

AIMS COMMUNITY COLLEGE, GREELEY CAMPUS
AEC 205
Applied Statics and Strengths of Materials (**CRN #41723**)
Spring Semester 2009

INSTRUCTOR: John Mangin
OFFICE LOCATION: Hansen 901.4
WORK PHONE: 970-339-6413 or 1-800-301-5388- Ext. 6413
EMAIL: john.mangin@aims.edu

OFFICE HOURS: **MTWR 8-9 am, 12-2 pm, F by appointment**

COURSE SECTION AND CREDITS: Section G11 3 credits

COURSE DATES AND TIMES: **T and R 10:45-12:00**

COURSE LOCATION: Hansen 917

REQUIRED TEXTBOOK/MATERIALS: Statics and Strengths of Materials for Architecture and Building Construction

COURSE PREREQUISITE: MAT 106, 108, 121, or the instructor's permission.

COURSE DESCRIPTION: Provides an algebra-based investigation of concepts in statics and strengths of materials. Topics include a study of fundamental mechanical properties of materials, single planar forces, properties of sections, and two-dimensional free body, shear, and bending moment diagrams.

COURSE OBJECTIVES:

Architectural Technology: Apply basic strengths of materials, practices and standards.

Topical Outline:

TopicalOutline

Outline View:

- I. Demonstrates an understanding of basic `statics and strength of materials` necessary to communicate with a design engineer and assist with fundamental computations.
- II. Describe basic mechanical properties of materials, including stress, strain and elasticity.
- III. Describe thermal stress and strain.
- IV. Perform calculations to determine simple stress, strain and elasticity.
- V. Describe the components of basic two dimensional force systems.
- VI. Perform calculations to determine moments of force for forces on a single plane.
- VII. Describe `equilibrium` in terms of two-dimensional force systems.

- /III. Determine reactions of simple and overhanging beams carrying uniform and/or concentrated loads acting along a single plane with loading perpendicular to the beam.
- IX. Calculate shear (vertical) and bending moments along the length of beams (as described above).
- X. Calculate the centroid and center of gravity of simple homogeneous objects.
- XI. Calculate the moment of inertia, section modulus and radius of gyration of simple rectangular sections.
- XII. Perform flexure formula calculations to size sections of steel, concrete and wood which are subjected to simple bending.
- XIII. Perform simple calculations related to wood, steel and concrete columns to determine maximum load before failure.
- XIV. Relate actual loading conditions of simple structures to simple theoretical computations techniques.
- XV. Describes the impact of forces on materials and simple members forces creating
- XVI. Equilibrium, shear, bending and deflection of simple beams.
- VII. Demonstrates an understanding of basic statics and strengths of materials concepts necessary to communicate with a design engineer and assist with fundamental computations.
- /III. Performs fundamental structural computations, under the guidance of an architect or engineer.

COURSE GRADE: The final grade in AEC 205 will be determined by the following:

Tests/Quizzes	40%
Homework/Labs	30%
Final Exam	20%
Attendance	10%

COURSE GRADING SCALE:	90 – 100%	A
	80 – 89%	B
	70 – 79%	C
	60 – 69%	D
	0 – 59%	F

WITHDRAW “W” GRADE: This indicates a student’s withdrawal after the point marking 15% of the course (the drop/refund deadline) and before the point marking 75% of the course. After the 75% point, students may no longer choose to withdraw from a course, and faculty will either assign the grade earned or complete an “Incomplete” agreement with student.

AUDIT GRADE: According to Page 46 of the 2006-2007 Aims Community College Catalog, a grade of “AU” specifies AUDIT. In this case no credit is granted. Regular tuition rates apply. The audit (AU) grade does not affect the grade point average. Any course for which an AU grade is assigned:

- does not count toward any certificate or degree program,
- cannot be used to satisfy a course prerequisite,
- cannot be used to satisfy “in residence” requirements, and
- cannot be used to satisfy requirements for financial aid or veterans’ benefits.

The student must obtain instructor approval by the Drop/Add deadline for the course. The instructor will assign a final grade of AU for an audit enrollment provided the student attends more than 80% of the course. Class work is not required. The student may receive credit for a course that was originally audited only by enrolling in and satisfactorily completing another section of the course in a subsequent term.

TEST/QUIZZES: There will be six tests plus a final exam given during the semester. Tests must be taken on the day they are scheduled. Each student may take only ONE make-up test during the course. All other missed tests will be assigned a grade of zero. To make up one test, the student must contact the instructor to make arrangements. The make-up test must be taken within one week of the scheduled test date. Missed quizzes cannot be made up. The final exam must be taken during the scheduled time. There will be no make-up final exam.

