New Course EFD Template

PURDUE UNIVERSITY | College of Engineering

Engineering Faculty Document
No.: 16-26
April 18, 2025

TO: The Engineering Faculty

FROM: The Faculty of the Lyles School of Civil and Construction Engineering

RE: New graduate course – CE 52801 Analysis and Mitigation of Risk in Construction

The Faculty of the Lyles School of Civil and Construction Engineering has approved the following new graduate course. This action is now submitted to the Engineering Faculty with a recommendation for approval.

FROM (IF ALREADY OFFERED WITH TEMPORARY NUMBER):

CEM 59700: Risk Management in Construction

Spring

3 total credits; Online

TO:

CE 52801: Analysis and Mitigation of Risk in Construction

Spring

3 total credits; Residential and Online

No pre-requisites

This course provides an overview of risk analysis and mitigation in construction, specifically risk associated with different stages of a project life cycle. The course provides an overview of (1) risk analysis and identification; (2) risk assessment, and (3) risk mitigation. Individual graded assignments, term exams, and a term group project will be required.

RATIONALE:
This course is designed to introduce students to the concepts of construction risks identification, risk analysis, risk management, and risk mitigation. The course provides fundamental construction project management information that practitioners need to have and sustain a successful construction business.

Head/Director of the Lyles School of Civil and Construction Engineering

Link to Curriculog entry: https://purdue.curriculog.com/proposal: 33214/form

CE 52801
RISK MANAGEMENT IN CONSTRUCTION
(PROPOSED NEW TITLE: Analysis and Mitigation of Risk in Construction)

Semester:_____ Year:_____

Professor: Makarand Hastak
Office: CIVL 1239
Telephone: 494–0641
Email: hastak@ecn.purdue.edu
Office Hours:

TIME	PLACE	CREDITS
		3 Credits

ABSTRACT

This course provides an overview of risk analysis and mitigation in construction, specifically risk associated with different stages of a project life cycle. The course provides an overview of (1) risk analysis and identification; (2) risk assessment, and (3) risk mitigation. Individual graded assignments, term exams, and a term group project will be required. There is No Final Exam.

TEXT

There is no textbook for this course. However, reading material for selected topics in the course will be announced or handed out in class.

DESCRIPTION

The course includes a combination of lectures, software presentations, assigned readings, individual assignments, a term group project, 2 term exams, and a project presentation. The detailed list of lecture topics is contained in the Course Schedule (Handout 2). The overall structure of the course has four tracks: (i) **Introduction to risk management**. This track will provide an overview of risk management, probability and severity concepts, as well as introduction to decision analysis and its role in risk management, (ii) **Risk Analysis and Identification**. This track will provide an in-depth analysis of risk involved at various stages of a project life cycle, (iii) **Risk Assessment**. This track will discuss various tools and techniques available to assess risk and to develop customized risk assessment/management solutions, and (iv) **Risk Mitigation.** This track will focus on tools and techniques for risk mitigation including strategic planning, profitability assessment, risk transfer, etc.

Individual Assignment

There are **two assignments** to be completed individually. However, students are encouraged to collaborate with each other, as long as the integrity of the student's individual work and contribution is maintained. The assignments will require students to (i) document the risk assessment procedure used by a public/private agency, and (ii) identify and document five models/tools developed in the last 10 years for risk management along with copies of the references used. Students are encouraged to use the internet to do

independent research. Professional presentation, good organization, and proper documentation are very important components of the assignment grade.

The due dates for each assignment are listed in the course schedule (Handout No. 2). Each assignment represents **10%** of the student's final grade. ***Please refer to Special Policy 1: late submissions***

Term Group Project

There is one (1) term group project, which will be completed throughout the semester. Groups will be composed of three (3) or four (4) students per group. Students will be given the option to organize their own groups. Students without groups will be assigned to a team by the instructor. All instructions and relevant material for the term group project will be handed out at the scheduled date.

The group project includes a proposal, **five** (5) Submittals and **one** (**1**) Final Oral Presentation. Each submittal will receive a single group grade. However, the individual grade of each student depends on his/her peer evaluation of the student's work within the team (***refer to Special Policy 2***). The final presentation will be evaluated by the peer groups.

