Office of the Registrar
FORM 40 REV. 11/09

PURDUE UNIVERSITY
REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE
(10000-40000 LEVEL)

4/1-09

DEPARTMENT: Division of Construction Engineering and Management

EFFECTIVE SESSION: ~~Spring~~ 2010 ~~(201020)~~ Fall 201110

INSTRUCTIONS: Please check the items below which describe the purpose of this request.

- [x] 1. New course with supporting documents
- [ ] 2. Add existing course offered at another campus
- [ ] 3. Expiration of a course
- [ ] 4. Change in course number
- [ ] 5. Change in course title
- [ ] 6. Change in course credit/type
- [ ] 7. Change in course attributes (department head signature only)
- [ ] 8. Change in instructional hours
- [ ] 9. Change in course description
- [ ] 10. Change in course requisites
- [ ] 11. Change in semesters offered (department head signature only)
- [ ] 12. Transfer from one department to another

PROPOSED:		EXISTING:	
Subject Abbreviation	CEM	Subject Abbreviation	
Course Number	30100	Course Number	
Long Title	Project Control & Life Cycle Execution of Constructed Facilities		
Short Title	Proj ~~Contr~~ Cntrl Life Cyc Constr Fac		

Abbreviated title will be entered by the Office of the Registrar if omitted. (30 CHARACTERS ONLY)

TERMS OFFERED (Check All That Apply:)
- [ ] Summer
- [x] Fall
- [x] Spring

CAMPUS(ES) INVOLVED
- [ ] Calumet
- [ ] Cont Ed
- [ ] Ft. Wayne
- [ ] Indianapolis
- [ ] N. Central
- [ ] Tech Statewide
- [x] W. Lafayette

CREDIT TYPE
1. Fixed Credit: Cr. Hrs. 3.0
2. Variable Credit Range: Minimum Cr. Hrs ____ (Check One) To [ ] Or [ ] Maximum Cr. Hrs ____
3. Equivalent Credit: Yes [ ] No [x]

COURSE ATTRIBUTES: Check All That Apply
- [ ] 1. Pass/Not Pass Only
- [ ] 2. Satisfactory/Unsatisfactory Only
- [ ] 3. Repeatable — Maximum Repeatable Credit: [ ]
- [ ] 4. Credit by Examination
- [ ] 5. Special Fees
- [ ] 6 Registration Approval Type — Department [ ] Instructor [ ]
- [ ] 7 Variable Title
- [ ] 8 Honors
- [ ] 9 Full Time Privilege
- [ ] 10 Off Campus Experience

Schedule Type	Minutes Per Mtg	Meetings Per Week	Weeks Offered	% of Credit Allocated
Lecture	75	2	16	100
Recitation				
Presentation				
Laboratory				
Lab Prep				
Studio				
Distance				
Clinic				
Experiential				
Research				
Ind. Study				
Pract/Observ				

Cross-Listed Courses

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

Prerequisite: CEM 20100 Life Cycle Engineering and Management of Constructed Facilities
This course continues an introduction to construction management and engineering concepts for future engineers, contractors and owner representatives involved at different stages in the life-cycle of constructed facilities. Specifically, this course focuses on the principles, tools, and procedures used in the construction industry for project selection and financing, advanced planning and scheduling techniques, resource management, and project monitoring.

*COURSE LEARNING OUTCOMES

Building on the broad framework introduced in the prerequisite course, this course introduces further awareness of analytical tools and extends the basic foundation for advanced topics in construction engineering and management. Students will makes 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

	Date		Date
Calumet Department Head		Calumet School Dean	
Fort Wayne Department Head		Fort Wayne School Dean	
Indianapolis Department Head		Indianapolis School Dean	
North Central School Dean		North Central Vice Chancellor for Academic Affairs	
West Lafayette Department Head	12/29/09	West Lafayette College/School Dean	4/5/10
		West Lafayette Registrar	5/24/10

OFFICE OF THE REGISTRAR

5/28/10

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41-09

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Long Title	Project Control & Life Cycle Execution of Constructed Facilities		
Short Title	Proj Contr Life Cyc Constr Fac		

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CREDIT TYPE
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   Minimum Cr. Hrs
   (Check One) To [ ] Or [ ]
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3. Equivalent Credit: Yes [ ] No [x]

COURSE ATTRIBUTES: Check All That Apply

1. Pass/Not Pass Only	[ ]	6 Registration Approval Type	
2. Satisfactory/Unsatisfactory Only	[ ]	Department [ ]	Instructor [ ]
3. Repeatable	[ ]	7 Variable Title	[ ]
Maximum Repeatable Credit:	[ ]	8 Honors	[ ]
4. Credit by Examination	[ ]	9 Full Time Privilege	[ ]
5. Special Fees	[ ]	10 Off Campus Experience	[ ]

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Lecture	75	2	16	100
Recitation				
Presentation				
Laboratory				
Prep				
?				
ance				
Clinic				
Experiential				
Research				
Ind. Study				
Pract/Observ				

Cross-Listed Courses
CE 32200

COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):

Prerequisite: CEM 20100 Life Cycle Engineering and Management of Constructed Facilities
This course continues an introduction to construction management and engineering concepts for future engineers, contractors and owner representatives involved at different stages in the life-cycle of constructed facilities. Specifically, this course focuses on the principles, tools, and procedures used in the construction industry for project selection and financing, advanced planning and scheduling techniques, resource management, and project monitoring.

