Course Number: MECH 211
Department: MECH (Mechanical Engineering)
Course Title: Statics
Course Designation: required course
Catalog Description: Two and three-dimensional force systems, the concept of equilibrium, analysis of trusses and frames, centroids, bending moment and shear diagrams, friction.
Prerequisites: PHYS 125, MATH 152
Credit Hours: 3 credits, lecture type
Semester/Year: Fall / 2016
Course days, time, duration: MECH 211 Section 2: MWF, 10:20 am -11:10 am, full semester
Class location: 244 McMahon
Instructor name/title: William Carlson, Professor
Office location: 338A McMahon
Office hours: 11:20 am -12:10 pm MTW
E-mail address: carlson@alfred.edu
Website URL: http://mechanics.alfred.edu/ note: class is the official source of information
Course Outcomes: are related to ABET (Accreditation Board for Engineering and Technology) criteria for meeting program outcomes: a, c, e
Outcome a: "an ability to apply knowledge of mathematics, science, and engineering"
Outcome c: "an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability"
Outcome e: "an ability to identify, formulate, and solve engineering problems"
Relationship of course to program outcomes:
a. advances the knowledge of mathematics (calculus, linear algebra),
   science (equilibrium physics), and engineering (mechanical systems)
   concepts
c. introduces the design of a process (analytical) to meet desired
   (mechanical) needs within constraints (boundary)
e. advances efforts to formulate (physical equations) and solve (linear
   algebra, calculus, matrix techniques) engineering (statics) problems

Contribution of course to meeting curriculum requirements:
1. contributes to analytic techniques for simple mechanics problems
2. advances the students capability for formulation and design of simple
   structures

Required reading:  *Statics and Mechanics of Materials*, Bedford, Fowler & Liechti
Publisher: Pearson (2003)
ISBN: 9780130285935

Optional resources:  *Statics and Mechanics of Materials*, Schaum, Publisher: McGraw
ISBN: 9780070458963
*Statics for Dummies*, Allen, Publisher: Wiley
ISBN: 9780470598948

Course Outline:  Chapter 1: Introduction - Concepts & Units
Chapter 2: Vectors - Vector Operations
Chapter 2: Vectors - Cartesian Coordinates, Products of Vectors
Chapter 3: Forces - Two-Dimensional Force Systems
Chapter 3: Forces - Three-Dimensional Force Systems
Chapter 4: Systems of Forces and Moments - Moments of Vectors
Chapter 4: Systems of Forces and Moments - Moments of Forces
Chapter 4: Systems of Forces and Moments - Equivalent Systems
Chapter 5: Objects in Equilibrium - Equilibrium Equations - 2-Dim Apps
Chapter 5: Objects in Equilibrium - Three-Dimensional Applications
Chapter 6: Structures in Equilibrium - Trusses - Method of Joints &
   Method of Sections
Chapter 7: Centroids - Centers of Area and Mass
Chapter 7: Moments of Inertia of Areas - Parallel Axis Theorem
Chapter 8: Friction - Theory & Application
Chapter 14: Internal Forces and Moments in Beams - Shear Diagrams
Chapter 14: Internal Forces and Moments in Beams - Bending Moment
   Diagrams
Required Materials/Supplies: n/a

Assessment Methods: homework assignments, exams, quizzes, and project

Due dates: will be assigned in class

Grading: assessment weighting: exams 60%, homework 10%, quizzes 20%, project 10%
process: total points in each assessment method is weighted, assessments summed, and the total is used to evaluate the grade.

Attendance Policy: attendance is mandatory, points will be deducted for repeated absences except for excused sports, field trips, and/or illness with excuse. Advanced notification of professor is required for an excused activity.

Laboratory safety: n/a

Make-up policy: per discretion of professor for excused sports, field trip, and illness with excuse.

Late work policy: all work is to be completed as scheduled. Late work will be penalized.

Extra credit policy: n/a

Laboratory hours: n/a

Academic misconduct policy: refer to AU Policy 700 on Academic Dishonesty:
http://my.alfred.edu/index.cfm/fuseaction/academic_policies.academic_regulation_ug.cfm