b	Mon Mar 26		Pulleys, Frames and Machines	3.2; 6.6
9	Wed Mar 28	HW #9 due	Internal Forces	7.1
	Mon Apr 2	HW #10 due		
10	Wed Apr 4	HW #11 due	Shear and Moment Equations and Diagrams	7.2
	Mon Apr 9	HW #12 due		
11	Wed Apr 11	HW #13 due	<b>Exam Covering Sections 3.2, 6.6, 7.1 &amp; 7.2</b>	
	Mon Apr 16	Exam Review due		
12	<b>Wed Apr 18</b>	<b>Exam #3</b>	Friction	8.1; 8.2
	Mon Apr 23			
13	Wed Apr 25	HW #14 due	Center of Gravity and Centroid	9.1; 9.2
	Mon Apr 30	HW #15 due		
14	Wed May 2	HW #16 due	Moments of Inertia	10.1 – 10.4; 10.8
	Mon May 7	HW #17 due		
15	Wed May 9	Exam Review due	<b>Exam Covering Chapters 8, 9 &amp; 10</b>	
	<b>Mon May 14</b>	<b>Exam #4</b>		

**Exam Reviews & Exams:**

- **Closed Book**
- **Only 1 Page (8.5x11) of Notes (double-sided) Permitted**