

To: The Engineering Faculty
From: Division of Construction Engineering and Management
Re: CEM 45700

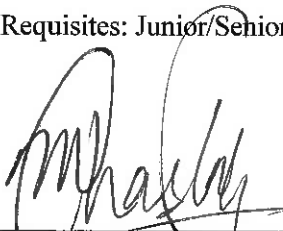
The Division of Construction Engineering and Management has approved the following new undergraduate course, now submitted to the Engineering Faculty with a recommendation for approval.

- 1) Inland Navigation Engineering
- 2) CEM 45700
- 3) 3 credit hours, lecture
- 4) This course teaches detailed elements of Inland Navigation Structures, primarily in the United States. Students will become familiar with how waterways are conceived, planned, designed and constructed. Engineering Design Manuals for Locks and Dams will be reviewed. A primary focus will be on a new Corps of Engineers Lock and Dam currently under construction. The students will thoroughly review the Plans and Specifications as well as Construction Photos and Videos taken during construction. Various marine construction equipment and techniques will be presented.
- 5) This course represents one of several technical electives available to Construction Engineering and Management students. There are two (6 credit hours) technical electives required for graduation with a BSCNE.

Reason: This course provides exposure to a construction industry area with technical requirements that are unique and requires a clear understanding a several fundamental engineering topics including: concrete structures, construction scheduling, hydraulics, project controls, statics, and temporary structures.

Supplemental Information:

- 1) Syllabus – see attached
- 2) The course has been taught as CEM 49700-011 two times before.
- 3) Prior course enrollments: Spring 2019 – 17
Fall 2017 - 8
- 4) Requisites: Junior/Senior standing in CEM



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

TOPICS COVERED

- Site selection
- Hydraulic and Hydrologic considerations
- Sheet Pile Cellular Cofferdam construction
- Lock and Dam Construction including:
 - Types of Lock Gates (Miter, Sector, Vertical Lift)
 - Lock Filling and Emptying System (Culvert Valves)
 - Lock Operating Machinery
 - Types of Dam Gates (Tainter, Roller, Sector, Wicket, Sluice, etc.)
 - Dam Configuration (Size, type and number of Gates, Spillway Design, etc.)
 - Dam Operating Machinery
 - Electrical, Mechanical and Hydraulic Systems
- Marine Construction Techniques
- Fabrication, Transportation and Installation of 300 - 700 Ton Structural Steel Lock and Dam Gates
 - Operating Machinery and Access Bridge Construction
 - Site Access (roads, bridges), Control Buildings, etc.
 - Dewatering of Cofferdams

ATTENDANCE

In accordance with University Regulations, Part 2, Section VI A, effective Fall Semester 1999, " ... Students are expected to be present for every meeting of classes they are enrolled. ...All matters relative to attendance, including the make-up of missed work, are to be arranged between the student and the instructor involved."

Failure to be present at any class does not relieve the student of his/her obligations for the materials covered or assigned in class.

LECTURES AND ASSIGNED READINGS

The detailed list of lecture topics and assigned readings is contained in the Course Schedule. The lectures provide the conceptual framework for the course and supplement (i.e., not replace) the assigned readings. The student is expected to have a good understanding of the lecture and reading materials, whether they are present in the class or not.

QUIZZES

There will be a several quizzes to be announced, covering the course material for that period. Quizzes missed as a result of an "unexcused" absence CANNOT be made up.

HOMEWORK

Homework covering lecture topics will be assigned during the course.

CEM 497-011 – Fall 2017 Inland Navigation Engineering

EXAMS

There are **three (3) exams** in the course. The exams will test the individual student's understanding of some of the principal concepts covered in the course. The exams cover material discussed in the lectures or included in the assigned readings up to the time of the exam. Each exam will include two sections (a) a closed book section, and (b) an open-book section. **No absences will be excused on the days of exams.**

GRADING

*	Quizzes	20%
*	Homework	30%
*	Exams	<u>50%</u>
	Total	100%

There will be no curve for the final grade. 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 an F.

PROCEDURE IN THE EVENT OF A 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. Here are ways to get information about changes in this course. Blackboard Vista web page, my email address: vgervais@purdue.edu, and my office phone: 494-0642. To obtain updates regarding an ongoing emergency, and to sign up for Purdue Alert text messages, view www.purdue.edu/ea