

Construction Management PROJ_MGT 430

Course Objective/Description:

The objective of this course is to introduce the student to the strategies and tools practiced by the construction industry in the United States. Students work in teams of 5 (depending on class size) to plan and create deliverables tied to a fictitious request for proposal (RFP). Instructors will provide each team a unique site and a unique project criteria specific for that site. All assignments as well as the quarter project shall be tied to each team's specific site and project. Emphasis is on site assessment, choosing a project delivery method, preparing a conceptual design, preparing a conceptual estimate, scheduling, preparing a general conditions estimate, preparing a site logistics plan, understanding risk management and contracts, quality control, project monitoring, project reporting, safety, quality, and cost control. The material covered and the strategies discussed are oriented for a mid-level construction professional. The course lectures often include examples of actual content used by the presenters from their construction careers. At the end of the quarter (week 9), teams will submit their response to the RFP and present their project to faculty in week 10. This class is team taught by Mark Skender and Cy Rangel. Collectively, this teaching team has over 80 years of relevant construction experience.

Following is a week-by-week description of the course:

Week 1: Class Orientation and Overview. Introductions, Syllabus review, Team formation, Class Rules, Overview of the Construction Industry. Site and Project Selection.

Orientation will include a review of the administrative parts of this class. We will briefly discuss this document and discuss the value of each of the weekly topics. Each student will share briefly their education and work experience as we work to break the class into meaningful teams for the balance of the quarter.

The history and development of Construction Management and its vital role in project preconstruction will be discussed. A discussion focused on how the Architecture profession has evolved since 1900 and how this has impacted the Builder. We will discuss certain US buildings to better understand how past failures have led us to an industry with specialty contractors. We will also discuss why your financier wants you to know Construction Management.

Week 2: Preconstruction and Conceptual Estimating and Procurement

Techniques for generating meaningful pricing during the design process. Understanding the importance of estimates during the concept and schematic phases of the real estate development process. How to develop an estimate when the project design is in its early stages. What is its value?

Understanding the value of establishing purchasing goals and how to develop a strategy to meet those goals will be discussed. A review of various strategies to obtain optimal performance from subcontractors and suppliers. What are the business, political, and philosophical issues in buying?

Week 3: Construction Delivery Methods, Bonding, Liens, and Contracts I

Discussing the various construction delivery methods highlighting the pros and cons of each. Understanding the different kinds and types of bonds and the value they provide to the Owner and the CM. A discussion focused on payment hierarchy, cash flow, and the value liens provide the service provider, subcontractor, or material supplier. A focus on Contracts, why they are needed, and a review of the various types of contracts available for use for a variety of business circumstances.

Week 4: Construction Contracts and Payment, Strategic Procurement. Contracts II

In this class we will perform a deeper dive into contract language by reviewing various articles and clauses within the contract. This class will also touch on the various exhibits and appendix typically used in contracts.

Week 5: Project Controls & Reporting, Team Progress Meetings

Understanding what controls are needed to run a successful construction project. Discussing best ways to report these various controls to management. Several examples will be shared, discussed, and reviewed. Teams will meet with instructors to discuss how the quarter project is progressing.

Week 6: Identifying and Managing Risk in Construction, Hiring a Construction Manager or other Professional Services Firm

Discussing the development of defining a scope of services for service providers, crafting a request for proposal, reviewing the proposal review process, and understanding what should be considered when hiring a service provider. We will share actual spread sheets which compare service providers and delve into what considerations were key when choosing the successful applicant.

Week 7: Review Project Descriptions, Discuss Project Teams, Roles, & Responsibilities, Project Delivery Methods on your Project, Management Plans

We will review each team's project descriptions and the criteria requested. We will address any questions the teams may have. Lecture will discuss the roles of the Engineer, Project Manager, and Superintendent in great detail. Discussion will include how you intend to staff your projects.

Week 8: Scheduling & Project Planning, Developing Your Schedule

Lecture will discuss schedule terms and definitions and how to apply them in your schedule. Start and finish relationships, float, and critical path will be discussed in great detail. We will review preconstruction versus construction scheduling and assist you in preparing your project schedule.

Week 9: Job Site Set Up & Logistics, Quality and Safety Planning. Setting up the Presentation schedule.

Setting up your jobsite for efficiency and safety is key. Using real examples, we will discuss ways to set up your project site while keeping critical logistics in mind. Development of your site logistics plan will be discussed. Planning for zero defects and

zero injuries shall always be your goal for future projects. We will discuss ways to plan for this. By lottery, teams will be arranged and scheduled for presentations.

Turning in your Final Project Submittal will be due in week 9.

Week 10: Team Presentations –

All teams will present their projects to faculty and the class. Presentations will be roughly 15 minutes each with 5 to 10 minutes for Q and A.

Final Exam: There will be no final exam. Your final submittal and presentations are your final.

Text: No text is required for this course. For those who might be interested in referring to a book that explains the course material, the following is recommended:

Professional Construction Management, by Donald S. Barrie and Boyd C. Paulson, McGraw-Hill, Inc. Third Edition, 1992.

Software: None

Attendance: All students are expected to inform the instructor in writing **PRIOR** to missing class with a valid reason for missing class. Students missing two or more classes consecutively due to a sickness will require a physician's note documenting the sickness. Students missing more than 3 classes will drop one letter grade.

Grade Determination:

Attendance (20 sessions x 50 pts)	1000 pts
Weekly Assignments (10 x 100)	1000 pts
Mid Quarter Peer Review	100 pts
RFP Submittal	300 pts
<u>RFP Presentation</u>	<u>200 pts</u>
Total	2600 pts

90% to 100% = A

80% to 89.9% = B

70% to 79.9% = C

60% to 69.9% = D

59.9% and below = F