

ITT Technical Institute
CM320
Principles of Building Construction
Management
Onsite Course

SYLLABUS

Credit hours: 4

Contact/Instructional hours: 50 (30 Theory Hours, 20 Lab Hours)

Prerequisite(s) and/or Corequisite(s):

None.

Course Description:

This survey of the construction industry includes an overview of the history of construction management, roles and responsibilities typically involved in residential and commercial construction projects, current issues such as environmental considerations in construction, and potential career paths for construction managers.

Where Does This Course Belong?

This course is required for the Construction Management program. This program covers the following core areas:

- Construction Science
- GE
- Project Management

The following diagram demonstrates how this course fits in the program:



Course Summary

Major Instructional Areas

1. The construction industry and its role players
2. Estimating cost and scheduling a project
3. Project implementation and monitoring
4. Delivering a quality project safely, on time, and within budget
5. Software applications in a construction project

Course Objectives

This course has the following instructional objectives:

1. Describe the role of construction managers in managing construction projects.
2. Discuss the bidding process of a construction project.
3. Identify the project stages from design to owner occupancy.
4. Identify the components of a successful project cost estimate.
5. Describe the planning and scheduling process of a construction project.
6. Describe the role of the contract administration team in project implementation.
7. Examine the elements of project control and monitoring.
8. Examine the methods of ensuring quality and safety on a construction project site
9. Describe the process of construction risk management.
10. Describe the impact of a building information modeling (BIM) on the construction process.

Learning Outcomes

Upon completion of this course, the students are expected to:

1. Identify three business types in each of the five major sectors of the construction industry.
2. Identify the role of the major players in a construction project, from conceptualization to project delivery.
3. Identify construction management functions.
4. Identify the role of five job descriptions in construction management.
5. List the common project delivery methods for a construction project.
6. Describe the three bid selection criteria.
7. List the documents found in the construction project manual.
8. Describe the contract types used in construction.
9. List the four steps in the design process.
10. List three members of a preconstruction team.
11. List five typical building elements for a building under construction.
12. Explain what a certificate of occupancy signifies in regards to the contractor and the owner.
13. Identify the three main types of construction estimating methods.

14. Identify the components of a successful cost estimate.
15. List five skills that are characteristic of an effective estimator.
16. Distinguish direct cost from indirect cost.
17. Extrapolate the square foot cost of a building from a published cost database.
18. Identify the common temporary facilities needed on a project.
19. Explain the two main types of schedules used on a construction project.
20. List the three fundamental stages in building a schedule.
21. Identify the duration of activities in a schedule.
22. Identify the activities on a critical path in a construction products management (CPM) schedule.
23. Identify five main topics that are discussed in a preconstruction conference.
24. Explain the use of a request for information (RFI) document.
25. Explain the change order process.
26. Describe the procedure for payment in a construction project.
27. Identify the goals used to monitor a project and important to both the owner and the construction team.
28. List the fundamental steps in the project control cycle.
29. List five control systems used to track performance of a project.
30. Describe five performance issues that can impact a project.
31. Differentiate between quality assurance and quality control.
32. Explain the role of Occupational Safety and Health Administration (OSHA) in delivering a safe project.
33. List the eight personal protection equipment.
34. Explain the impact of a quality and safety program on a project.
35. Identify three common risks encountered in the construction process.
36. Explain the process of quantifying risk.
37. Explain the process of risk mitigation.
38. Explain the role of risk management in a construction project.
39. Describe BIM technology.
40. List three practical uses of BIM in the construction management process.

Learning Materials and References

Required Resources

Textbook Package	New to this Course	Carried over from Previous Course(s)	Required for Subsequent Course(s)
Jackson, B. (2010). <i>Construction Management JumpStart: The Best First Step Toward a Career in Construction Management</i> (2nd ed.). Hoboken, NJ: John Wiley and Sons, Inc.	■		■

Recommended Resources

Books, Professional Journals

- Brook, M. (2004). *Estimating and tendering for construction work* (3rd ed.). Burlington, MA: Elsevier Butterworth-Heinemann.

Professional Associations

- Project Management Institute (PMI)
This Web site provides you information about project management standards.
<http://www.pmi.org/> (accessed May 13, 2011)
- The Associated General Contractors of America (AGC)
AGC is the leading association for the construction industry. This Web site provides the opportunity to interact with a community of privacy professionals and to learn from their experiences.
<http://www.agc.org/> (accessed May 13, 2011)

Information Search

Use the following keywords to search for additional online resources that may be used for supporting your work on the course assignments:

- Associated General Contractors of America (AGC)
- Brownfield sites
- Construction Management Association of America (CMAA)
- Construction Specification Institute (CSI)
- Material Safety Data Sheet (MSDS)
- Network diagrams
- Value engineering

NOTE: All links are subject to change without prior notice.

