NYU Tandon School of Engineering
Civil and Urban Engineering Department
Course Outline – CE-UY 2113 – Statics
Spring 2018
Roula Maloof, PhD
Monday and Wednesday JABS_775B

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Office Hours: Tuesday (11:00AM-1:00PM)

Course Co/Pre-Requisite: PH-UY 1013 (Mechanics) or Equivalent

Course Description: the course covers: vector treatment of the static equilibrium of particles and rigid bodies; equivalent forces and couple systems; distributed forces; static analysis of the determinate trusses, beams and frames; friction; centroid and center of gravity, and moment of inertia.


Grade Basis: Attendance and class participation 5 %, Homework 10%, Quizzes 15%, Test1 20%, Test 2 25%, Final 25%.

Course Objectives:
1- Develop an understanding of the principles of mechanics and its application to solve engineering problems.
2- Develop the skills of analysis of equilibrium of rigid bodies subject to static loads.
3- Develop an understanding of applications of vector mathematics.
4- Conceptualization of physical objects in two and three dimensions.
5- To introduce simple application of analysis of structural components.

TOPICS:
1. Concepts and Principles of Mechanics
   i. Newton’s Law
   ii. Unit of Measurement
   iii. System of Units.
   iv. Elements of Vector Algebra
2. Statics of Particles: Forces in plane (2D) and Forces in space (3D)
   i. Equilibrium of a Particle.
   ii. Moment of a Force about a Point or an Axis.
   iii. Moment of a Couple.
   iv. Simplification of a Force and Couple System
3. Equilibrium of Rigid Bodies (2D – 3D)
   i. Equilibrium of a Rigid Body
   ii. Constraints and Statical Determinacy
   i. Trusses
   ii. Beams
   iii. Frames
5. Center of Gravity and Centroid.
   i. Body and Composite Bodies
   ii. Surface Area and Volume of Body.
   iii. Resultant of Distributed Loading and Pressure
   i. Definition.
   ii. Parallel Axis Theorem.
   iii. Radius of Gyration and Composite Areas.
   iv. Product of Inertia.
7. Introduction to Mohr’s Circle
8. Friction
   i. Frictional Forces: Wedges, Screws and Belts
   ii. Frictional Forces: Collar, Journal and Pivot Bearings

ABET Competencies:
   a. An ability to apply knowledge of mathematics, science and engineering

Requirements:
   1- No Late homework will be accepted without a valid reason.
   2- Homework should be submitted at the beginning of the class period at which it’s due. Make sure your handwriting is legible. Neatness and presentation will be taken into account.
   3- Solution of homework will be posted.
   4- 50% minimum on homework grade is required.
   5- More than 25% absences without a valid reason will result in a failing grade.
   6- Missing a quiz will result in a zero grade.
   7- An average of unweighted exams grades must not be at least 40.
   8- Cheating or any academic dishonesty will be penalized in refer to the SOE Code of Conduct."engineering.nyu.edu/academics/code-of-conduct/academic-isconduct”

Per 2011-2014 NYU-Poly Catalog: Students must achieve a grade of C or better in CE2113 Statics to register for subsequent courses in the structures sequence: CE2123 Mechanics of Materials, CE 3133 Structural analysis, CE 3173 Structural Design.