

CEE 4990 Special Problems: Forensic Engineering

Elective Course – Last offered Spring 2012

Catalog Description:

Credit 1 to 4 per semester. Maximum 18.

Prerequisite: Approval of Departmental Chairperson. Current topics in the student's area of interest.

May not be repeated to improve a grade.

Proposed CEE 4910 Catalog Description:

Lec. 3. Credit 3. Prerequisite: CEE 3030 and CEE 3320. Forensic case studies related to civil engineering.

Math & Basic Sciences: 0 credits

Engineering Topics: 2 credits

General Education: 0 credits

Other: 1 credits

Course Coordinator: Benjamin Mohr

Updated: 02/21/14

Contains significant design

Text Book(s) and Supplemental Material(s):

N.J. Delatte, *Beyond Failure: Forensic Case Studies for Civil Engineers*, ASCE, 2009.

Course Goal(s):

To provide practical insight into structural engineering, geotechnical engineering, and civil engineering materials through the examination of failures. To learn better engineering practices through the study of failures

Instructional Outcomes for the Course:

Students will be expected to:

1. Understand the role of communication in engineering design and construction
2. Understand the role of ethics in engineering design and construction
3. Understand the role of redundancy in engineering design and construction
4. Understand the critical nature of connections in engineering failures
5. Understand the process of forensic investigation

Criterion 3 Student Outcomes addressed by this Course:

- (3f) an understanding of professional and ethical responsibility (Level 3)
- (3h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context (Level 3)
- (3i) a recognition of the need for, and an ability to engage in life-long learning (Level 2)
- (3j) a knowledge of contemporary issues (Level 3)

Program Criteria addressed by this Course:

- Explain basic concepts in management, business, public policy, and leadership (Level 3)
- Explain the importance of professional licensure (Level 3)

Course Topics:

1. Issues Related to Forensic Engineering (10%)
2. Failures due to Ethics (15%)
3. Failures due to Structural Design (15%)
4. Failures due to Construction (15%)
5. Failures due to Metals (Materials) (10%)
6. Failures due to Concrete (Materials) (10%)
7. Failures due to Soils/Rock (Materials) (15%)
8. Failures due to Environmental Conditions (10%)

Additional Topics/Assignments for dual-level (4000/5000) courses:

N/A