

**West Virginia University**  
**Department of Civil and Environmental Engineering**  
**Syllabus CE 413 (CRN 18189) - Spring 2014**

**Course Name:** CE 413 - Construction Methods

**Credit Hours:** 3 Credit Hours

**Contact Hours:** Monday/Wednesday/Friday 9:00 AM - 9:50 AM

**Instructor:** Dr. Fei Dai, Rm. 635, Engineering Sciences Building

Email: [fei.dai@mail.wvu.edu](mailto:fei.dai@mail.wvu.edu) Phone: (304) 293-9940

**Office Hours:** Monday/Wednesday: 10:00 AM – 11:00 AM, Other time by appointment

**Textbook:** Construction Management, Daniel Halpin and Bolivar Senior, John Wiley, 4<sup>th</sup> Edition

**Course Description:** This course introduces students to the fundamental knowledge required in construction project management. Topics include overview of the construction industry, project bidding and procurement, contracting, planning and scheduling, equipment issues, labor, cost estimating and control, materials management, and safety.

**Restrictions:** Must be enrolled in the major of Civil Engineering,  
May not be enrolled by the classifications of Freshman and Sophomore, or  
Instructor consent

**Course Format:** Lecture

**Classroom:** Room ESB-E 207

**Category:** Civil Engineering Open Electives

**Expected Learning Outcomes:**

A, E Be able to utilize modern instruments, methods and techniques to prepare cost estimates and project bid packages

A, E Be able to perform effective planning, scheduling, and control of a project

J Be able to handling practical issues involved in construction contracts such as rework, delay and change of orders

- E, K Be able to perform reliable cost estimates and analyses of materials, labors, and equipment
- E, K Be able to estimate productivity, perform productivity analyses, and improvise solutions for improvement
- G Be able to communicate effectively both orally and in writing, and the ability to work as a productive member of a construction team
- A, E Be able to address the cost and productivity of equipment used in the construction industry
- E Be able to understand, be aware of, and prepare for safety issues

**ABET Program Learning Outcome Explanation:**

- A An ability to apply knowledge of mathematics, science, and engineering
- E An ability to identify, formulate, and solve engineering problems
- G An ability to communicate effectively in oral, written, and electronic format
- J A knowledge of contemporary issues
- K An ability to use the techniques, skills, and modern engineering tools necessary for civil engineering practice

**Brief Topic List:**

- Overview context
- Procurement and execution
- Company organization and management
- Planning and scheduling
- Managing money
- Construction equipment
- Labor
- Cost estimating and control
- Materials management
- Safety

<b>Couse</b>	<i>Criteria</i>	<i>Percent of Grade</i>
<b>Evaluation:</b>	Class Participation and Attendance	4%
	Assignments	36%
	In-Class Quizzes	20%
	Midterm	20%
	Final Exam	20%
	<i>Total</i>	<i>100%</i>

<b>Grading</b>	<i>Percentage</i>	<i>Grade</i>
<b>Scale:</b>	100 - 90	A
	89 - 80	B
	79 - 70	C
	69 - 60	D
	59- 0	F

**Grading Policy:** Late assignments may not be accepted except by prior arrangement with the instructor. Final grade will depend on your assignments, quizzes, attendance and participation, midterm, and final exam.

**Homework/ Quizzes :** Homework assignments will be given approximately every two weeks or sooner. Quizzes will be conducted in class, which may be not announced in advance.

**Academic Integrity/ Honesty Policy:** West Virginia University expects that every member of its academic community shares the historic and traditional commitment to honesty, integrity, and the search for truth. Students should act to prevent opportunities for academic dishonesty to occur, and in such a manner to discourage any type of academic dishonesty. Academic dishonesty includes plagiarism; cheating and dishonest practices in connection with examinations, papers, and projects; and forgery, misrepresentation, and fraud. Complete policy statements and definitions on academic integrity/dishonesty can be accessed at WVU student website.

**Attendance Policy:** Attendance is required. Consistent with WVU guidelines, students absent from regularly scheduled examinations because of authorized University activities will have the opportunity to take them at an alternate time. Make-up exams for absences due to any

other reason will be at the discretion of the instructor.

