

COE 2001-ROX: Statics (2-0-2) at Oxford

Summer 2008

Aerospace Engineering

Educational Objectives

This course will cover the fundamentals of statics for engineering and will introduce methods for problem-solving, with emphasis on identification, formulation and solution of a problem. You will apply skills in mathematics and physics to solve engineering mechanics problems involving forces and moments, equilibrium in two and three dimensions, forces and moments in beams and columns, and effects of friction.

This is a foundational course for all engineers and it is also a very practical course with lots of real-world applications no matter what your major is (engineering or otherwise). The Oxford version is specially designed for the faster classroom pace of the shortened semester. Unlike the typical GT campus version of this course, the Oxford version is arranged so that you will have much more time to meet daily or evenings with the instructor in informal one-on-one or small group problem-solving sessions which can be very helpful when covering new topics that are difficult to grasp. You will also be invited to use your weekend travels as a chance to capture photos to show the class that illustrate situations where the methods of statics introduced in the course might be applied for practical uses (*e.g.*, famous bridges, towers, statues, etc., or even construction cranes and interesting mechanical devices you encounter). The standard Oxford Program attendance policy will apply.



Forces and Particle Equilibrium	Week 1
<i>Components of a Force</i>	
<i>Lines of Action</i>	
Moment of a Force, and of a couple; Resultants	Weeks 1-2
<i>Cross Products</i>	
<i>Moments, Couples, Moments about a line</i>	
<i>Equivalent systems</i>	
Analysis of General Equilibrium Problems	Week 2
<i>Free-body Diagrams</i>	
<i>Fundamental Applications of Equilibrium Equations</i>	
<i>Interacting Bodies or Parts of a Structure</i>	
Structural Applications and Distributed Loads	Weeks 2-3
<i>Plane trusses</i>	
<i>Space trusses</i>	
<i>Systems containing multiforce members</i>	
Centroids and Center of Gravity	Week 4
<i>Centroids</i>	
<i>Method of Composite Parts</i>	
Friction	Week 4