

SYLLABUS

CE501: *Fundamentals of Construction Management* Spring 2016

Location: OHE 120

Meetings: Wednesdays, 3:30pm-6:10pm

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KAP 241

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Office Hours: Office hours are available by appointment. The preferred day and time for appointments is Thursday morning, and this time window will be generally available. Other times may be arranged for mutual convenience. Students should contact the instructor at least two days before the desired appointment to confirm meeting times.

TA: N/A

Course Description: *Fundamentals of Construction Management* (also listed as *Functions of the Constructor*) is an introductory-level, graduate course designed especially for civil, environmental and construction students. Other disciplines involved in creating the built environment (e.g., architecture, urban planning, infrastructure-related engineering disciplines) or technology-based management (e.g., business, research and development) are welcome. The course starts with a basic overview of the construction industry and its typical business relationships. The course considers options for capital project procurement that in turn lead to different contract approaches and risk allocation. Planning, estimating and scheduling tools are introduced to evaluate potential construction processes and prepare competitive bids. A module on controlling project execution includes concepts and tools for monitoring progress, as well as mitigating problems. Finally, a discussion of future construction and project management advances helps students select specialty areas and anticipate changes in professional practice.

Course Objectives: *Fundamentals of Construction Management* is designed as a first in a series of graduate courses designed to prepare the student for a professional career in construction management or in the management of large-scale, engineering projects.

The primary course learning objectives are for the student to have:

- A broad overview of the structure and functioning of the construction industry,
- An understanding of the construction process and its factors of production,
- A working knowledge of scheduling and estimating methodologies,
- Concepts and tools for managing project execution, and
- An introduction to industry best practices and future advances.

Prerequisites and Waivers: Graduate student standing required unless otherwise agreed upon by the instructor. Any student with credit for a similar course or with comparable work experience may request a waiver from taking this required course. A waiver (not credit) will be granted upon demonstration of sufficient background and basic competencies to meet the course objectives.

Text/Materials: This course will utilize three textbooks/books:

- 1. *Project Management for Construction: Fundamental Concepts for Owners, Engineers, Architects and Builders*, by Chris Hendrickson (Author), Department of Civil and Environmental Engineering, Carnegie Mellon University, Pittsburgh, PA 15213 Copyright C. Hendrickson 1998 (First Edition originally printed by Prentice Hall, ISBN 0-13-731266-0, 1989 with co-author Tung Au. Second Edition prepared for world-wide-web publication in 2000. Version 2.2 prepared Summer, 2008). [This textbook is available free at: <http://pmbook.ce.cmu.edu/>].**
- 2. *Construction Management, 4th Edition* [Print Replica] Kindle Edition, by Daniel W. Halpin (Author), Bolivar A. Senior (Author). John Wiley & Sons, Inc.; 4 edition (November 8, 2010). [This book is available as an eTextbook (\$58.50) from Amazon Digital Services, Inc. (Amazon.com) – you may rent it for a defined time period or buy it (recommended). Optionally, this textbook should be available as a hardcover edition from the USC Bookstore].**
- 3. *Who Done It?: 101 Case Studies in Construction Management* [Paperback], by Len Holm (Author). CreateSpace Independent Publishing Platform; 1st edition (July 15, 2015), ISBN-10: 1515065529, pp. 134. [This book is available from Amazon Digital Publishing (\$15)]. *Please bring this book to each class session.***

An additional selection of required readings will be made available on the *Blackboard* course management system.

Assignments: Students will be responsible for preparing and submitting assignments as follows:

- Three group exercises will be used to reinforce the basic concepts, methodologies and current practices. The exercises may include:
 - *Planning and scheduling*
 - *Estimating and bid preparation*
 - *Risk assessment and management*
 - *Change management and dispute resolution*
- Group term project – Students will work in small groups on a semester-long construction management project. The groups will make two presentations, one approximately mid-way during the course introducing the project and the other during

the final class session. The group project requirements and expectations will be described during the second and third class sessions.

