

Southern Polytechnic State University
CM 3260
Applied Structure II
Course Syllabus
Fall 2009

Prerequisite: CET 2200 or permission of the Instructor

Classroom: H322

Class Periods: M, W @ 8:00pm – 9:50pm

Required Text:

Formwork for Concrete by M.K. Hurd (Seventh Edition)

Soils in Construction by Schroeder and Dickenson

Recommended References: Handbook of Temporary Structures in Construction by Robert T. Ratay
Essentials of Soil Mechanics and Foundations by McCarthy (Prentice Hall)
Construction Manual-Concrete & Formwork by T.W. Love

Grading Policy

Homework	25 %
Exam I	17.5 %
Exam 2	17.5 %
Final Project	30%
Class Attendance & pop quizzes	10%
Total:	100 %

The minimum cutoff for an A is 90%; for a B is 80%; for a C is 70%; and for a D is 60%. Anything below 60% is considered an F. There will be no curve on this course only straight average.** The minimum cutoff for an A is 90%; for a B is 80%; for a C is 70%; and for a D is 60%. Anything below 60% is considered an F.

**The only grade adjustment possible will be the following: If a student is on the border of a grade (59, 69, 79, 89), the class attendance record will be used to award a 1% increase to the final grade. To earn this 1% increase, students must be present at least 75% of the meeting during the semester.

Instructor: Dr. Pavan Meadati

Office: H-338

Office Hours: Monday 11:00am to 12:00noon

Wednesday 11:00am to 12:00noon

(Other times available by appointment)

Telephone: 678-915-3715

Email: pmeadati@spsu.edu

Catalog Description

A study of structural design and analysis concepts of temporary structures used in the construction process. Topics include formwork design, scaffolding, and material handling equipment and staging.

Course Learning Objectives

This course will cover design, erection and maintenance of support and access structures used in construction work. Formwork, underpinning, falsework/shoring, dewatering, earth retaining structures, erosion control, access road and hauling will be discussed. The course will provide a basic overview of technical and business practices-ethics, construction safety, legal aspects and estimating related to temporary structures. In addition, this course will discuss about soil and concrete testing, geotechnical reports, foundations, compaction, stabilization and so on.

Learning Outcomes

The students will have ability to

- Choose right formwork under different conditions.
- Design and construct formwork for a 3 storey commercial building.
- Decide right soil and concrete for any construction based on testing.
- Identify/evaluate soil related problems and take remedial actions.

Specific Requirements for the Course:

Course Structure/Approach

Class activities will include lecture/discussion formats integrating class participation, individual problem solving, team problem solving, tests, quizzes, lab test, field trips and a final project. Assignment may include problems, library research, papers, class presentations, lab reports, projects and other special activities. Unnoticed quizzes may be given in the class.

Educational Experience

The principal general educational objectives of the course are to

- 1) provide an understanding of the design and construction processes.
- 2) basic and applied skills to carry out design and construction of temporary structures.
- 3) acquaint students with the interdisciplinary and dynamic nature of the design process.
- 4) review library, computer, analytical and communication skills.
- 5) develop a conceptual base and knowledge of engineering design and construction.
- 6) strengthen written and oral communication skills.
- 7) strengthen problem solving and analytical skills.
- 8) alert students to their professional responsibilities (ethics) as participants during the development of a project.

Lectures and Assigned Readings

The detailed list of lecture topics and assigned readings is contained in the Course Schedule and Web. The lectures provide the conceptual framework for the course and supplement (i.e., not replace) the assigned readings. It will be to the students' advantage to complete the readings before the lecture date so that questions that may arise may be discussed more fully. Students are expected to have a good understanding of the lecture and reading materials, whether they are present in class or not.

Homework

There are six (6) individual assignments and one (1) group final project. The group project is due at the end of the semester, which needs to be presented professionally in the class. The purpose of these assignments and exercises is to evaluate the students' understanding of selected concepts. Also, the assignments provide an opportunity for students to strengthen their general thinking, organizational, problem-solving, analytical and both written and oral communication skills, and their ability to work individually and in a group. This will enhance the student's performance in any type of civil engineering and construction related jobs.

The assignments simulate real-life conditions. Thus, the students' relationship with the Instructor is analogous to the relationship with a busy senior project manager/designer. Students can expect some direction and help if they are stuck with a problem, but under no circumstance will the Instructor do the work.

All students will be expected to make a reasonable effort to find solutions on their own, ask questions in a professional manner when necessary, and to hand in assignments which have a professional appearance. Professional presentation, good organization, and proper documentation are very important components of the assignment grade.

All assignments are considered *bids*, i.e., they need to be turned in by the time, date and place specified for each one or they will not receive any credit at all (i.e., 0 points).

The instructor reserves the right to make any modifications or changes to the number and type of assignments, depending on the class progress, or on any special circumstance that may arise during the semester.

The assignments will provide an opportunity to develop skills for problem solving and understanding for a real world project and also, to strengthen written and oral communication skills. Each participant is expected to contribute and get involved in the group project. Together, the submittals and the final presentation will receive a single grade.

