

**Tompkins Cortland Community College**  
**Master Course Syllabus**

**Course Discipline and Number: CONT 210**

**Year: 2023-2024**

**Course Title: Structural Design**

**Credit Hours: 4**

**Attendance Policy:** *To maintain good grades, regular attendance in class is necessary. Absence from class is considered a serious matter and absence never excuses a student from class work. It is the responsibility of all instructors to distribute reasonable attendance policies in writing during the first week of class. Students are required to comply with the attendance policy set by each of their instructors. Students are not penalized if they are unable to attend classes or participate in exams on particular days because of religious beliefs, in accordance with Chapter 161, Section 224-a of the Education Law of the State of New York. Students who plan to be absent from classroom activity for religious reasons should discuss the absence in advance with their instructors. See college catalog for more information.*

**Services for Students with Disabilities:** *It is the College's policy to provide, on an individual basis, appropriate academic adjustments for students with disabilities, which may affect their ability to fully participate in program or course activities or to meet course requirements. Students with disabilities should contact the Coordinator of Access and Equity Services, to discuss their particular need for accommodations. All course materials are available in alternate formats upon request.*

**Course Description**

An analysis of forces on static, rigid bodies, and an introduction to strength of materials and structural design. Topics include vector analysis, equilibrium, moments, centroids, moments of inertia, internal reactions, stress and strain, and design of beams and columns. Prerequisites: MATH 122; RDNG 116 if required by placement testing; prior completion or concurrent enrollment in ENGL 101. 4 Cr. ( 3 Lec., 2 Lab.) Spring semester.

**Course Context/Audience**

This course is a required course in the Construction Technology degree and certificate programs but may also be of interest to extramural students in work-related fields.

**Basic Skills/Entry Level Expectations**

**Writing:** WC College level writing skills are required. See course co-requisites or pre-requisites.

**Math:** MC College level math skills – Course requires college level math skills. See course description for co-requisite and/or prerequisite requirement(s).

**Reading:** R4 Before taking this course, students must satisfactorily complete RDNG 116 or have assessment indicating that no reading course was required.

**Course Goals**

As a result of successfully completing this course, the student will be able to analyze the forces and stresses in simple structural systems and will understand basic principles of strength of materials and simple, structural design.

**Course Objectives/Topics**

Objective/Topic	% Course
Force vectors	10%
Equilibrium	20%
Centroids and moments of inertia	10%
Internal reactions	10%
Stress and strain	25%
Design of beams and columns	25%

## General Education Goals - Critical Thinking & Social/Global Awareness

<b>CRITICAL THINKING OUTCOMES</b>	<b>HOW DOES THE COURSE ADDRESS THE OUTCOMES</b> (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
Students will be able to <ul style="list-style-type: none"><li>➤ develop meaningful questions to address problems or issues.</li><li>➤ gather, interpret, and evaluate relevant sources of information.</li><li>➤ reach informed conclusions and solutions.</li><li>➤ consider analytically the viewpoints of self and others.</li></ul>	Not addressed
<b>SOCIAL/GLOBAL AWARENESS OUTCOMES</b>	<b>HOW DOES THE COURSE ADDRESS THE OUTCOMES</b> (Include required or recommended instructional resources, strategies, learning activities, assignments, etc., that must or could be used to address the goal/outcomes)
<ul style="list-style-type: none"><li>➤ Students will begin to understand how their lives are shaped by the complex world in which they live.</li><li>➤ Students will understand that their actions have social, economic and environmental consequences.</li></ul>	Not addressed

### Instructional Methods

Three lecture hours per week and two computation/demonstration hours per week.

### Methods of Assessment/Evaluation

<b>Method</b>	<b>% Course Grade</b>
Quizzes and exams.	80%
Final exam	20%

### Text(s)

Applied Statics, Strength of Materials, and Structural Design. Wujek, Prentice Hall 1999

### Other Learning Resources

<b>Audiovisual:</b> No resources specified
<b>Electronic:</b> Structural Design Software
<b>Other:</b> No resources specified