

**TO:** The Faculty of the College of Engineering  
**FROM:** The Faculty of the Division of Construction Engineering and Management  
**RE:** New Course - CEM 45500 Temporary Structures in Construction

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.

**Course no.** **CEM 45500 Temporary Structures in Construction**  
Semester 1, Lecture 1, Cr. 3  
Prerequisite: CE 37100, CE 38300

**Description:** CEM 45500 will cover the design and construction of various temporary structures and systems used in building and transportation construction. The course describes not only design issues of temporary structures such as formwork, falsework, bracing, earth retention systems, scaffolding, cofferdams, and so forth by providing lectures and design examples, but it also covers business aspects associated with the design and construction of temporary structures in the real world such as business practice, legal aspects, and design philosophy.

**Reason:** CEM 45500 has been offered since the spring of 2011 as CEM 49700 Temp Structures Construction. The experimental version has been a Technical Elective and the Faculty has determined the course should be assigned a permanent course number for inclusion in the Plan of Study in Construction Engineering as a Technical Elective.



Makarand Hastak, Ph.D., PE, CCP  
Professor and Head of Construction Engineering and Management  
Professor of Civil Engineering

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

**ECC Minutes** 4/29/14

**Date** 4/29/14

**Chairman ECC** J. J. [Signature]

## CEM 497 – Temporary Structures in Construction

Instructor: Bob McCullough Ph.D. P.E., PTC B2-103, 494-0643, [bgm@purdue.edu](mailto:bgm@purdue.edu).

This course covers the design and construction of various temporary structures and systems used in building and transportation construction. The course describes not only design issues of temporary structures such as formwork, falsework, bracing, earth retention systems, scaffolding, cofferdams, and so forth by providing lectures and design examples, but it also covers business aspects associated with the design and construction of temporary structures in the real world such as business practice, legal aspects, and design philosophy. Course content, assignments, quizzes, and tests will be online through a course website and twice-a-week classes.

The class website address is <http://rebar.ecn.purdue.edu/cem497>. All course content is located on the website.

The course is a design course. Students will be expected to learn design procedures for the various systems shown below.

Those interested in obtaining a professional engineering (PE) license will see some of these topics on the PE exam.

Below is the list of course topics that will be covered:

- Business Practices
- Legal Aspects
- Design Philosophy
- Codes & Standards - Design Loads During Construction (ASCE Design Standards)
- Construction Equipment Loads
- Timber Design
- Wind Loads
- Formwork Design
- Slip Forming
- Shoring
- Scaffolding
- Cofferdams
- Sheeting
- Braced Excavations
- Under Pinning & Shoring
- Bracing & Guying
- Bridge Construction
- Masonry Construction
- Dewatering

Time: Tuesday, Thursday 1:30=2:45 , ARMS 1103

Lectures will be in digital format and use the web tool paperlessMe. You will find it useful to bring a laptop or tablet to class. All content and lectures will be delivered in digital format.

Recommended Prerequisites:

CE 371 – Structural Analysis  
CE 383 - Geotechnical Engineering I  
CE 470 - Structural Design in Metals

Grade Criteria:        Quizzes - 60% (Lowest quiz score will be dropped.  
                                 See course calendar for quiz schedule. Schedule may vary.)  
                                 Class Exercises – 7%  
                                 Project - 13% (Group project)  
                                 Final - 20%

There will be homework, but no credit is given. It is highly recommended that you complete the homework assignments because the majority of the quizzes will be based off the homework.

The semester project description will be provided after Spring Break.

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. Changes to the course will be reflected on the course web site. You may email me at [bgm@purdue.edu](mailto:bgm@purdue.edu) and my office phone is 494-0643.

Class rules:

1. No food
2. No drink
3. No newspapers or magazines
4. No cell phone use including texting

The objective of the class is to develop an understanding on design and performance of these various systems. With this knowledge comes understanding of the importance and value of these systems and the responsibilities that you will carry in your professional career.

CEM 45500

Office of the Registrar  
FORM 40 REV. 5/11

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

2015 10

EFD 47-14

DEPARTMENT Construction Engineering and Management EFFECTIVE SESSION Fall 2014 (201510)

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

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

<b>PROPOSED:</b> Subject Abbreviation <u>CEM</u> Course Number <u>45500</u> Long Title <u>Temporary Structures in Construction</u> Short Title <u>Temp Structures Construction</u>		<b>EXISTING:</b> Subject Abbreviation _____ Course Number _____		<b>TERMS OFFERED</b> Check All That Apply: <input type="checkbox"/> Summer <input type="checkbox"/> Fall <input checked="" type="checkbox"/> Spring
<b>CAMPUS(ES) INVOLVED</b> <input type="checkbox"/> Calumet <input type="checkbox"/> N Central <input type="checkbox"/> Cont Ed <input type="checkbox"/> Tech Statewide <input type="checkbox"/> Ft. Wayne <input checked="" type="checkbox"/> W. Lafayette <input type="checkbox"/> Indianapolis				

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

<b>CREDIT TYPE</b> 1. Fixed Credit: Cr. Hrs. <u>3</u> 2. Variable Credit Range: Minimum Cr. Hrs _____ (Check One) To <input type="checkbox"/> Or <input type="checkbox"/> Maximum Cr. Hrs _____ 3. Equivalent Credit: Yes <input type="checkbox"/> No <input type="checkbox"/>	<b>COURSE ATTRIBUTES: Check All That Apply</b> 1. Pass/Not Pass Only <input type="checkbox"/> 2. Satisfactory/Unsatisfactory Only <input type="checkbox"/> 3. Repeatable <input type="checkbox"/> Maximum Repeatable Credit: _____ 4. Credit by Examination <input type="checkbox"/> 5. Fees <input type="checkbox"/> Coop <input type="checkbox"/> Lab <input type="checkbox"/> Rate Request <input type="checkbox"/> Include comment to explain fee _____	6 Registration Approval Type <input type="checkbox"/> Department <input type="checkbox"/> Instructor <input type="checkbox"/> 7 Variable Title <input type="checkbox"/> 8 Honors <input type="checkbox"/> 9 Full Time Privilege <input type="checkbox"/> 10 Off Campus Experience <input type="checkbox"/>
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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

RECEIVED

APR 29 2014

OFFICE OF THE REGISTRAR

**COURSE DESCRIPTION (INCLUDE REQUISITES/RESTRICTIONS):**  
 CEM 455500 will cover the design and construction of various temporary structures and systems used in building and transportation construction. The course describes not only design issues of temporary structures such as formwork, falsework, bracing, earth retention systems, scaffolding, cofferdams, and so forth by providing lectures and design examples, but it also covers business aspects associated with the design and construction of temporary structures in the real world such as business practice, legal aspects, and design philosophy. Prerequisite: CE 37100, CE 38300.

**\*COURSE LEARNING OUTCOMES**  
 The objective of the class is to develop an understanding of design and performance of these various systems. With this knowledge comes understanding of the importance and value of these systems and the responsibilities that you will carry in your professional career.

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 Faculty Senate Chair	Date	Vice Chancellor for Academic Affairs	Date
West Lafayette Department Head	Date	West Lafayette College/School Dean	Date
		West Lafayette Registrar	Date

*[Signatures and dates: 3/24/14, 5/15/14]*

OFFICE OF THE REGISTRAR

LLM 5/11/14