

AIMS COMMUNITY COLLEGE, GREELEY CAMPUS
AEC 205
Applied Statics and Strengths of Materials (CRN #41108)
Spring Semester 2012

INSTRUCTOR: John Mangin
OFFICE LOCATION: Hansen 901.4
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OFFICE HOURS: MTWR 8-10 am 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, 4th ed.

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	95 points
Homework/Labs	460 points
Final Exam	65 points
Attendance/Participation	<u>150 points</u>
Total:	770 points – subject to change

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 3-5 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 2012 Spring Class Schedule:

Spring Semester 2012

January 17 – May 10, 2012 (77 days, includes 4 days of finals)

Tuesday	January 10, 2012	First Payment Deadline (Spring 2012 Semester)
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Pay in full or sign up for an MyPaymentPlan by 10pm this day or ALL your classes will be dropped

Tuesday - Wednesday	January 10 - February 1,	Pay in full or sign up for MyPaymentPlan SAME day of registration by 10pm or ALL your classes will be dropped.
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	2012	Drops are done every night during this period
Monday	January 16, 2012	Martin Luther King, Jr. Day (College Closed)
Tuesday	January 17, 2012	Classes Begin
Sunday	January 29, 2012	Scheduled Network Down Day. All services may be unavailable. Check the myAims login page up to a week before the scheduled day to see affected services in more detail.
Wednesday	February 1, 2012	Full-term Course Add/Drop Deadline
Friday	February 3, 2012	Professional Development for Employees (No Classes; College opens at 1pm)
Monday - Friday	February 6 - March 9, 2012	First 5-week Mini-Session
Monday - Friday	February 6 - April 20, 2012	10-week Mini-Session
Sunday	February 19, 2012	Scheduled Network Down Day. All services may be unavailable. Check the myAims login page up to a week before the scheduled day to see affected services in more detail.
Monday-Friday	March 5 – 9, 2012	Midterm Week
Monday-Friday	March 12– 16, 2012	Spring Break (No Classes)
Thursday	March 15 – 2012-2013	Financial Aid Application Priority Deadline
Sunday	March 18, 2012	Scheduled Network Down Day. All services may be unavailable. Check the myAims login page up to a week before the scheduled day to see affected services in more detail.
Monday - Friday	March 19 - April 20, 2012	Second 5-week Mini-Session
Monday	April 9, 2012	Begin Returning Student Registration for Summer and Fall Semesters
Friday	April 13, 2012	Graduation Application Deadline for Summer 2012

Monday	April 16, 2012	Full-term Course Withdrawal Deadline
Monday	April 16, 2012	Begin Open Registration for Summer and Fall Semesters
Sunday	April 22, 2012	Scheduled Network Down Day. All services may be unavailable. Check the myAims login page up to a week before the scheduled day to see affected services in more detail.
Monday-Thursday	May 7 – 10, 2012	Final Examinations
Thursday	May 10, 2012	Last Day of Spring Semester 2012 Spring Final Tuition and Fees Payment Deadline NOTE: Service fee of 1.75% will be assessed on unpaid charges and a Financial hold will be placed on the student's record until the outstanding balance is paid in full. Any registrations for future classes may be dropped due to the balance owed.
Friday	May 11, 2012	Graduation (Tentative Date)
Monday	May 28, 2012	Memorial Day (College Closed)
Friday	July 6, 2012	ALL outstanding Spring 2012 accounts and any prior terms due in full to avoid being assigned to collection agency.

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, individual, and guided study group tutoring is available to currently enrolled Aims students. For available subjects, hours, and additional questions, please call 339-6541 for Greeley, 667-4611 Ext. 3304 for Loveland, and 303-718-5905 for Fort Lupton services. Also, please visit our website at <http://www.aims.edu/student/learning-commons/tsi/index.php> for current information.

The Computer Learning Lab staff provides assistance in various disciplines, including CIS, Business Technology, Graphics Technology and various programming languages. There are a large number of computers loaded with current software available for student use. Please visit the website for additional information:
<http://www.aims.edu/student/learning-commons/complab/>

DISABILITIES: Any student who feels s/he may need an accommodation based on the impact of a disability should contact the Disability Access Services Office privately to discuss her/his specific needs. Please be aware that before most accommodations can be allowed in class they must be approved through the Disability Access Services office. Students should contact the Disability Access Services office at 970-339-6388 or disabilities@aims.edu to set up an appointment to discuss the process of requesting reasonable accommodations. We are located in the College Center in the One-Stop Shop area on the 1st floor.

AEC 205 Assignment Schedule – Spring 2012 **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 Lab 1- Tentative
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.	

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| 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 2 - Tentative |
| 10 | Chapter 6 | 6.1, 6.2, 6.3, 6.6, 6.7, 6.8
Quiz 3 |
| 11 | Chapter 7
7.1-7.3 | 7.1, 7.2, 7.3, 7.4 |
| 12 | Chapter 8
8.1, 8.2, 8.5 | 8.1, 8.2, 8.4, 8.6, 8.21, 8.22,
Quiz 4 |
| 13 | Chapter 9
9.1, 9.2 | 9.1, 9.2, 9.3, |
| 14 | Chapter 10
10.1, 10.2 | 10.1, 10.3, 10.4 |
| 15 | Chapter 11 | Final Exam |