PURDUE
UNIVERSITY

DIVISION OF CONSTRUCTION
ENGINEERING AND MANAGEMENT

Engineering Faculty Document No. 13-18

To: The Faculty of the College of Engineering

From: The Division of Construction Engineering & Management

Date: February 21, 2018

RE: New course in the Construction Engineering & Management curriculum (B.S. CNE)

The faculty of the Division of Construction Engineering & Management has approved a new course entitled CEM 45600: "Design-Build Project Delivery Method" as part of the B. S. CNE curriculum. This course provides an additional technical elective for CNE undergraduate courses.

The course goals and learning objectives are fully detailed in the attached supporting documents and are briefly summarized here as:

The course is designed to introduce students to tools and the basic foundation for design-build project delivery including variations that may also include operation and maintenance of the capital construction project. Essential factors of the design-build method will be studied in depth.

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

a) Describe the attributes of all major project delivery methods, procurement methodologies, and contracting approaches;
b) Identify the appropriate project delivery method based on owner requirements;
c) Evaluate the attributes of design-build project delivery;
d) Assess the critical elements of the request for qualifications/request for proposals (RFQ/RFP) process and overall project management for design-build projects;
e) Understand the risk management and contract implications of a design-build project versus other project delivery methods;
f) Apply the attributes learned in this course to case studies; and
g) Be prepared to be a meaningful participant on a real design-build project.

This course has been taught as CEM 49700 during spring semesters of 2017 and 2018. It is one of several courses for CEM undergraduate students to meet the two (6 credit hours) technical electives required for graduation with a B.S. in Construction Engineering & Management.

Makarand Hastak, Professor and Head
Division of Construction Engineering & Mgmt.

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CEM - 45600 - Design-Build Project Delivery Method For Engineers

2018-2019 Course Create New Undergraduate

General Course Information

Originating Campus* [x] West Lafayette [ ] Northwest [ ] Fort Wayne [ ] IUPUI

College/School* College of Engineering - WL

Department* -Division of Construction Engineering and Management - WL

Course Numbers: All course numbers may only be used once for a course in order to allow our repeat course audit to work properly. Before submitting a form for a new course or renumber, please make sure the course number is available. Please remember Purdue now uses 5-digit course numbers to allow more options for the departments.

Contact Bettie Cole for available course numbers. bjcole@purdue.edu

Proposed Effective Term* Spring 2019

Proposed Subject Code* CEM

Proposed 5 digit course #* 45600

Long Title* Design-Build Project Delivery Method For Engineers

Short Title (max 30 characters) Design-Build Project Delivery Method

Terms offered (Select all that apply) [ ] Fall [x] Spring [ ] Summer

Credit Hour Guidelines: Purdue's credit hour guidelines are provided below.http://www.purdue.edu/registrar/documents/forms/Credit_Hr_Guidelines.pdf Please use the following two options to specify if the course credit is fixed or variable:

Option #1: Fixed Credit Hours

Proposed Credit Hours	3

Option #2: Variable Credit Range

Minimum	
Variable Credit	○ To ○ OR
Maximum	
Course Repeat Status	☐ Course may be repeated ☑ Course may not be repeated
If repeatable:	☐ Unlimited Amount of times ☐ Maximum Repeatable Credit Amount
Maximum Credit Amount	
Grade modes (Select all that apply)	☑ Regular Grade ☐ Pass/No Pass Option ☐ Audit ☐ Satisfactory/Unsatisfactory

If this course is crosslisted, navigate to the crosslisting icon in the Proposal Toolbox.

Click on 'Add Crosslisting'
Select the proposal that has (crosslisting) after the course title
Update any fields that pertain to the crosslisted course
Save your changes
Navigate back to the Primary proposal by clicking on the 'View Primary' icon in the top left corner of the proposal

Crosslisted Course/ Equivalent Course	

Course Fees: The following fees are provided on the form: Coop, Lab, and Rate Request. In order to ensure the accurate fee is assessed on a course, the Bursar's Office would like to have an explanation included with the form along with the business manager's contact information if additional information is needed.

Additional Fees:
- ( ) Yes
- (•) No

Explanation of fees

Registration Approvals
- [ ] Department
- [ ] Instructor

Attributes: (Select all that Apply)
- [ ] Variable Title
- [ ] Honors
- [ ] Full-Time Privileges
- [ ] Half-Time Privileges
- [ ] Internship
- [ ] Coop
- [ ] Parallel Coop
- [ ] Credit by Exam

Schedule Types/Credit Hours: The following links will provide explanations of the schedule types and credit hours to assist in assigning accurate types to a course.
Schedule Type Classifications
Credit Hour Guidelines

Use the following instructions to add each schedule type for the course in the text box. Examples are listed below.

