

Syllabus – CE 4220 Principles of Construction II Spring 2021

Course and Instructor Information

Course Title: Principles of Construction II

Credits: 3

Class Time: 9:05AM-9:55AM MWF

Format: Distance learning. Class will meet virtually via Collaborative Ultra on scheduled time. Classes will be recorded and posted on HuskyCT. Students are required to attend certain classes synchronously.

Instructors: Dr. Jin Zhu

Assistant Professor

CEE Department, UConn

Email: jzhu@uconn.edu Inquiries via email will be replied within 24 hours.

WebEx meeting room: <https://uconn-cmr.webex.com/meet/jiz17035>

Virtual Office hours: 10:00AM-11:00AM Monday Wednesday or by appointment. Instructor will be available for individual meetings in her person WebEx meeting room.

Graduate TA: Sudipta Chowdhury, PhD student

Email: sudipta.chowdhury@uconn.edu

Virtual Office hours: 9:00 AM-10:00 AM Tuesday Thursday or by appointment through personal WebEx meeting room: <https://uconn-cmr.webex.com/meet/suc18003>

Course Website (HuskyCT): <<http://huskyct.uconn.edu/webct/entryPageIns.dowebct>>

Course Description

CE 4220 is an advanced level course built upon CE 3220. This course focuses on techniques and methods in addressing the time, cost, productivity, and decision-making challenges in construction engineering and management. Topics to be covered include: advanced scheduling, construction sequencing, economic analysis, financial management, and construction equipment and methods.

Course Objectives

Upon successful completion of this class, students will be able to:

1. Make schedules for construction projects considering resource requirements and constraints
2. Arrange the order of tasks/activities in construction projects to optimize performance measures
3. Select and manage construction equipment
4. Conduct economic analysis in construction for various decision making purposes
5. Interpret and utilize financial information of construction companies in making decisions
6. Understand and deal with risks in construction

Topics

The major topics of this course include:

1. Advanced Scheduling and Sequencing
 - Resource-related scheduling
 - Linear construction scheduling
 - Construction sequencing
2. Construction Equipment and Methods
 - Equipment power requirement
 - Equipment type, operation, and productivity
3. Economic and Financial Management
 - Economic analysis
 - Project cash flow
 - Accounting methods and transactions

Prerequisite

CE 3220 Principles of Construction I

Course Materials

Recommended Textbook:

Daniel W. Halpin, Bolivar A. Senior, Gunnar Lucko. (2017). Construction Management, 5th edition. Wiley. ISBN: 9781119256809.

Additional materials (extra readings, homework assignments and solutions) will be distributed on HuskyCT.

Course Requirements and Grading

Components	Weight	Requirements
Quiz	60%	There will be three online quizzes (see course calendar for the specific dates), each accounts for 20% of the final grade. The three quizzes are associated with the three modules of this course. Quizzes are not cumulative. Quizzes may include multiple choice, short answer questions, and problems.
HW	20%	Nine assignments will be given and collected on the dates indicated on the Course Calendar. Homework will be completely processed through HuskyCT. Each HW will be posted on HuskyCT. Students need to submit their HW electronically in a single PDF through HuskyCT. <u>No late submission will be accepted.</u> Illegible homework will be considered incomplete. The top 8 out of the 9 homework grades will be counted for the overall homework score. For each homework problem, students will receive ½ credit for attempting the problem and showing their steps to arrive at the solution, and ½ credit for arriving the correct answer. Solutions will be posted on HuskyCT after submissions are graded.
Class Participation	20%	Class participation accounts for 20% of your grade in this course. During the semester, 12 group exercise will be given during class. You will be assigned to a team of 3 or 4. Each time, a new team will be assigned randomly. A problem related to the class topic will be given. The team will work on the problem as a group and submit their work. Each students have four opportunities to miss the synchronous group activities. However, in order to get grades, if you miss these activities, you need to contact the instructor and TA within 24 hours of the scheduled activity and then schedule a make-up exercise with the TA within that same week.
Final Exam	Optional	You can choose to take the cumulative final exam and replace one of your lowest grades from quizzes with your final exam grade. There is no risk taking the final as the highest three grades among the final and quizzes will be selected to calculate the final letter grade.
Term Project	Bonus	An optional term project opportunity is offered to you. By successfully completing a term project. You may earn up to 5 points in your final grade. You need to decide whether you will do a term project for bonus point one week after the first quiz grade is posted. Details of term project requirements will be offered in a separate file.
Discussion Board Participation	Bonus	By participating class-related discussion on HuskyCT on discussion board, you can earn up to 3 points in your final grade. For each module, students will be assigned randomly to groups and share thoughts and exchange ideas around assigned reading materials and topics.

Grading Scale:

Grade	Letter Grade	GPA
93-100	A	4.0
90-92	A-	3.7
87-89	B+	3.3
83-86	B	3.0

Grade	Letter Grade	GPA
80-82	B-	2.7
77-79	C+	2.3
73-76	C	2.0
70-72	C-	1.7
67-69	D+	1.3
63-66	D	1.0
60-62	D-	0.7
<60	F	0.0

Feedback and Grades

I will make every effort to provide feedback and grades. To keep track of your performance in the course, refer to My Grades in HuskyCT. If you have questions about your grades, please reach out to the instructor as soon as possible after the grade is posted. **No changes can be made on your grade one week after the grade is posted.**

Student Responsibilities and Resources

As a member of the University of Connecticut student community, you are held to certain standards and academic policies. In addition, there are numerous resources available to help you succeed in your academic work. This section provides a brief overview to important standards, policies and resources.

