Sept. 14, 2020

Construction Management
Fall 2020

Course Objective:

The objective of this course it to introduce the student to the strategies and tools practiced by the construction industry in the United States. Emphasis is on project delivery methods, estimating, purchasing, scheduling, project set-up, risk management, contracts, quality control, project monitoring, project reporting, and cost control. The material covered and the strategies discussed are oriented for a mid-level construction professional. The course material often includes examples of actual content used by the presenters from their construction careers. Part of the course will be devoted to a case study where students work in small teams to plan and create a schedule, work plan, and logistical study for a large commercial construction project.

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

Week 1: **Class Orientation and Overview. History of Construction Management in the US.**

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 and share what they hope to learn and discuss in this class. Team assignments will also be shared.

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. Assignment for Week 1 will be discussed and assigned.

Week 2: **Strategic Estimating and Procurement**

Teams will present there Week 1 assignments to the class. Techniques for generating meaningful pricing during the design process and understanding the importance of estimates during the concept and schematic phases of the real estate development process will be discussed. We will discuss how to develop an estimate when the project design is in its early stages.

Understanding the value of establishing purchasing goals and how to develop a strategy to meet those goals will be discussed. We will review the various strategies to obtain optimal performance from subcontractors and suppliers. What are the business, political, and philosophical issues in buying will also be discussed? Assignment for Week 2 will be discussed and assigned.

Week 3: **Bonding, Liens, and Contracts I**

Teams will present there Week 2 assignments to the class. Understanding the different kinds and types of bonds and the value they provide to the Owner and the CM will be discussed. A discussion focused on payment hierarchy, cash flow, and the value liens provide the service provider, subcontractor, or material supplier will follow. A focus on Contracts, why they are needed, and a thorough review of the various types of contracts available for use for a variety of business circumstances. Assignment for Week 3 will be discussed and assigned.

Week 4: **Contracts II, Project Controls, and Project Reporting**

Teams will present there Week 3 assignments to the class. 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.

Understanding what controls are needed to run a successful construction project will be discussed. Discussing best ways to report these various controls to management will also be reviewed. Several examples will be shared, discussed, and reviewed. Assignment for Week 4 will be discussed and assigned.

Week 5: **Hiring a Construction Manager or other Professional Services Firm**

Teams will present there Week 4 assignments to the class. 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 will be discussed. We will share actual spread sheets which compare service providers and delve into what considerations were key when choosing the successful applicant.

The last half of the class will be spent taking a **Mid Term Exam**. More to follow on this.

Week 6: **Role of the Project Team & Delivery Systems**

Summarizing an understanding of what a construction project is, how projects are managed through leadership among individuals, teams and entities throughout the life cycle of a project from inception to activation. Key project roles and responsibilities will be explored and how they may differ among the various project delivery systems. Advantages and disadvantages of the most common project deliveries will be compared to offer direction for applying feasible project deliveries to various projects types/scale/complexity. Discussion and examples will reveal tremendous and diverse opportunities in the construction industry.

Week 7: **Scheduling & Project Planning**

Planning a project to a time line with considerations to safety, quality, budget, existing conditions, climate, environment, complexity, risk factors and other variables will be discussed and demonstrated through real project examples. Students will be able to work in teams to develop a project plan and compete against other teams relative to viability and optimization of a plan for a real project.

Week 8: **Quality / Lean / IPD**

Interactive and engaging class discussions will focus on defining quality, preparing for quality and how to achieve quality with success. Understanding the power and value in quality will expose productivity issues in the construction industry and movements to improve both quality and productivity by leveraging lean processes and fundamental tools like Building Information Modeling (BIM) and Last Planner System (LPS). The integrated product delivery will be introduced in these discussions and how it varies from the traditional deliveries discussed in Week 6.

Week 9: **Safety / Risk Management & Claims**

Safety and the well-being of everyone on a construction project is an absolute priority that is paramount to any level of success for a construction project regardless of scale. Safety preplanning, implementation, control and reporting will be discussed. Governmental standards will be introduced and how to ready a project team for creating and maintaining a safe project environment. The safety discussions will unveil various levels of risk associated with construction projects that will introduce exposure to various types of disputes, claims and litigation beyond just safety. Risk identification, risk management and processes for resolving disputes and claims will be examined to provide students with a fair understanding of consequences should safety and risk management be overlooked.

Week 10: **Wrap up and Review**

Final class is reserved for catching up on any course content, winding the full course content together in summary, debriefing on class assignments/team projects, and preparation for the final exam.