MEGR2141 - ENGINEERING MECHANICS I - STATICS

Catalog Data	This course introduces the principles of particle and rigid body mechanics with engineering applications; force and moment systems and resultants, equilibrium of particles and rigid bodies, friction, properties of areas and volumes. (Fall, Spring)
References	Meriam and Kraige, Engineering Mechanics – Statics, 6th Edition, John Wiley & Sons, 2007.
Goals	The objective of this course is to provide students with the tools for analyzing systems in static equilibrium.
Prerequisite	PHYS 2101. Corequisite: MATH 1242.
Class Topics	Review of basic physics Force, moment and position vectors Equivalent force-couple systems Static equilibrium Loads in truss systems Loads in frames/machines Centroids of areas and distributed forces Shear and moment diagrams Friction Second moments of area (area moments of inertia)
Outcomes	At the completion of the course the student should be able to: 1. Represent and calculate force and moment vectors and their resultants. 2. Draw free-body diagrams for static systems. 3. Solve for loads in truss systems using method of joints and method of sections. 4. Solve for loads in frame/machine systems. 5. Draw the shear and moment diagrams of beams with concentrated forces, distributed forces and couples. 6. Analyze loads in static systems involving friction. 7. Calculate the first and second moments of area (centroid and area moment of inertia) by integration or method of composites with utilization of the transfer of axis theorem.
Computer Usage	None
Laboratory	None
Design Content	None
Grading *	Grading policies are determined by the instructor
Follow-up Courses	This course is a prerequisite for MEGR 2144, MEGR 2156 and MEGR 2180
Academic Integrity	Students have the responsibility to know and observe the requirements of the UNCC Code of Student Academic Integrity (2001-2003 UNCC Catalog, p. 275) . This code forbids cheating, fabrication or falsification of information, multiple submission of academic work, plagiarism, abuse of academic materials, and complicity in academic dishonesty.
Notes	Assignment and test schedules will be provided to the students in the first week of class
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