

# Course Syllabus

## 1. Course Number and Name

CE 413: Construction Methods

## 2. Course Information

- Semester: Fall, 2018
- Schedule: TR, 12:30 pm – 1:45 pm
- Class Location: ESB-E 401
- Credit Hours: 3

## 3. Instructor Information

- Name/Position: Yoojung Yoon/Assistant Professor
- Office: ESB 529
- Phone: 304-293-9937
- Email: [yoojung.yoon@mail.wvu.edu](mailto:yoojung.yoon@mail.wvu.edu) (Preferred)
- Office Hours: TR, 10:30 am – 12:00 pm

## 4. Teaching Assistant Information

TBD

## 5. Course Description

Introduction to the fundamental knowledge required for construction project management. Lecture specifically focuses on the topics which include project scheduling and various scheduling methods, control of project cash flows, project financing, and earned value analysis.

## 6. Prerequisites

None

## 7. Course Objectives

This course will introduce the students to the fundamental concepts of construction project management as well as the required skills focusing more on project schedule and cost controls. The course will incorporate instructor lectures and presentations from construction industry (if possible). Students will be evaluated based on assignments and tests.

## 8. Expected Learning Outcomes – Upon successful completion of this course students will be able to:

Goals by Topic	Student Outcome
The basic techniques to control the schedule and cost of a construction project	(b), (e)
An insight of the roles as contractors and project managers	(f), (g)
The ability to handle issues (e.g., schedule delays, cost overrun, claims, etc.) involved in construction process by applying project control techniques	(b), (k)
The knowledge of recent construction methods and practice	(e), (h), (j), (k)

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### 9. Textbooks and Other Course Materials

- Jimmie Hinze. (2012). *Construction Planning and Scheduling*, 4<sup>th</sup> edition, Prentice Hall, Upper Saddle River, NJ.

Note: **NOT REQUIRED**

- Chris Hendrickson. (1998). *Project Management for Construction: Fundamental Concepts for Owners, Engineers, Architects and Builders*, Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA.

Note: e-Book is available online at <<http://pmbook.ce.cmu.edu/>>

- Daniel Halpin and Bolivar Senior. (2011). *Construction Management*, 4<sup>th</sup> edition, John Wiley & Sons, Hoboken, NJ.

Note: **NOT REQUIRED**

### 10. Exams/Assignments/Quizzes

Performance will be evaluated based on homework assignments and quizzes/exams. There are **three (3) OPEN-BOOK 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. There are **five (5) assignments** to be completed individually. There will be **five (5) CLOSED-BOOK quizzes** in class, based on the course material covered in class and/or assigned for the week. However, the quiz with the lowest score will be dropped.

Note:

- Delayed submission of the assignments will be scored with a 20% deduction.
- Under no circumstances will make-up quizzes/exams be administered if students miss the quizzes/exams. If students miss quizzes/exams due to authorized excused absences (e.g., medical or other similar hardships, family events restricted to wedding and funeral, and job interviews), the opportunity to take make-up quizzes/exams will be given to the students at an alternate time. Please be sure that it is the student's obligation to contact the instructor **BEFORE** the test so that appropriate arrange could be made.

### 11. Grading Policy

Quizzes	15%
Assignments	15%
Exam No. 1	20%
Exam No. 2	25%
Final Exam	25%
<b>Total</b>	<b>100%</b>

There will be **no curve** for the final grade, only straight averages. The ranges for grades are as follows: **[90.0 and above/ A]; [80.0 – below 90.0/ B]; [70.0 – below 80.0/ C]; [60.0 – below 70.0/ D]; [Below 60.0/ F].**

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### *12. Attendance Policy*

Students are expected to attend all regularly scheduled class meetings although class attendance will not be used in grading. Class attendance is fundamental parts of the educational process and key factors in academic success. Students would benefit from attending the classes as supplemental lecture notes and important notices related to assignments, quizzes, and exams will be provided during class sessions only. Students who are absent without excuse from an announced quiz or examination take full responsibility for the academic results resulted from the absences. A student with an event (e.g., military leave, religious obligation, personal health emergencies, illness/death or wedding of family member, or job interviews) that interferes with quiz or examination times must notify the instructor in advance and provide verification documentation before it occurs in order to make up the quiz or examination.

