WASHINGTON STATE UNIVERSITY
VANCOUVER
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School of Engineering and Computer Science

Mech 215: Mechanics of Materials

Catalog Data:	**Mech 215 Mechanics of Materials**; 3 credits Concepts of stress, strain, and their relationships; axial, torsion, bending and combined stresses; properties of materials; columns and strain energy method.
Class Schedule:	Three 50-minute lecture sessions per week, for one semester.
Laboratory Schedule:	None
Prerequisites by Course:	Mech 211
Prerequisites by Topic:	Statics
Required Texts:	J. M. Gere, Mechanics of Materials, Thomson-Engineering; 6 edition, ISBN: 0534417930
Course Coordinator:	Dr. Dave Kim
Course Objectives:	1. Demonstrate knowledge of fundamental concepts and problem solving techniques associated with stress, strain, simple constitutive theory. 2. Applications involving axial loading, torsion, and bending, including introductory-level statically indeterminate systems. 3. Accumulate significant practice in solving a variety of application problems in solid mechanics.
Topics Covered:	1. Stress and strain 2. Properties of materials 3. Constitutive relations 4. Axial loads 5. Pressure vessels 6. Bending stresses and internal forces 7. Torsion 8. Principal stresses and planes 9. Deflection of beams 10. Strain energy method 11. Combined stresses 12. Buckling of columns
Lab Experiments and Activities:	None

Course Outcomes:	Students will be able to:			
	Assessed for Program Outcomes	A-1. Apply mathematics to obtain analytical solutions in solid mechanics. A-2. Demonstrate knowledge of fundamental concepts such as stress, strain, elastic and inelastic behavior, strain energy, and material properties. A-3. Apply engineering principles (solid mechanics) toward solving engineering problems. F-1. Recognize situations involving ethical considerations (safety through design) and be able to evaluate decisions.		
	Other	E-2. Develop appropriate models to formulate solutions.		
Required or Elective Course:		Required		
Contribution to Professional Component:		Engineering Topics		
Relationship of Course to Program:		Meets: Educational Objectives __1, 2, 3_____ Program Outcomes ___A, E, F_____		
Prepared by:		Dr. Dave Kim	Date:	October 10, 2008
Approved by CAC:				