

Bossier Parish Community College  
Master Syllabus

**Course Prefix and Number:** CONS 230

**Credit Hours:** 3-2-3

**Course Title:** Statics and Strengths of Materials and Lab

**Course Prerequisite:** CONS 102 and CONS 160

**Course Prerequisite/Corequisite:** PHYS 201 and PHYS 201L

**Textbook(s):** Limbrunner, George F. et al. (Hudson Valley Community College), Applied Statics and Strength of Materials, 6<sup>th</sup> edition. Pearson, 2016. ISBN: 9780133840544

**Course Description:** Resolution of forces, equilibrium, application of statics for simple structures, centroids, moments of inertia; materials in tension, compression, bending; shear and moment diagrams; design of simple structures using materials with varying structural properties. Lab provides opportunities for hands-on practice of the learned calculations.

**Learning Outcomes:**

At the end of this course, the student will:

- A. demonstrate mastery of the basic principles of statics which might be encountered in a construction environment; and
- B. utilize the basic principles governing the strength of materials as they relate to construction elements.

To achieve the learning outcomes, the student will or will be able to:

(The letter designations at the end of each statement refer to the learning outcome(s).)

- 1. define, identify and discuss the qualities, units, types and principles of forces and force systems; (A)
- 2. define and solve for resultants and equilibrium of force systems; (A)
- 3. analyze structural systems and their forces – friction, centroids/centers of gravity, moments, stresses and strains; (A)
- 4. determine properties of materials by testing with calculation: stress, strain, shear, moment of inertia, thermal, bending moment, deflection, and combinations of these properties including safety factors; (B) and
- 5. practice designing steel and concrete beams, steel and concrete columns, and connections between these members. (B)

**Course Requirements:**

Textbook, scientific calculator, ¼” scale 8 ½ X 11 graph paper, internet access outside of class time, steel-toed boots or shoes, and work gloves are required for this course. Eye and hearing protection and hard hats will be provided. Use of safety equipment is required.

Notes: Lectures and assignments for this course may be available on Canvas. Students are required to complete textbook readings and review lectures before each class period. Laboratory assignments will be posted on Canvas and completed in class during lab time.

**Course Grading Scale:**

90% to 100%	= A
80% to < 90%	= B
70% to < 80%	= C
60% to < 70%	= D
< 60%	= F

**Attendance Policy:** The college attendance policy is available at <http://catalog.bpcc.edu/content.php?catoid=5&navoid=369>

**Course Fees:** This course is accompanied with an additional fee for supplemental materials.

**Nondiscrimination Statement:** Bossier Parish Community College does not discriminate on the basis of race, color, national origin, gender, age, religion, qualified disability, marital status, veteran's status, or sexual orientation in admission to its programs, services, or activities, in access to them, in treatment of individuals, or in any aspect of its operations. Bossier Parish Community College does not discriminate in its hiring or employment practices.

**COORDINATOR FOR SECTION 504 AND ADA**

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**Equity/Compliance Coordinator**

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