EFD 40-09

ice of the Registrar FORM 40 REV. 11/09

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

DEPARTMENT	Divisio	n of Construc	tion Engineerin	and Management	EFFECTIVE	SESSION Spr	ing-20	10 (201020) 2	-01110	
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6. Change in course credit/type										
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Presentation									CE 22200	
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Studio										
Distance Clinic										
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COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):										
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PURDUE UNIVERSITY REQUEST FOR ADDITION, EXPIRATION, OR REVISION OF AN UNDERGRADUATE COURSE (10000-40000 LEVEL)

DEPARTMENT Division	n of Construction Engineerin	g and Management	EFFECTIVE SESSI	ON Spring 20	010 (201020)			
INSTRUCTIONS: Please check the items below which describe the purpose of this request.								
✓ 1. New	course with supporting d	ocuments				(department head signature only)		
2. Add	existing course offered a	t another campus		8. Change in	instructional hour	6		
3. Expir	ation of a course			_	course description	n		
4. Chan	ge in course number			10. Change in	course requisites			
5. Chan	ge in course title					i (department head signature only)	
6. Chan	ge in course credit/type			12. Transfer fo	om one departme	nt to another		
חבספספפים:		EXISTING:				TERMS OFFERED		
PROPOSED: Subject Abbreviation CEN	<u> </u>	Subject Abbreviation				Check All That Apply:		
Subject Abbreviation CEIV	! ·	J SUGAL PROPERTY.			Summer	✓ Fall ✓ Spring	1	
	20100	Course Number			CAN	MPUS(ES) INVOLVED		
Course Number	20100]			Calumet	N. Central		
Life Cycle	Engineering and Man	agement of Construct	ed Facilities		Cont Ed	Tech Statewide		
Long Title Life Cycle	Engineering and man	<u></u>		······································	Ft. Wayne	₩. Lafayette		
Short Title Life Cycle	Engr Construct Fac		 		Indianapolis			
	will be entered by the Office of the	Registrar if omitted, (30 CHARACTE	ERS ONLY)					
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CREDIT	TYPE		COURSE		Check All That Apply			
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COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):								
Prerequisite: First Yea	r Engineering Curricu	lum must be complete	ed				.	
This course introduce	concepts relating to	the engineering and c	onstruction of facil	ities througho	out their life cycle	e. Topics that will be	- 1	
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Cost, time, safety and	quality concepts of co	enstruction manageme	ent relationships w	ill also be disc	cussed			
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* Understand th	e importance of safe	ety on the constructi	on site.	=		•		
 Understand th 	e principles involved	in estimating and o	controlling costs	on a constru	ction project.			
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TO:

The Faculty of the College of Engineering

FROM:

Division of Construction Engineering and Management

RE:

New Undergraduate Course CEM 20100

Life Cycle Engineering and Management 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 20100 Life Cycle Engineering and Management of Constructed Facilities

Sem. 1 & 2, Lecture 3, Cr.3.

Prerequisite: First Year Engineering curriculum completion or equivalent

Description: This course introduces concepts relating to the engineering and management of facilities throughout their life cycle. Topics that will be explored include the nature of the construction industry, construction contracts, legal and management organization of construction companies, basics of the design and construction process, as well as an introduction to the role of estimating and project scheduling. Cost, time, safety and quality concepts of construction management relationships will also be discussed.

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 a CEM 497 course 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 #

Date _

Chairman ECC

R. Cipia

CE 49700-013/CEM 49700-001 - Life Cycle Engineering and Management of Constructed Facilities

Professor:

Dr. Dulcy M. Abraham

Office:

email: dulcy@ecn.purdue.edu (best way) CIVL 1241

Office Hours: Wednesday

1:30 p.m. - 2:30 p.m.

Thursday

12:30 p.m. - 1:30 p.m.

Friday

11:30 a.m. - 12:30 p.m.

Other hours by appointment

Lectures:

Monday/Wednesday/Friday 10:30 a.m. - 11:20 a.m.

CIVL 1144

Teaching Assistants: Mr. Madhur Gupta

CIVL B147 email:

gupta1@purdue.edu

phone: 765-237-2360

Office hours: Wednesday 11:30 a.m. – 1:00 p.m.

Thursday afternoon 1:30 p.m. -3:00 p.m.

Other hours by appointment

Mr. Vivek Puri

CIVL B147 email: vpuri@purdue.edu

phone: 765-491-3216

Office hours: Tuesday 10:00 a.m. – 11:30 a.m.

Thursday 10:00 a.m. – 11:30 a.m.

Other hours by appointment

TEXTBOOK:

Halpin, D. W. (2006). Construction Management (3rd Edition). John Wiley and Sons, Inc.