**Social Justice Statement:** "West Virginia University is committed to social justice. Instructor(s) concur with that commitment and expect to maintain a positive learning environment based upon open communication, mutual respect, and nondiscrimination. Our University does not discriminate on the basis of race, sex, age, disability, veteran status, religion, sexual orientation, color or national origin. Any suggestions as to how to further such a positive and open environment in this class will be appreciated and given serious consideration.

If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise the instructor(s) and make appropriate arrangement with Disability Services by contacting them at Phone: (304) 293-6700.

## Tentative Class Schedule

Week	Day	Date	Topics <sup>1</sup>	Readings <sup>2</sup>	Homework <sup>3</sup>	Note	
1	Wed	1/8	Introduction			<sup>1</sup> Topics and dates are not binding and modifications are expected. Speed of coverage is subject to class feedback.	
	Fri	1/10	History and Basic Concepts	1			
2	Mon	1/13	History and Basic Concepts	1			
	Wed	1/15	Preparing the Bid Package	2			
	Fri	1/17	Preparing the Bid Package	2			
3	Mon	1/20	Martin Luther King's Birthday Recess				
	Wed	1/22	Preparing the Bid Package	2	Out: HW1		
	Fri	1/24	Handling the Practical Issues	3			
4	Mon	1/27	Handling the Practical Issues	3			<sup>2</sup> Numbers indicate chapters of the textbook. If extra reading materials are provided, they will be uploaded on eCampus.
	Wed	1/29	Project Planning and Scheduling	7, 8, 9	Due: HW1		
	Fri	1/31	Project Planning and Scheduling	7, 8, 9			
5	Mon	2/3	Project Planning and Scheduling	7, 8, 9			
	Wed	2/5	Project Planning and Scheduling	7, 8, 9	Out: HW2		
	Fri	2/7	Project Planning and Scheduling	7, 8, 9			
6	Mon	2/10	Project Planning and Scheduling	7, 8, 9			
	Wed	2/12	Example Problems		Due: HW2		
	Fri	2/14	1 <sup>st</sup> Midterm Exam				
7	Mon	2/17	Company Organization and management	4, 5, 6		<sup>3</sup> Homework issuance and due dates. As with additional readings, they will be made available on eCampus. All due dates and exam dates are fixed, unless otherwise noted in class.	
	Wed	2/19	Company Organization and management	4, 5, 6			
	Fri	2/21	Company Organization and management	4, 5, 6			
8	Mon	2/24	Company Organization and management	4, 5, 6			
	Wed	2/26	Money Mathematics & Financial Management	10, 11, 12			
	Fri	2/28	Money Mathematics & Financial Management	10, 11, 12	Out: HW3		
9	Mon	3/3	Money Mathematics & Financial Management	10, 11, 12			
	Wed	3/5	Money Mathematics & Financial Management	10, 11, 12			
	Fri	3/7	Money Mathematics & Financial Management	10, 11, 12	Due: HW3		
10	Mon	3/10	Spring Recess				
	Wed	3/12	Spring Recess				
	Fri	3/14	Spring Recess				
11	Mon	3/17	Equipment Ownership and Productivity	13, 14			^ Final exam date will be scheduled as per University guidelines.
	Wed	3/19	Equipment Ownership and Productivity	13, 14	Out: HW4		
	Fri	3/21	Equipment Ownership and Productivity	13, 14			
12	Mon	3/24	Equipment Ownership and Productivity	13, 14			
	Wed	3/26	Example Problems		Due: HW4		
	Fri	3/28	2 <sup>nd</sup> Midterm Exam				
13	Mon	3/31	Construction Labor	15			
	Wed	4/2	Construction Labor	15	Out: HW5		
	Fri	4/4	Cost Estimation and Control	16, 17			
14	Mon	4/7	Cost Estimation and Control	16, 17			
	Wed	4/9	Cost Estimation and Control	16, 17	Due: HW5		
	Fri	4/11	Cost Estimation and Control	16, 17			
15	Mon	4/14	Materials Management	18			
	Wed	4/16	Materials Management	18	Out: HW6		
	Fri	4/18	Friday Before Easter Recess				
16	Mon	4/21	Safety	19			
	Wed	4/23	Safety	19	Due: HW6		
	Fri	4/25	Example Problems & Review				