HOMEWORK EXERCISES: In order to assist you in learning the key concepts discussed in each class and text assignment, there will be required homework assignments. These will be due at the next class meeting unless otherwise instructed. You must show your work for full credit. Homework will be penalized 10% for each session late. Homework assigned for each section studied will not be accepted after the exam for that section has been taken. If you are absent from class, it will be your responsibility to obtain and complete the assignment and to turn it in at your next class appearance.

CALCULATORS: Scientific and/or graphing calculators may be used in this course.

IMPORTANT DATES: The following are dates that you need to be aware of as found in the **2009 Spring** Class Schedule:

Spring Semester 2009

January 12, 2009 – May 7, 2009 (78 days – includes 4 days of finals)

Monday	November 10, 2008	Begin Returning Student Registration for Spring Semester
Monday	November 17, 2008	Begin Open Registration for Spring Semester
Thursday	January 1, 2009	New Year’s Day (college closed)
Monday	January 12, 2009	Classes Begin
Monday	January 19, 2009	Martin Luther King Day (college closed)

Wednesday	January 28, 2009	Full-term Course Add/Drop Deadline
Monday-Friday	March 2-6, 2009	Midterm Week
Sunday	March 15, 2009	2009-2010 Financial Aid Application Priority Deadline
Monday-Friday	March 16-20, 2009	Spring Break (no classes)
Monday	April 6, 2009	Begin Returning Student Registration for Summer and Fall Semesters
Friday	April 10, 2009	Graduation Application Deadline for Summer 2009
Friday	April 10, 2009	Full-term Course Withdrawal Deadline
Monday	April 13, 2009	Begin Open Registration for Summer and Fall Semester
Monday-Thursday	May 4-7, 2009	Final Examinations
Thursday	May 7, 2009	Last Day of Spring Semester 2009
Saturday	May 9, 2009	Graduation (tentative date)

STUDENT CONDUCT (Aims Policy Manual #5-601) (visit www.aims.edu for additional information about this policy): Students are expected to practice academic honesty. Each student is responsible for contributing to a positive learning environment in classroom situations. Because respect for the learning process is critical, no behavior that disrupts another student's ability to learn will be tolerated.

CELL PHONE POLICY: If you have a cell phone with you in the classroom, make sure the ringer or beeper is off unless you are expecting a call due to an emergency situation. In that case, please inform the instructor in order not to disrupt the class unexpectedly.

CHILDREN ON CAMPUS (Aims Policy Manual #3-600) (visit www.aims.edu for additional information about this policy): All children on campus under the age of sixteen (16) must be under the direct supervision of a parent or legal guardian unless they are involved in a specific College-approved and supervised activity. In order to provide students with a professional and positive learning experience with minimal distractions, no children will be allowed in the classroom.

TUTORING SERVICES AND DISABILITY ACCESS CENTER:

TUTORING: Drop-in tutoring is available to all students. Interested students should visit Room 301 in Horizon Hall. Individual tutoring is available for qualified students with instructor permission.

DISABILITIES: Students with disabilities who believe that they may need accommodations in this class are encouraged to contact Supplemental Services in

Horizon Hall, Room 327, or call 339-6388 (voice or TTY) as soon as possible to ensure that reasonable accommodations are implemented in a timely fashion.

AEC 205 Assignment Schedule – Spring 2009
Tentative – Subject to Change

Week	Text Pages	Chapter Exercises Assigned
1	Chapter 1	
2	Chapter 2	2.1, 2.2, 2.3, 2.6, 2.7, 2.8, 2.10, 2.12, 2.14, 2.15, 2.20, 2.28,
3	Chapter 2, cont.	2.29, 2.30, 2.61, 2.62
4	Chapter 2, cont.	Quiz 1
5	Chapter 3 3.1, 3.2, 3.3	3.1, 3.2, 3.5, 3.6, 3.18, 3.20, 3.21, 3.34, 3.36, 3.39, 3.40, 3.41
6	Chapter 3, cont.	
7	Chapter 3, cont.	
8	Chapter 4 4.1	4.1, 4.2, 4.3, Quiz 2
9	Chapter 5 5.1-5.4	5.1, 5.2, 5.3, 5.4, 5.7, 5.9, 5.11, 5.12, 5.16, 5.17, Lab 1

- | | | |
|----|------------|--|
| 10 | Chapter 6 | 6.1, 6.2, 6.3, 6.6, 6.7, 6.8
Quiz 3 |
| 11 | Chapter 7 | 7.1, 7.2, 7.3, 7.4
7.1-7.3 |
| 12 | Chapter 8 | 8.1, 8.2, 8.4, 8.6, 8.21, 8.22,
8.1, 8.2, 8.5
Quiz 4 |
| 13 | Chapter 9 | 9.1, 9.2, 9.3,
9.1, 9.2 |
| 14 | Chapter 10 | 10.1, 10.3, 10.4
10.1, 10.2 |
| 15 | Chapter 11 | Final Exam |