The term group project submittals need to be turned in by the date and time they are due (***refer to Special Policy 1: late submissions***). The term group project represents **50%** of the student's final grade. The breakdown of the term group project grade is as follows:

Submittal No. 1 – Proposal	*5%*
Submittal No. 2 – Feasibility Study and Analysis	*10 %*
Submittal No. 3 – Progress Report	*15 %*
Submittal No. 4 – Peer Review & Critique	*5%*
Submittal No. 5 – Documentation	*10 %*
Final Oral Presentation & Critique	*5%*

Term Exams

There are 2 term exams in the course. The exams will cover material discussed in the **lectures** and in **software/tool presentations**. Each exam represents **15%** of the student's final grade.

GRADING

The breakdown of the total grade is:

• Individual Assignment-1:	10 %
• Individual Assignment-2:	10 %
• Term Group Project:	
– Submittal No. 1 – Proposal	5 %
– Submittal No. 2 – Feasibility Study and Analysis	10 %
– Submittal No. 3 – Progress Report	15 %
– Submittal No. 4 – Peer Review & Critique	5 %
– Submittal No. 5 – Documentation	10 %
– Final Oral Presentation	5 %
• Term Exam-1	15 %
• Term Exam-2	15 %
Total:	100 %

NOTES

1. The course description and course schedule handouts provide the general framework for the course. However, the instructor reserves the right to make any modifications or changes to the course, depending on the class progress, or on any special circumstance that may arise during the semester.
2. ***All submissions can be turned in typed or handwritten using engineering paper***. Only one side of the paper should be used. Assignments that deviate from these instructions (e.g., torn from spiral binder, etc.) will not be accepted. Separate instructions will be provided for term project submissions.
3. Problems and questions should be re-stated or paraphrased. Neat sketches should be used when ever appropriate.
4. References should be stated on the right hand side of the assignment (e.g., Reference, p. 179, etc.).
5. Your assignment should be turned in with your name, course number, assignment number, and page number on each sheet. Neatness and presentation are important and will be considered when grading assignments.
6. There will be no curve for the final grade, only straight averages. The grading policy for this course is as follows:

   X = Cumulative student score for the semester

Student Score	Grade
$X \geq 90$	A
$90 > X \geq 80$	B
$80 > X \geq 70$	C
$70 > X \geq 60$	D
$60 > X$	F

SPECIAL POLICY-1

POLICY FOR LATE SUBMISSION OF TERM ASSIGNMENTS

(Including individual assignments and group assignments)

- If the assignment is *submitted after the specified time but on the same day*: **25% deduction from the total score obtained;**
- If the assignment is *submitted one day after the specified deadline*: **50% deduction from the total score obtained;**
- If the assignment is *submitted two days after the specified deadline*: **75% deduction from the total score obtained;**
- If the assignment is *submitted more than two days after the specified deadline*: **0 point (i.e., 100% deduction). Please note that in order to receive a grade in the class, all assignments must be turned in.**

SPECIAL POLICY-2

PEER EVALUATION FOR THE TERM GROUP PROJECT

As stated previously, the individual grade of each student for the term group project will depend on his/her peer evaluation of the student's work within the team. Thus, each student should include a special peer evaluation form with the Final Term Group Project Submittal according to the following instructions:

1. Write ***YOUR NAME*** and the names of the ***OTHER GROUP MEMBERS*** in the spaces provided.
2. Each person in the group should receive what you perceive is the person's overall contribution to the group project. Thus, if you believe each person contributed the same amount of work, circle the ***EQUAL DISTRIBUTION*** option.
3. If you do not believe each person contributed the same amount of work, then circle the ***UNEQUAL DISTRIBUTION*** option, and allocate a ***TOTAL OF 100 POINTS*** among the ***OTHER GROUP MEMBERS*** (i.e., do not include yourself). In allocating points, please use whole numbers (i.e., no fractions). You do not need to allocate all 100 points, but are advised to do so.
4. Peer evaluations will be treated strictly confidential.
5. Please include this evaluation form in a sealed envelope with the final Term Group Project Submittal. If you do not turn in the form, other members of your group will receive an ***EQUAL DISTRIBUTION*** as your default evaluation.

PEER EVALUATION FORM FOR THE GROUP PROJECT

YOUR NAME: _____

EQUAL DISTRIBUTION

UNEQUAL DISTRIBUTION

OTHER GROUP MEMBERS:	***Point Distribution***
1. _____	_____
2. _____	_____
3. _____	_____
TOTAL:	***100 points***