### Request for Addition, Expiration, or Revision of an Undergraduate Course
(10000-40000 Level)

**Department:** Civil Engineering  
**Effective Session:** Fall 2011

**PROPOSED:**
- **Subject Abbreviation:** CE  
- **Course Number:** 32201
- **Long Title:** Project Control and Life Cycle Execution of Constructed Facilities
- **Short Title:** Proj Ctrl/Life Cyc Constr Fac

**TERMS OFFERED:**
- **CAMPUS(ES) INVOLVED:**
  - Calumet
  - W. Lafayette
  - N. Central
  - Tech Statewide
  - Ft. Wayne

**CREDIT TYPE:**
1. Fixed Credit: Cr. Hrs. 3
2. Variable Credit Range:
   - **Minimum Cr. Hrs:** (Check One) To
   - **Maximum Cr. Hrs:** Yes
3. Equivalent Credit: Yes

**COURSE ATTRIBUTES:**
- 6 Registration Approval Type
- 7 Variable Title
- 8 Honors
- 9 Full Time Privilege
- 10 Off Campus Experience

**Schedule Type:**
- Lecture: 50
- Meetings Per Week: 3
- Weekly Offered: 16
- % of Credit Allocated: 100%

**COURSE DESCRIPTION:**
The objective of this course is to continue 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 develops further ability with 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. Prerequisite: CE 22200

**COURSE LEARNING OUTCOMES:**
1. Demonstrate an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
2. Demonstrate an ability to design a process to meet desired needs within realistic constraints

---

**Signatures:**
- **Calumet Department Head:**  
- **Calumet School Dean:**  
- **Fort Wayne Department Head:**  
- **Fort Wayne School Dean:**  
- **Indiana Department Head:**  
- **Indiana School Dean:**  
- **North Central Faculty Senate Chair:**  
- **Vice Chancellor for Academic Affairs:**  
- **West Lafayette Department Head:**  
- **West Lafayette College School Dean:**  
- **West Lafayette Registrar:**

**OFFICE OF THE REGISTRAR**
TO: The Faculty of the College of Engineering

FROM: The Faculty of the School of Civil Engineering

RE: Cross-Listing Approval of CE 32201 with CEM 30100 Project Control and Life Cycle Execution of Constructed Facilities

The Faculty of the School of Civil Engineering has approved the cross listing of the following course for a permanent course number. This action is now submitted to the Engineering Faculty with a recommendation for approval.

CE 32201 Project Control and Life Cycle Execution of Constructed Facilities
Sem. 1 & 2, Lecture 3, Cr.3.
Prerequisite: CE 22200 - 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 develops further ability with 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 new course is being cross-listed with CEM 30100 in conjunction with changes in the Construction Engineering and Management curriculum. The course has been offered as CE 49700-014/CEM 49706-002 in Fall 2009, Spring 2010, Fall 2010, Spring 2011, Fall 2011 with an average enrollment of 22 for CE 49700-014 and 12 for CEM 49700-002.

M. Katherine Banks
Bowen Engineering Head and Professor
School of Civil Engineering

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 10/17/11

Chairman ECC K. Cipra
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:


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

Supplementary References


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 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

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.

<table>
<thead>
<tr>
<th>Performance Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm Exams (2)</td>
<td>50%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>25%</td>
</tr>
</tbody>
</table>

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).
<table>
<thead>
<tr>
<th></th>
<th></th>
<th>Time value of money and engineering economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-6</td>
<td>2</td>
<td>Construction project financing (emphasis on owner)</td>
</tr>
<tr>
<td>7-8</td>
<td>1</td>
<td>Cost of owning and operating equipment. Optimum period of ownership.</td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Exam 1</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>Cost implications of labor and the company safety record</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Relationship between risk and markup for bidding purposes.</td>
</tr>
<tr>
<td>9</td>
<td>0.5</td>
<td>Relationship between markup and expected profit</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>Work breakdown structure</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>Introduction to design of operations using simulation</td>
</tr>
<tr>
<td>12-13</td>
<td>1</td>
<td>Resource management, allocation, and leveling</td>
</tr>
<tr>
<td>12</td>
<td></td>
<td>Exam 2</td>
</tr>
<tr>
<td>14</td>
<td>0.5</td>
<td>Cost and time control</td>
</tr>
<tr>
<td>14</td>
<td>0.5</td>
<td>Repetitive scheduling method</td>
</tr>
<tr>
<td>15</td>
<td>0.5</td>
<td>Selected problems in construction engineering</td>
</tr>
<tr>
<td>16</td>
<td></td>
<td>Final Exam</td>
</tr>
</tbody>
</table>
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 “F” 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 “F” 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/lti/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.