Student Code

You are responsible for acting in accordance with the [University of Connecticut's Student Code](#). Review and become familiar with these expectations. In particular, make sure you have read the section that applies to you on Academic Integrity:

- [Academic Integrity in Undergraduate Education and Research](#)

Cheating and plagiarism are taken very seriously at the University of Connecticut. As a student, it is your responsibility to avoid plagiarism. If you need more information about the subject of plagiarism, use the following resources:

- [Plagiarism: How to Recognize it and How to Avoid It](#)
- [Instructional Module about Plagiarism](#)
- [University of Connecticut Libraries' Student Instruction](#) (includes research, citing and writing resources)

Copyright

Copyrighted materials within the course are only for the use of students enrolled in the course for purposes associated with this course and may not be retained or further disseminated.

Adding or Dropping a Course

You must officially drop a course through the [Student Administration System](#) to avoid receiving an "F" on your permanent transcript. Simply discontinuing class or informing the instructor you want to drop does not constitute an official drop of the course. For more information, refer to the:

- [Undergraduate Catalog](#)

Academic Calendar

The University's [Academic Calendar](#) contains important semester dates.

Students with Disabilities

Students needing special accommodations should work with the University's [Center for Students with Disabilities \(CSD\)](#). You may contact CSD by calling (860) 486-2020 or by emailing csd@uconn.edu. If your request for accommodation is approved, CSD will send an accommodation letter directly to your instructor(s) so that special

arrangements can be made. (Note: Student requests for accommodation must be filed each semester.

Course Calendar (Tentative)

Week	Lecture	Date	Topic	Assignment
1	1	Wednesday, Jan 20	Course Introduction and Team Building Activity	
	2	Friday, Jan 22	Advanced Scheduling: Resource Allocation I	
2	3	Monday, Jan 25	Advanced Scheduling: Resource Allocation II	HW#1 Assigned
	4	Wednesday, Jan 27	Advanced Scheduling: Resource leveling	
	5	Friday, Jan 29	Advanced Scheduling: Time Cost Tradeoff I	
3	6	Monday, Feb 1	Snow day. Class cancelled	HW#1 Due
	7	Wednesday, Feb 3	Advanced Scheduling: Time Cost Tradeoff II	HW#2 Assigned
	8	Friday, Feb 5	Advanced Scheduling: Time Cost Tradeoff III	
4	9	Monday, Feb 8	Advanced Scheduling: Linear Scheduling I	
	10	Wednesday, Feb 10	Advanced Scheduling: Linear Scheduling II	
	11	Friday, Feb 12	Construction Sequencing I	HW#2 Due/HW#3 Assigned
5	12	Monday, Feb 15	Construction Sequencing II	
	13	Wednesday, Feb 17	Exercise Class	HW#3 Due
	14	Friday, Feb 19	Mid-Term Exam I	
6	15	Monday, Feb 22	Construction Equipment and Power Requirements I	HW#4 Assigned
	16	Wednesday, Feb 24	Construction Equipment and Power Requirements II	
	17	Friday, Feb 26	Construction Equipment and Power Requirements III	
7	18	Monday, Mar 1	Construction Equipment: Dozers I	HW#4 Due/ HW#5 Assigned
	19	Wednesday, Mar 3	Construction Equipment: Dozers II	
	20	Friday, Mar 5	Construction Equipment: Scrapers	
8	21	Monday, Mar 8	Construction Equipment: Excavators I	HW#5 Due/ HW#6 Assigned
	22	Wednesday, Mar 10	Construction Equipment: Excavators II	
	23	Friday, Mar 12	Construction Equipment: Cranes and Lifting Equipment I	
9	24	Monday, Mar 15	Construction Equipment: Cranes and Lifting Equipment II	
	25	Wednesday, Mar 17	Exercise Class	HW# 6 Due
	26	Friday, Mar 19	Mid-Term Exam II	
10	27	Monday, Mar 22	Economic Analysis in Construction I	HW#7 Assigned
	28	Wednesday, Mar 24	Economic Analysis in Construction I	
	29	Friday, Mar 26	Economic Analysis in Construction II	
11	30	Monday, Mar 29	Economic Analysis in Construction II	HW#7 Due/ HW#8 Assigned
	31	Wednesday, Mar 31	Economic Analysis in Construction II	
	32	Friday, Apr 2	Project Cash Flow I	
12	33	Monday, Apr 5	Project Cash Flow II	HW#8 Due
	34	Wednesday, Apr 7	Project Payment and Cash Flow	
	35	Friday, Apr 9	Accounting Method and Transactions I	HW#9 Assigned
13	36	Monday, Apr 12	No Class	
	37	Wednesday, Apr 14	No Class	
	38	Friday, Apr 16	No Class	
14	39	Monday, Apr 19	Accounting Method and Transactions II	
	40	Wednesday, Apr 21	Accounting Method and Transactions III	
	41	Friday, Apr 23	Exercise Class	HW#9 Due
15	42	Monday, Apr 26	Mid-Term Exam III	
	43	Wednesday, April 28	Term Project Showcase and Final Exam Review	

The course calendar is a tentative plan. The professor reserves the right to make changes in the calendar. Students will be notified in advance if any changes will be made. Students should always refer to the latest version of the syllabus that will be available electronically on HuskyCT.