Exams

There are two exams in the course. The exams will test the individual student's understanding of some of the principle concepts covered in the course. The exams cover material discussed in the lectures, or included in the assigned readings up to the time of the exam. If an exam is missed as a result of an excused absence, it needs to be made up. If an exam is missed as a result of an unexcused absence or being late to class, it will not receive any credit at all (i.e., 0 points).

Attendance

Students are expected to be present for every meeting of the course. It is expected that students will arrive to class on time and if expected to be absent from class, prior notification to the instructor is required (e-mails are accepted for this purpose). Students are advised, that their attendance record (e.g., excessive number of absences) is one of the criteria that will be used to decide borderline final grade cases (i.e., between A/B, B/C, C/D and D/F). Thus, a class sign-up sheet will be passed each lecture, and will become the record of the student's attendance during the semester. All absences will be considered unexcused absences, unless they are cleared with the instructor with a memorandum, submitted electronically (i.e., via Email), stating the date and reason for the absence.

Cell Phone and Personal Device Policy

The use of cell phones/PDAs/pagers during class will not be tolerated. Turn them OFF before entering class and they are to remain off until the class is completed. The classroom environment will be treated the same way as if this was a corporate meeting in a large conference room in which your boss was delivering a presentation. He/she would not tolerate their use and a "wise" young employee would probably shy away from their use in order to prevent their discharge from the firm as a result of their rudeness.

Use of cell phone/PDA/Pager/blackberry etc. during class will result in the dismissal of the student from that particular class and the receipt of a "zero" for that class's particular assignment, exercise, exam, quiz, etc. The second use of the device during class will result in the withdrawal of the student from the class by the instructor. Withdrawal of the student by the instructor after the official "drop date" will result in the grade of a "WF" for the student.

Other Requirements

Each student is expected to behave in a professional way, attending each class session, and participating in an alert, prepared, and relevant manner. Plagiarism or any form of cheating violates the academic principles and will not be tolerated.

It is advised that all students should carry health insurance and will be responsible for their own medical expenses during the field trip.

Note

Students with disabilities who believe that they may need accommodations in this class are encouraged to contact the counselor working with disabilities at (678) 915-7391 as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

Note: The outline is intended to represent the general format of class. The instructor may make changes to better suit the needs of the class.

CM 3260 Course Outline

Class	Date	Topics	Reading Assignments	Assignments Due
1	Aug 24	Introduction to Temporary Structure	Ratay Ch 1, Ch 1	None
2	Aug 26	Recent Developments/Formwork Materials	Ch 2, Ch 4	None
3	Aug 31	Loads & Pressures	Ch 5, Problems, HW-1 (Pressure Distribution) Assigned	None
4	Sep 3	Loads & Pressures	Ch 5, Problems	None
5	Sep 7	Labor Day Holiday (No Class)		
6	Sep 9	Form Design – Slab	Ch 6, Problems	HW-1
7	Sep 14	Form Design - Slab	Ch 6, Problems, HW-2 (Slab Form Design)	None
8	Sep 16	Form Design - Slab	Ch 6, Problems	None
9	Sep 21	Form Design-Wall	Ch 6, Problems	HW-2
10	Sep 23	Form Design-Wall	Ch 6, Problems	None
11	Sep 28	Form Design - Column	Ch 6, Problems, HW-3 (Column Form Design)	
12	Sep 30	Form Design - Beam	Ch 6, Problems, Assigning Final project	
13	Oct 5	Form Design-Using Tables	Ch 7, Problems	HW-3
14	Oct 7	Form Design-Using Tables	Ch 7, Problems	
14	Oct 12	Form Design-Shoring & Reshoring or Guest Lecture – I & Test-1	Test-1	Test-1
16	Oct 14	Form Design-Shoring & Reshoring	Ch 5, Ch 6, Problems, HW-4 (Shoring and Reshoring)	None
17	Oct 19	Form Design-Shoring & Reshoring	Ch 5, Ch 6, Problems	None
18	Oct 21	Formwork cost/economics/planning, Form estimating & Guest Lecture-II	Ch 3, Handout, (HW-5 Estimating)	HW-4
19	Oct 26	Building and erection of formwork	Ch 9	
20	Oct 28	Using the forms	Ch 10	HW-5
21	Nov 2	Soil Classification and Soil Testing	Handout, Problems	None
22	Nov 4	Soil Classification and Soil Testing	Handout, Problems	None
23	Nov 9	Construction dewatering	Hand out (HW-6)	
24	Nov 11	Construction dewatering, Underpinning	Hand out	HW-6
25	Nov 16	Soil compaction and stabilization	Handout	None
26	Nov 18	Test-2 , Access roads, hauling and decking,	Handout, Test-2	None
27	Nov 23	Earth retaining structures/shoring/sheeting	Handout	Test-2
28	Nov 25	Thanks Giving Holiday		
29	Dec 2	Ethics, Standards and Regulations	Handout	None
30	Dec 7	Technical and business practices and Legal aspects-Ethics	Handout	None
31	Dec 9	Protection of site, adjacent areas and utilities and Erosion Control	Ratay	
32	Dec 14	Presentations of final project	None	Final project due