Schedule Types: Lecture (LEC), Recitation (REC), Presentation (PRS), Laboratory (LAB), Lab Prep (LBP), Studio (SD), Distance Learning (DIS), Clinic (CLN), Experiential (EX), Research (RES), Individual Study (IND), Practice Study Observation (PSO)
Minutes per Meeting
Number of Meetings per week
Weeks per term

Examples: (3 credit course) LEC/50min per mtg/3mtgs per wk/16 wks per term OR (3 credit course with Lecture and Lab) LEC/50/2/16 and LAB/100/1/16

Proposed Schedule Type: LEC/75 min per mtg/2mtgs per wk/16 wks per term

Restrictions:
If restrictions are being requested, please provide the proper Banner codes (major, program etc.) to ensure all are accurately reflected on the course. All codes may be found on our website under Advisors/Active PWL Major Programs, and Active PWL Minors links:

Restriction Types: major, program or school codes; never use more than one

Use the words "and" or "or" when filling out form instead of commas

Restrictions List: Department, Field of Study, Class, Level, Degree, Program, Campus, College

Proposed Restrictions:	Completion of CEM 201/CE 222 with a grade of C- or better or permission of instructor.

Requisites:
Requisite information can only be selected from active offerings.

Co-requisite courses are always required to be taken at the same time

Concurrent prerequisite courses may be taken during the same semester or in a previous term

600-level prerequisites are not enforced, they are added to description as informational text

If there is an equivalent course the department would like listed with the prerequisties, that specific course will need to be specified on the form in order to have it enforced through the system.

Pre-Requisites: D- equals the lowest passing grade, unless otherwise noted	

Co-Requisites

Course Information:

Course Description*

This course presents traditional project delivery methods and contrasts them with design-build project delivery. The course focuses on the principles, tools, and procedures used in the design-build project delivery method. It provides students with sufficient education to become certified (following additional examination) by the Design Build Institute of America as an Associate Member and dependent on employment experience, a full Member. Traditional project delivery methods, Design-Bid-Build, Construction Manager as Agent, 'Fast Track', and other 'rip and read' methods are losing popularity to project delivery methods that take a more collaborative approach. Collaboration requires a different way of thinking about a capital construction project and working with others in project delivery. Constructors must move from a transactional, arms-length relationship where the project is viewed as a low-price commodity to a full-suite delivery of services resulting in a high-value product. This requires collaboration with the Owner and other members of the project delivery process, something that has been missing from traditional project delivery methods.

Active student participation is required. Student participation will be facilitated through assigned presentations, in-class projects, field trips to local projects, and guest lectures.

Students who complete the course and achieve DBIA's minimum requirements (Fundamentals of Project Delivery, Principles of Design-Building Project Delivery, Post Award, and Contracts & Risk Management) will be eligible for recognition by DBIA.

Learning Outcomes

The course is designed to introduce students to tools and the basic foundation for design-build project delivery including variations that may also include operation and maintenance of the capital construction project. Essential factors of the design-build method will be studied in depth.

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

Describe the attributes of all major project delivery methods, procurement methodologies, and contracting approaches;
Identify the appropriate project delivery method based on owner requirements;

Evaluate the attributes of design-build project delivery;
Assess the critical elements of the request for qualifications/request for proposals (RFQ/RFP) process and overall project management for design-build projects;
Understand the risk management and contract implications of a design-build project versus other project delivery methods;
Apply the attributes learned in this course to case studies; and
Be prepared to be a meaningful participant on a real design-build project.

Additional Course Information (if needed)

Students will be assigned several small projects throughout the semester that will focus on different aspects/concepts of Design-Build project delivery. Following some projects students are expected to make at least one presentation (5 – 10 minutes in length) about solutions, approaches, and learning. The presentation will either be individual or group (all students in the group must participate in the presentation). Presentations will be graded on the basis of: subject matter knowledge, organization, time, presentation skills (expression, elocution, engagement, poise, text, and graphics), and mechanics.

Syllabus - Attach using the directions below:

Navigate to the Proposal Toolbox at the top of the right side.
Select the "Add Files" button
Upload file to be attached.

Validate and Launch Proposal once you have completed all fields:

Click "Save All Changes"
Click on the arrow at the top of the page to launch the proposal. (Only launch the proposal after completing all necessary fields.)
The proposal will now be sent on for approvals.

WL Catalog Use Only

Catalog Ownership Division of Construction Engineering and Management

Course Type Construction Engineering and Management