

**School of Mechanical Engineering and Computer Science**  
**Mech 211: Statics**

<b>Catalog Data:</b>	<b>Mech 211 Statics</b> ; 3 credits Static equilibrium analysis of particles and rigid bodies, free-body diagram, shear-moment diagrams, friction, center of gravity, moments of inertia.		
<b>Class Schedule:</b>	Three 50-minute lecture sessions per week, for one semester.		
<b>Laboratory Schedule:</b>	None		
<b>Prerequisites by Course:</b>	Math 172 or c// and Phys 201 or c//		
<b>Prerequisites by Topic:</b>	Calculus and Physics		
<b>Required Texts:</b>	Johnston, E. R. Clausen, W. E., and Cornwell, P. J., <i>Vector Mechanics for Engineers: Statics</i> , 8 <sup>th</sup> Edition, 2007, McGraw-Hill Publishing Company.		
<b>Course Coordinator:</b>	Dr. Linda (Xiaolin) Chen		
<b>Course Objectives:</b>	<ol style="list-style-type: none"> <li>1. To develop the ability to apply mathematics and physics to solve basic engineering problems.</li> <li>2. To provide a working knowledge of the fundamental principles of engineering mechanics that are required for solving statics problems.</li> </ol>		
<b>Topics Covered:</b>	<ol style="list-style-type: none"> <li>1. Vectors</li> <li>2. Forces, moments and couples</li> <li>3. Resultant force systems</li> <li>4. Free-body diagrams and equilibrium</li> <li>5. Truss analysis</li> <li>6. Frame and machine analysis</li> <li>7. Center of mass and centroids</li> <li>8. Shear &amp; moment diagrams</li> <li>9. Principle second moments of area</li> <li>10. Friction</li> </ol>		
<b>Lab Experiments and Activities:</b>	None		
<b>Course Outcomes:</b>	Students will be able to: A-1. Manipulate vectors to obtain analytical solutions for bodies in equilibrium. A-2. Use appropriate mathematical models for bodies at rest. A-3. Demonstrate knowledge of vector mechanics of bodies at rest (vectors, forces, moments, free body and equilibrium analysis.) A-4. Apply vector mechanics to determine reactions at the supports, external and internal forces, and geometric and inertial properties of solid bodies in static equilibrium. K-4. Use software to analyze bodies in static equilibrium.		
<b>Relationship of Course to Program:</b>	Meets: Educational Objectives <u>1, 2</u> Program Outcomes <u>A, K</u>		
<b>Prepared by:</b>	Dr. Linda (Xiaolin) Chen	Date:	November 1, 2006
<b>Approved by CAC:</b>			