- Mid-term exams - Two mid-term exam will test each student on construction management terminology, concepts, and basic tools.

Presentation/Session Schedule (Proposed):

Week	Date	Topic	Hendrickson Chapters	Halpin Chapters	Comments and Preparation
1	1/13	Industry & company Organization	1, 2	1, 3	
2	1/20	Bidding and selection processes		2, 5	
3	1/27	Factors of production (Labor & Equipment)	3, 4	4, 13, 14, 15	
4	2/3	Factors of production (Money)	6, 7	6, 10, 11, 12	
5	2/10	Planning and scheduling	9, 10, 11	7, 8, 9	
6	2/17	Estimating and bidding strategies	5, 8	16	Group exercise #1 due
7	2/24	Exam #1			
8	3/2	Risk assessment and management			
9	3/9	Controlling the work (cost, schedule and quality)	12, 13	17	Group exercise #2 due
10	3/23	Controlling the work (materials management, safety)		18, 19	
11	3/30	Changes and disputes			
12	4/6	Advanced topics: Building Information Modeling, Lean construction and/or sustainability			Group exercise #3 due
13	4/13	Exam #2			
14	4/20	Industry best practices			
15	4/27	Presentation of term projects			Final, in-class presentation of group project due
	TBD				Group project final report due

Grading: Grade components will be weighted as follows in the computation of the final course grade:

Class Participation	10%
Group Exercises (3 at 10% each)	30%
Group Term Project	40%
Mid-term Quizzes (2 at 10% each)	20%
TOTAL	100%

Course Policies:

Quizzes -- There will be **NO** final exam. Each student is expected to take the mid-term exams on the dates scheduled; any deviation from this timing must be approved by the instructor in advance.

Course Project -- The term-long project is the most important deliverable for the course and must include the two scheduled in-class presentations. Each student in a group will receive the same grade based on the assessment of the final project report and two presentations. It is the responsibility of the groups to manage their own interactions and individual participation.

Class Participation and Attendance -- This course utilizes active learning in the form of case studies and discussion. Each student is expected to be ready to participate in that discussion. It is also important that you are familiar with the course materials as the course evolves; regular attendance is expected. Each student is responsible for all materials and administrative instructions given during the lecture period.

Assignment and project submittals – ALL assignment submittals will be made electronically directly in the *Blackboard* course management system. Each assignment/group project item due will have a corresponding “Assignment” in the *Blackboard* system; this is the only mechanism for accepting the submittals. The system automatically identifies items submitted late and any late items are subject to grade reductions.

Personal Problems -- If you have illness or personal problems that will affect your performance during the course of the semester, please let the instructor know as soon as possible. “After the fact” notification is unacceptable unless there are extreme circumstances.

Statement for Return of Course Assignments and Materials – All assignments are to be submitted electronically in *Blackboard* and all “returned” materials and evaluation information will be available only through this system. The mid-term exam will be graded and then scanned into the *Blackboard* system – no physical copies will be returned to the student.

Statement on Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior*

Violating University Standards <https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the *Office of Equity and Diversity* <http://equity.usc.edu> or to the *Department of Public Safety* <http://adminopsnet.usc.edu/department/department-public-safety>. This is important for the safety of the whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. *The Center for Women and Men* <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage <http://sarc.usc.edu> describes reporting options and other resources.

Statement on Support Systems:

A number of USC's schools provide support for students who need help with scholarly writing. Check with your advisor or program staff to find out more. Students whose primary language is not English should check with the *American Language Institute* <http://dornsife.usc.edu/ali>, which sponsors courses and workshops specifically for international graduate students. *The Office of Disability Services and Programs* http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html provides certification for students with disabilities and helps arrange the relevant accommodations. If an officially declared emergency makes travel to campus infeasible, *USC Emergency Information* <http://emergency.usc.edu> will provide safety and other updates, including ways in which instruction will be continued by means of blackboard, teleconferencing, and other technology.