

# **EGR 140**

## **Engineering Mechanics: Statics**

**Program Head: Richard Clark**

**Revised: Fall 2016**

**Dean's Review:**

**Dean:**

**VIRGINIA WESTERN COMMUNITY COLLEGE**  
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# **EGR 140**

## **Engineering Mechanics: Statics**

### **COURSE OUTLINE**

#### **Prerequisites:**

MTH 173 or equivalent

#### **Course Description:**

Prerequisite: MTH 173 or equivalent. Introduces mechanics of vector forces and space, scalar mass and time, including S.I. and U.S. customary units. Teaches equilibrium, free-body diagrams, moments, couples, distributed forces, centroids, moments of inertia analysis of two-force and multi-force members and friction and internal forces. Lecture 3 hours per week.

Students learn how to manipulate vector quantities in two dimensions and three dimensions. Once these concepts are understood, they are applied to solving statics problems of particles and extended rigid objects in two and three dimensions. Students learn to analyze forces and moments, and how to combine forces and moments. This course is foundational to many other mechanics courses in engineering.

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**Semester Credits:** 3

**Lecture Hours:** 3

**Lab/Recitation Hours:** 0

# **EGR 140 – Engineering Mechanics: Statics**

## **Course Outcomes**

**At the completion of this course, the student should be able to:**

1. Manipulate (i.e., add and multiply) vector quantities.
2. Establish the forces and/or moments required to keep a Particle in equilibrium in two dimensions and three dimensions.
3. Establish the forces and/or moments required to keep an Extended Rigid Object in equilibrium in two dimensions and three dimensions.

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# EGR 140 – Engineering Mechanics: Statics

Required Materials:

Calculator (TI-89 or higher preferred)

Textbook:

1. **Engineering Mechanics: Statics plus MasteringEngineering with Pearson eText -- Standalone Access Card, 14/E**  
HIBBELER  
ISBN- 9780134160689  
Publisher: Pearson Prentice Hall  
Format: National Bundle
2. Access to Online Homework program associated with textbook:  
(<http://www.masteringengineering.com>)

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Topical Description:

Week	Chapter		Comment
1	General Principles; Vectors	1, 2	
2			
3	Equilibrium: Particle	3	
4	Force Systems	4	
5			
6	Equilibrium : Rigid Body	5	
7			
8	Structural Analysis	6	
9	Internal Forces	7	
10	Friction	8	
11	Centroids & Center of Gravity	9	
12			
13	Moments of Inertia	10	
14			
15	Virtual Work	11	

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# EGR 140 – Engineering Mechanics: Statics

## Notes to Instructors

1. All instructors teaching this course will use the same textbook.
2. Course content within this course may be covered at the instructor's discretion but with all topics being covered.
3. This course and its grades will be structured around a minimum of 2 tests, final exam, and homework.
4. At the end of the semester, all instructors will give the outcome assessment as it relates to the final exam to the program head at the same time they prepare their student final grades.
5. A comprehensive final exam will be given.

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