

August 20, 2008

To: The Faculty of the College of Engineering
From: Division of Construction Engineering and Management
Subject: New Course

The Faculty of the Division of Construction Engineering and Management (CEM) has approved the following new course listed below. This action is now submitted to the Engineering Faculty with recommendation for approval.

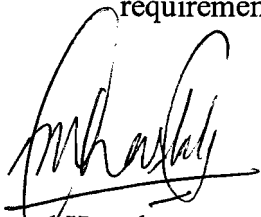
CEM 32100 Construction Planning & Scheduling

Sem. 1 & 2 Class 3, cr.3.

Prerequisite: CEM 22100 – Construction Plans & Estimates
CEM 29100 - Construction Internship II

Course Description: An investigation of the organizational planning activities in a construction organization, including basic management functions, setting goals and objectives, legal business structures, human resource management, and safety programs. An investigation of the planning activities for construction projects and detailed investigation of the scheduling techniques used in construction, including I-JCPM, Precedence, PERT, resource analysis, time-cost trade-off, and project updating. This course also offers an introduction to equipment and labor production analyses.

Reason: This course will be taught by the same instructor of the existing CEM 32100 Construction Planning & Scheduling course in fulfillment of the Construction Engineering (CNE) degree requirements. This course will be co-listed and continue to be offered in both the Spring and Fall semesters. CEM majors must enroll in this course to fulfill degree requirements.



Makarand Hastak August 20, 2008
Professor and Head

SUPPORTING DOCUMENTATION

CE 321 – CONSTRUCTION PLANNING AND SCHEDULING SPRING 2008

Instructor: Dr. Phillip S. Dunston
CIVL 1243; 765-494-0640; dunston@ecn.purdue.edu
General Office Hours: M 1000-1200; T W 1500-1600; otherwise by e-mail or appointment

Assistant: Ms Lauren M. Johnson
CIVL 1255; 494-0696; johns382@purdue.edu
Office Hours: M W 1300-1430

Course Time and Location: T Th 1330-1445 CIVL 3153

Required Text

Hinze, Jimmie (2008). *Construction Planning and Scheduling*, 3rd edition, Prentice Hall, Upper Saddle River, New Jersey.

Supplementary References

Jay S. Newitt (2005). *Construction Scheduling: Principles and Practices*, Pearson Prentice Hall

Henry Naylor (1995). *Construction Project Management: Planning and Scheduling*, Delmar Publishers.

A Vista Blackboard section of CE 321 is being set up for this course. Subsequent to the first meeting, lecture notes will be made available there.

Objective

This course provides the student with an intimate understanding of the principles, tools, and procedures used in the construction industry for project planning and scheduling, particularly network scheduling methodologies.

Expected Outcomes

By the end of this course, it is expected that, among other things, students will make gains in the following aspects of their engineering education:

- an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
- an ability to design a process to meet desired needs within realistic constraints
- an understanding of professional and ethical responsibility

Expectations and Grading

Students are responsible to keep up with the readings associated with each topic as noted on the course syllabus. A series of focused individual assignments on specific topics covered in the course will be required in addition to a term project, unannounced bi-weekly (even numbered weeks) quizzes, two (2) term exams, and a possible final comprehensive exam.

Performance Category	Percentage
Homework	25%
Quizzes	10%
Exams (2 or 3)	40%
Project (2 parts)	25%

Each individual may waive the third (final) exam, and then the first two exams will constitute 40% of the final grade.

There will be no make-ups for missed quizzes, but the lowest quiz grade will be dropped for final grading.

A curve will not be used for grading. 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 a failing grade (F).

Term Project

Teams will be assigned to complete the term project which will involve use of a commercial scheduling software. Details for the project will be provided at a later date.