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Calumet Department Head	Date	Calumet School Dean	Date
Fort Wayne Department Head	Date	Fort Wayne School Dean	Date
Indianapolis Department Head	Date	Indianapolis School Dean	Date
North Central School Dean	Date		Date
		North Central Vice Chancellor for Academic Affairs	
West Lafayette Department Head	12/29/09 Date	West Lafayette College/School Dean	4/5/10 Date
			West Lafayette Registrar Date

OFFICE OF THE REGISTRAR

TO: The Faculty of the College of Engineering

FROM: Division of Construction Engineering and Management

RE: New Undergraduate Course CEM 30100
Project Control & Life Cycle Execution of Constructed Facilities

The faculty of the Division of Construction Engineering and Management has approved the following new course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

CEM 30100 Project Control & Life Cycle Execution of Constructed Facilities
Sem. 1 & 2, Lecture 3, cr.3.
Prerequisite: CEM 19100 – Construction Internship I and
CEM 20100 - Life Cycle Engineering and Management of Constructed Facilities

Description: This course continues an introduction to construction management and engineering concepts for future engineers, contractors and owner representatives involved at different stages in the life-cycle of constructed facilities. Building on the broad framework introduced in the prerequisite course, this course introduces further awareness of analytical tools and extends the basic foundation for advanced topics in construction engineering and management. Specifically, this course focuses on the principles, tools, and procedures used in the construction industry for project selection and financing, advanced planning and scheduling techniques, resource management, and project monitoring.

Reason: This course will be taught in fulfillment of the Construction Engineering (CNE) degree requirements. The syllabus of the course is attached. This course has been taught as CEM 497 and will be offered in both the Spring and Fall semesters. CEM majors must enroll in this course to fulfill degree requirements.

Makarand Hastak, Professor and Head
Division of Construction Engineering and Management

APPROVED FOR THE FACULTY
OF THE SCHOOLS OF ENGINEERING
BY THE ENGINEERING
CURRICULUM COMMITTEE

ECC Minutes #21

Date 3/30/10

Chairman ECC R. Cipra

CE 49700-014/CEM 49700-002
PROJECT CONTROL & LIFE CYCLE EXECUTION OF CONSTRUCTED FACILITIES

Instructor: **Dr. Phillip S. Dunston**

CIVL 1243; 765-494-0640; dunston@ecn.purdue.edu

General Office Hours: MTW 1500-1600; **otherwise by e-mail or appointment**

Teaching Assistant: **Mr. Saumyang Patel**
CIVL 1255; 494-0696; smpatel@purdue.edu

Office Hours: M W 1300-1430

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

Required Text

The collection of topics is taken from numerous sources. However, the greater part of the course is based upon readings from the following primary text:

Chris Hendrickson (1998). *Project Management for Construction: Fundamental Concepts for Owners, Engineers, Architects and Builders*, Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA 15213. Book is available online at http://pmbook.ce.cmu.edu/

Other materials to be provided or referenced later by the instructor.

Supplementary References

Halpin, Daniel W. (2005). *Construction Management*, 3rd Edition, John Wiley and Sons, Inc.

E. H. (bud) Griffis and John V. Farr (2000). *Construction Planning for Engineers*, McGraw-Hill.

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

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

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

A Vista Blackboard section is being set up for this course. Subsequent to the first meeting, lecture notes, handouts, and other selected materials will be made available there.

Objective

This course continues an introduction to construction management and engineering concepts for future engineers, contractors and owner representatives involved at different stages in the life-cycle of constructed facilities. Building on the broad framework introduced in the prerequisite course, this course introduces further awareness of analytical tools and extends the basic foundation for advanced topics in construction engineering and management. Specifically, this course focuses on the principles, tools, and procedures used in the construction industry for project selection and financing, advanced planning and scheduling techniques, resource management, and project monitoring.

Expected Outcomes

By the end of this course, it is expected that, among other things, students will makes 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

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 two (2) midterm exams and a final exam. The dates of the midterm exams will be established at least two weeks before each.

Performance Category	Percentage
Homework	25%
Midterm Exams (2)	50%
Final Exam	25%

A curve will <u>not</u> 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).

Weeks	Number of Weeks	TENTATIVE OUTLINE OF TOPICS
1-4	4	Time value of money and engineering economy
5-6	2	Construction project financing (emphasis on owner)
7-8	1	Cost of owning and operating equipment. Optimum period of ownership.
7		**Exam 1**
8	1	Cost implications of labor and the company safety record
9	1	Relationship between risk and markup for bidding purposes.
9	0.5	Relationship between markup and expected profit
10	1	Work breakdown structure
11	1	Introduction to design of operations using simulation
12-13	1	Resource management, allocation, and leveling
12		**Exam 2**
14	0.5	Cost and time control
14	0.5	Repetitive scheduling method
15	0.5	Selected problems in construction engineering
16		**Final Exam**

Class Policy Regarding Attendance and Homework Assignments

1. Attendance is required, and subject to University class attendance policy as described in the following excerpt from University Regulations, Part 2, Section VI A (http://www.purdue.edu/univregs/pages/ac_regs_pro/classes.html): "Scheduled courses allow students to avoid conflicts and reflect the University's expectation that students should be present for every meeting of a class/laboratory for which they are registered....Ultimately students are responsible for all required coursework and bear full responsibility for any academic consequences that may result due to absence.." 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.

Emergency Procedures

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor's and the student's control. Here are ways to get information about changes in this course.

- Course web page on Blackboard Vista (http://www.itap.purdue.edu/tlt/blackboard/index.cfm)
- An e-mail list has been set up for the instructor or TA to convey announcements, to the class. This list does not permit student-to-instructor or student-to-student communication. When needing to reply to any announcements, an e-mail message should be sent to either the instructor's or the TA's campus e-mail address (both shown above) as appropriate.