Course Plan

Suggested Learning Approach

In this course, you will be studying individually and within a group of your peers. As you work on the course deliverables, you are encouraged to share ideas with your peers and instructor, work collaboratively on projects and team assignments, raise critical questions, and provide constructive feedback.

Use the following advice to receive maximum learning benefits from your participation in this course:

DO	DON'T
<ul style="list-style-type: none"> ▪ Do take a proactive learning approach ▪ Do share your thoughts on critical issues and potential problem solutions ▪ Do plan your course work in advance ▪ Do explore a variety of learning resources in addition to the textbook ▪ Do offer relevant examples from your experience ▪ Do make an effort to understand different points of view ▪ Do connect concepts explored in this course to real-life professional situations and your own experiences 	<ul style="list-style-type: none"> ▪ Don't assume there is only one correct answer to a question ▪ Don't be afraid to share your perspective on the issues analyzed in the course ▪ Don't be negative about the points of view that are different from yours ▪ Don't underestimate the impact of collaboration on your learning ▪ Don't limit your course experience to reading the textbook ▪ Don't postpone your work on the course deliverables – work on small assignment components every day

Course Outline

Unit #	Unit Title	Grading Category	Activity/Deliverable Title	Grade Allocation (% of all graded work)
1	Overview of Construction Management	Assignment	Major Players in a Construction Project	5
<i>Unit 1 Reading Assignment: Jackson, Pages 1-38 and 39-67</i>				
2	The Bidding Process	Problem Set	Bid Selection Criteria	3
		Assignment	Cost Impact on Contract Types	5
<i>Unit 2 Reading Assignment: Jackson, Pages 69-92 and 93-115</i>				

Unit #	Unit Title	Grading Category	Activity/Deliverable Title	Grade Allocation (% of all graded work)
3	The Design and Construction Process	Quiz	Quiz 1	3
		Assignment	Stages of a Construction Project	5
<i>Unit 3 Reading Assignment: Jackson, Pages 117-138</i>				
4	Estimating the Project Cost	Problem Set	Calculating Quantities	3
		Assignment	Estimating Project Costs	5
<i>Unit 4 Reading Assignment: Jackson, Pages 139-172</i>				
5	Project Planning and Scheduling	Problem Set	Planning and Sequencing Stages of a Schedule	3
		Assignment	Scheduling Stages of a Network Diagram	5
<i>Unit 5 Reading Assignment: Jackson, Pages 201-237 and 239-258</i>				
6	Project Implementation	Quiz	Quiz 2	3
		Assignment	Pay Application and Continuation Sheet	5
<i>Unit 6 Reading Assignment: Jackson, Pages 173-200</i>				
7	Monitoring a Construction Project	Problem Set	Tracking Project Time	3
		Assignment	Monitoring Tools in a Construction Project	5
<i>Unit 7 Reading Assignment: Jackson, Pages 259-282</i>				
8	Delivering a Quality Product Safely	Problem Set	OSHA Safety Manual	3
		Assignment	Quality Assurance and Quality Control in a Construction Project	5
<i>Unit 8 Reading Assignment: Jackson, Pages 283-308</i>				
9	Construction Risk Management	Quiz	Quiz 3	3
		Assignment	Risks in a Construction Project	5
<i>Unit 9 Reading Assignment: Jackson, Pages 309-327</i>				
10	Virtual Construction	Assignment	Implementation of BIM and Construction Management	5
<i>Unit 10 Reading Assignment: Jackson, Pages 329-339</i>				
11	Course Review and Final Examination	Exam	Final Exam	26

Evaluation and Grading

Evaluation Criteria

The graded assignments will be evaluated using the following weighted categories:

Category	Weight
Assignment	50
Problem Set	15
Quiz	9
Exam	26
TOTAL	100%

Grade Conversion

The final grades will be calculated from the percentages earned in the course, as follows:

Grade	Percentage	Credit
A	90–100%	4.0
B+	85–89%	3.5
B	80–84%	3.0
C+	75–79%	2.5
C	70–74%	2.0
D+	65–69%	1.5
D	60–64%	1.0
F	<60%	0.0

Academic Integrity

All students must comply with the policies that regulate all forms of academic dishonesty, or academic misconduct, including plagiarism, self-plagiarism, fabrication, deception, cheating, and sabotage. For more information on the academic honesty policies, refer to the Student Handbook and the Course Catalog.

(End of Syllabus)