Class Policy Regarding Attendance and Homework Assignments

1. Attendance is required, and subject to standard CEM and University class attendance policy as described in the following excerpt from University Regulations, Part 2, Section VI A: "Students are expected to be present for every meeting of the classes in which they are enrolled. ...All matters relative to attendance, including the makeup of missed work, are to be arranged between the student and the instructor involved." Therefore, a class sign-up sheet will be circulated during each lecture after the first week of classes and will become the record of each student's attendance during the semester. The instructor must be notified of any anticipated absences in writing (typed/word-processed memo or e-mail) and in advance, if possible, stating the date(s) and the reason for the absence. Otherwise, the absence will be noted as **unexcused**. Each student is allowed a **maximum of two (2) unexcused absences**. In addition, for seniors and graduates near the end of their program, up to a total of three (3) plant trips will be counted as excused absences. **Three (3) unexcused absences**

*will result in a grade reduction of one letter. Four (4) unexcused absences will result in a grade of "I" or "F" depending on whether or not the student is passing in all other respects at the time of the fourth absence. **NO ABSENCES WILL BE EXCUSED ON SCHEDULED EXAM DATES.***

2. All homework assignments will be completed individually. Assignments will be turned in at the **beginning** of class on the date due. It is each student's responsibility to deliver any late assignments to the **teaching assistant**.
3. Assignments that are submitted after class but by noon the following day will receive a penalty of 30%. From that point, assignments received up to one class session late will receive a penalty of 40%, and thereafter a 100% penalty. **All assignments must be submitted** in order to avoid receiving an "I" letter grade.
4. Homework should have a professional appearance, being neat, logically formatted, and legible (either on engineering paper or word processed). All final solutions should be clearly highlighted (boxed, underlined, bold etc.). Table or figure references should be clearly cited. The Grader reserves the right not to grade (0 credit for the problem) or to deduct points for messy homework.
5. Sometimes, a solution to a problem may be misunderstood. Due to the size of the class, however, only one resubmission (re-grading of a specific homework assignment) is allowed for the semester (except in the case of instructor/grader error that affects most or all of the class).
6. Questions regarding grades earned should **first** be submitted to the grader in the form of a word-processed memo.

TENTATIVE COURSE TOPIC OUTLINE				
WEEK	TOPIC	READINGS	QUIZZES*	ASSIGNMENTS**
Week 1 1/7-1/11	Introduction/Overview Developing Networks	Chapter 1 Chapter 2		
Week 2 1/14-1/18	Arrow Diagrams	Chapter 16	Q1	
Week 3 1/21-1/25	Precedence Diagrams Work Breakdown Structure	Chapter 3 Handout		
Week 4 1/28-2/1	Sequencing Activities Determining Durations	Handout Chapter 4	Q2	
Week 5 2/4-2/8	Contract Time Concepts Term Project Presentation	Chapter 5 Handout		
Week 6 2/11-2/15	Resource Management Resource Allocation	Handout Chapter 6	Q3	
Week 7 2/18-2/22	EXAM I			
Week 8 2/25-2/29	Resource Leveling Money and Time	Chapter 7	Q4	
Week 9 3/3-3/7	Money and Time Project Control	Chapter 8		
Week 10 3/10-3/14	Spring Break			
Week 11 3/17-3/21	Computer Scheduling	Chapter 9 Handout		
Week 12 3/24-3/28	Earned Value Legal Aspects of Scheduling	Chapter 10 Chapter 12	Q5	
Week 13 3/31-4/4	EXAM II (2-day exam)			
Week 14 4/7-4/11	Productivity and the Schedule Short Interval Scheduling	Chapter 11 Chapter 13	Q6	
Week 15 4/14-4/18	Multiple Projects Linear Scheduling	Handout Chapter 14		
Week 16 4/21-4/25	PERT	Chapter 15		
Week 17 4/28-5/2	FINAL EXAM week			
* Some quizzes may be cancelled due to schedule changes				
**To be determined and announced according to lecture progress				

Conference/Research Travel Dates – Tentatively, March 3-5. Updates and alternate plans will be announced.