

**Colorado School of Mines
Division of Engineering**

**EGGN 498 – Timber and Masonry Design with Applications to
“Unconventional” Materials**
Spring Semester 2006, 3 Credit Hours

Instructor: Joe Crocker, P.E., Ph.D.
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Office Hours: Monday
Tuesday
Wednesday
Thursday
Friday

Class Schedule: M W F
Room:

Course Objectives: Students will develop an understanding of the basic engineering properties of timber and masonry materials and become familiar with design methods and philosophies for timber and masonry structures. They will apply this knowledge to the design and analysis of structures constructed with “unconventional” materials (adobe, timber pole, bamboo) such as those used in constructing structures in developing countries.

Course Prerequisites: EGGN 320 – Mechanics of Materials
EGGN 342 – Structural Analysis

Course Textbooks: **Design of Wood Structures - ASD, 5th Edition**, by Breyer, Fridley, Coben, and Pollock.
Design of Reinforced Masonry Structures, 1st Edition, by Taly

Grading: The following grading scale pertains to all work. The instructor reserves the option of lowering the grading scale cutoff percentages if it is necessary to insure fair grading in the course. At the instructor's discretion, extra credit questions may be given on any quiz, exam, or homework.

90.0 – 100 → A
80.0 – 89.9 → B
70.0 – 79.9 → C
60.0 – 69.9 → D
59.9 or lower → F

The following weightings will be given to each category of a student's work to determine her/his overall grade in the course:

Average of Test Scores	40%
Average of Homework and Quizzes	40%
Project Grade	20%
Total	100%

Two tests will be given. There will be no final exam. Make-up tests will be allowed only with prior instructor approval. **If a student must miss a test, they must notify the instructor prior to the time designated for the test.** Students will be required to arrange time for the make-up test outside of regularly scheduled class time.

All tests will be open book, and each student will be allowed one page of notes. The page of notes may contain formulas, diagrams, etc., but it shall not contain any worked problems.

Students can expect to have one homework assignment due every week. Students are encouraged to collaborate on homework assignments. However, all work turned in for grading must be in the author's original handwriting and **neatly done in pencil on standard green engineering paper with pages stapled together in proper order.** Homework shall show each step of the problem solution. Answers shall be designated by double underlining. Abbreviated solutions will result in a loss of credit. Late homework will be accepted only with prior approval of the instructor and, if approval is given, must be turned in no later than one week from the original due date. The number of homework problems graded will vary. All assigned homework must be completed to receive full credit. Homework is a significant part of the grade in the course.

Quizzes will be unannounced and make-up quizzes will be allowed only with instructor approval.

Each student will complete a project as part of their grade for the class. The project will consist of a short paper and oral presentation to the class. More details for the project will be made available during lecture periods.

Solutions for tests, quizzes, and homework will be included in a solution manual that will be made available to students after assignments have been graded and returned.

Course Structure: Lecture/discussion/demonstration format. New concepts will be presented in a lecture/discussion period. Example applications will then be demonstrated.

Expectations/Outcomes for Students: Students are expected to attend class, ask questions, utilize office hours when needed, and come to class prepared. Students are expected to display academic integrity. Students should complete the course with a basic knowledge of timber and masonry design and the application of basic design concepts and calculations to alternative structural systems.

Course Outline: The following is a preliminary schedule of course activities. It is intended to serve as a general guide. Specific assignments will be given each class period. If a student must miss a class session it is their responsibility to contact the instructor for the daily assignment

Date	Topics	Book Reference
	Introduction	
	Loads	
	Structural Behavior	
	Properties of Wood	
	Wood Beam Design	
	Axial and Combined Forces	
	Horizontal Diaphragms	
	Wood Shearwalls	
	Review and Test #1	
	Properties of Masonry	
	Flexural Design	
	Walls	
	Construction Methods	
	Review and Test #2	
	Alternative Bldg. Systems	
	Project Presentations	