CATALOG DESCRIPTION

This course introduces concepts relating to the engineering and construction of facilities through it life cycle. Topics that will be explored include the nature of the construction industry, construction contracts, legal and management organization of construction companies, basics of the design and construction process, as well as an introduction to the role of estimating and project scheduling. Cost, time, safety and quality concepts of construction management relationships will also be discussed.

OBJECTIVES OF THE COURSE

The course is designed to introduce students to the basic concepts of construction management.

By the end of this course, students should be able to:

- a) Work with construction schedules and determine which activities are critical to the timely completion of the project.
- b) Identify different types of construction contracts and specifications.
- c) Calculate the productivity of construction equipment.
- d) Calculate the costs associated with construction equipment and construction labor.
- e) Calculate the peak financial requirement for a given project based on project revenues and expenses.
- f) Understand the importance of safety on the construction site.
- g) Understand the principles involved in estimating and controlling costs on a construction project.

The course contributes to the following BSCE/BSCEM Program Objectives at Purdue University:

Technical Knowledge, Complementary Knowledge, Opportunities for Learning, and Professional Preparation.

ATTENDANCE

In accordance with Purdue University Regulations: "Students are expected to be present for <u>every meeting</u> of classes they are enrolled, (unless there is an emergency/health issue). All matters relative to attendance, including the make-up of missed work, are to be arranged between the student and the instructor involved." Any anticipated absences must be cleared with the instructors, <u>in advance</u> if possible, with a <u>word-processed memorandum</u> stating the date and the reason for the absence or <u>the absence will be considered unexcused</u>.

Failure to be present at any class <u>does not</u> relieve the student of his/her obligations for the materials covered or assigned in class. <u>NO ABSENCES WILL BE EXCUSED ON DAYS OF SCHEDULED EXAMS</u>. All assignments have to be turned in by the time and date specified or they will not receive any credit.

MAJOR CAMPUS EMERGENCY

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 control. Here are ways to get information about changes in this course. Blackboard Vista web page, my email address: dulcy@ecn.purdue.edu

READINGS AND ASSIGNMENTS

The text and supplementary materials play a major role in the presentation of the course. Students will be required to study these materials by completing the specified readings prior to a particular session.

Assignments should be turned via Blackboard in the prescribed format. Assignments are due at the beginning of class (at 10:30 a.m.) on <u>Friday of the week after which it was assigned</u> (e.g., the first homework assignment is due on <u>September 4, 2009</u>). Late assignments will not be accepted, and hence will receive no credit. Students should attempt the homework assignments by themselves BEFORE approaching the teaching assistants and the professor for additional assistance.

EXAMS

There are three exams (2 exams during the semester, 1 final exam) in the course. The exams cover material discussed in the lectures or included in the assigned readings up to the time of the exam. The final exam will be cumulative.

GRADING

	Total	100%
*	Final Exam	30%
*	Exam No. 2	20%
*	Exam No. 1	20%
*	Assignments	30%

There will be <u>no curve</u> for the final grade, only straight averages. The ranges for grades are as follows:

Above 90.0 - A; 86.5 - 89.9 - A-83.5 - 86.4 - B+; 80.0 - 83.4 - B; 76.5 - 79.9 - B-73.5 - 76.4 - C+; 70.0 - 73.4 - C; 66.5 - 69.9 - C-60.0 - 65.4 - D; Below 60 - F

All matters relating to grading have to be presented through a word-processed memo, addressed to Professor Abraham and the teaching assistants. The teaching assistants will first review the memo, and will present their recommendation to Professor Abraham. The final and binding decision will be made by Professor Abraham and the teaching assistants. If there are any further unresolved questions regarding the grading issue, they can be directed to the Head of the School of Civil Engineering.

Topics covered in CE 49700-013/CEM 49700-001 – Life Cycle Engineering and Management of Constructed Facilities

- The construction industry and its stakeholders
- Life cycle of a constructed facility (identification of need through its operation in perpetuity, renewal or decommissioning)
- Use of life-cycle matrix)

(2 weeks)

- Project delivery systems
- Construction contracts (impact on risk and cost)
- Project organization structures

(2 weeks)

• Estimating at different phases (preliminary, parametric, engineer's, bid estimate, change order estimate)

(2.5 weeks)

- Project planning and scheduling (Critical path method, resource use over time) (1.5 weeks)
 - Project cash flow and company cash flow

(1.5 weeks)

- Construction equipment performance and cost considerations of heavy construction equipment
- Resource cycles, production rates of different operations

(1.5 weeks)

• Safety during construction (Prevention through Design (PtD), linking safety with productivity of construction operations and costs)

(1.5 weeks)

• Labor relations/construction labor costs

(1 week)

 Quality during life cycle (emphasis on work and material specifications, total quality control)

(0.5 week)

Construction cost control

(0.5 week)

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