### *13. Social Justice Statement*

The West Virginia University community is committed to creating and fostering a positive learning and working environment based on open communication, mutual respect, and inclusion. If you are a person with a disability and anticipate needing any type of accommodation in order to participate in this class, please advise me and make appropriate arrangements with the Office of Disability Services (293-6700). For more information on West Virginia University's Diversity, Equity, and Inclusion initiatives, please see <http://diversity.wvu.edu>.

### *14. Academic Integrity/Honesty*

The integrity of the classes offered by any academic institution solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or blatant fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy of West Virginia University regarding the definitions of acts considered to fall under academic dishonesty and possible ensuing sanctions, please see the Student Conduct Code [http://studentlife.wvu.edu/office\\_of\\_student\\_conduct/student\\_conduct\\_code](http://studentlife.wvu.edu/office_of_student_conduct/student_conduct_code). Should you have any questions about possibly improper research citations or references, or any other activity that may be interpreted as an attempt at academic dishonesty, please see me before the assignment is due to discuss the matter.

### *15. Adverse Weather Commitment*

In the event of inclement or threatening weather, everyone should use his or her best judgment regarding travel to and from campus. Safety should be the main concern. If I am unable to reach our class location, I will notify you of any cancellation or change as soon as possible (by 8:00 am before class starts), using (MIX emails and eCampus message)) to prevent you from embarking on any unnecessary travel.

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### *Tentative Course Schedule*

Week	Topic	Reference
1 8/15 – 8/17	Introduction to Construction Methods	
2 8/20 – 8/24	Project Scheduling	Hinze – Ch. 1
3 8/27 – 8/31	Project Scheduling Developing a Network Model	Hinze – Ch. 1 Hinze – Ch. 2 - 4 Hendrickson – Ch. 9
4 9/3 – 9/7	Developing a Network Model	Hinze – Ch. 2 - 4 Hendrickson – Ch. 9
5 9/10 – 9/14	Developing a Network Model	Hinze – Ch. 2 - 4
6 9/17 – 9/21	Critical Path Method (CPM)	
7 9/24 – 9/28	Critical Path Method (CPM) Resource Allocation and Leveling	Hinze – Ch. 6
8 10/1 – 10/5	Resource Allocation and Leveling	Hinze – Ch. 6
9 10/8 – 10/12	Resource Allocation and Leveling	Hinze – Ch. 6
10 10/15 – 10/19	PERT	Hinze – Ch. 15
11 10/22 – 10/26	Schedule Compression and Time Cost Trade-Off	
12 10/29 – 11/2	Schedule Compression and Time Cost Trade-Off	
13 11/5 – 11/9	11/6 No Class – General Election Control of Project Cash Flows	Hinze – Ch. 7
14 11/12 – 11/16	Control of Project Cash Flows	Hinze – Ch. 7
15 11/19 – 11/23	Fall Recess	
16 11/26 – 11/30	Construction Project Financing	Hendrickson – Ch. 7
17 12/3 – 12/6	Earned Value Analysis	Hinze – Ch. 10
18 12/10 – 12/14	Final Exam	

– The scheduled topics will be changed if needed

### **Coverages of Quizzes and Exams**

Quiz-1: Project Scheduling – Developing a Network Model

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Quiz-2: Critical Path Method (CPM)

Exam-1: Project Scheduling - CPM

Quiz-3: Resource Allocation and Leveling

Exam-2: Resource Allocation and Leveling - PERT

Quiz-4: PERT – Schedule Compression and Time Cost Trade-Off

Quiz-5: Control of Project Cash Flows – Construction Project Financing

Final Exam: Control of Project Cash Flows – Earned Value Analysis