This project based senior project focuses on the creation of a fully online topics course called CM 463: Professional Practice for Constructors. The course itself will be based on the project management body of knowledge and will cover several the chapters either in depth or briefly. A few of the topics introduced throughout the course will be: Project Scope, Project Time, and Project Cost. Although most students may have already touched basis on the subjects throughout the current curriculum, the management perspective of these project essentials are overlooked. While each chapter will be introduced throughout the course, a project lasting the length of the class was created to focus on specific topics. After collecting data from a survey taken by the Construction Management student body here at Cal Poly, four deliverables were created not only placing an emphasis on student interests, but key material that will be important when starting a career as well; the four being: Project Risk (Contract Risk, Jobsite Hazards, & Construction Hazards), Scope & Cost, Schedule & Logistics, and the General Conditions of the project. This class will be available in the Spring of 2018 for the upper division students as an opportunity to gain a career advantage above their peers in the industry.

Keywords: Management Perspective, Student Interests, Career Advantage

Introduction

My interest in this idea pertains to my personal involvement with the Associated School of Construction Student Competition; more specifically, the Project Management team that competes in both Region 3 as well as Region 6 & 7. Although when originally joining the Project Management team, I was not entirely sure what to expect, I quickly grew fond of the knowledge that this competition introduced. Much different than the courses taught throughout the construction management curriculum, the problem is focused on the Project Manager's perspective rather than the Project Engineer, which I felt was beneficial to advancing faster in the early stages of my career. With my senior project in mind, I felt that it was a fantastic opportunity for myself to help my fellow Cal Poly students in the Construction Management Department to further themselves as I have; introducing an additional perspective on their day to day encounters in the field.

Process

Stage one: Literature review

Review Project Management Body of Knowledge to get a basis for the needed material and basic curriculum that will be taught throughout the course by Lonny G. Simonian.
Stage two: Conduct surveys

Survey the Construction Department student body to get an understanding of what students would like to see in such a class as well as their general interest.

Stage three: Interview industry members

Interview industry members, targeting PM’s, asking their perspective on what a few of the important factors are that PM’s need to take into consideration.

Stage four: Analysis of collected data

Analyze both the survey conducted on the CM student body to figure out what course material should be emphasized throughout the class.

Stage four: Quarter long project

Using the Project Management competition projects from both ASC Region 3 and Region 6 & 7, I was able to complete a project that pertains to the various topics that will be introduced throughout the course. This will be incorporated alongside the chapter material from the Project Management Body of Knowledge textbook.

Stage five: Writing the contributions list/lessons learned

After the course is completed I will write up a thorough summary of the contributions I have made for the course as well as the valuable information that I have gained while completing the project.

Survey Questions & Responses

1. What year are you?
   a. 1st (17.39%)
   b. 2nd (6.52%)
   c. 3rd (23.91%)
   d. 4th & above (52.17%)

2. Are you a CM major or minor?
   a. Major (78.26%)
b. Minor (21.74%)

3. Do you feel comfortable with a fully online course, with little to know face to face encounters?
   a. Yes (84.78%)
   b. No (15.22%)

4. Would be interested in a topics class that could allow you to be a Project Management Institute Certified Associate in Project Management "?
   a. Yes (93.48%)
   b. No (6.52%)

5. Would you be interested in taking a course pertaining to obtaining a Project Management skill set (overall project, big picture)?
   a. Yes (100.00%)
   b. No (0.00%)

6. Of the topics below, which would you like to see emphasised? (select up to 3)
   a. Project Scope (58.70%)
   b. Project Time (56.52%)
   c. Project Cost (54.35%)
   d. Project Quality (21.74%)
   e. Project Human Resource (21.74%)
   f. Project Communication (13.04%)
   g. Project Risk (50.00%)
   h. Project Procurement (39.13%)

7. Is there anything not listed that you feel is important?
   a. Free response (N/A)

8. Would case studies pertaining to each sections along with a deliverable associated to those be beneficial to understanding these various topics? (i.e. contracts, schedule of values, scheduling, etc.)
   a. Yes (93.48%)
   b. No (6.52%)

9. Would working on one continuous project throughout the course along with deliverables associated to the sections be beneficial to understanding these various topics (i.e. contracts, schedule of values, scheduling, etc.)
   a. Yes (93.48%)
   b. No (6.52%)

10. Of those two, case studies and one continuous project, which do you find more beneficial?
    a. Case studies (32.61%)
    b. Continuous project (67.39%)
The survey questions listed above were administered on a total of 46 construction management majors and minors.

**Survey Analysis**

After analysis of the survey results, I found a few surprising facts to be true; First, while I may have only been able to conduct the survey on a total of 46 construction management students here at Cal Poly, 100 percent of those students showed interest in the potential course. On top of finding that my hypothesis - that students had a strong interest in an in-depth course focusing on the project managers perspective - was true, I also found that although students believe both case studies and a thorough course long project would be beneficial to the understanding of the various topic pertaining to project management, the project received over double that of the potential case study approach with 67 percent. Finally, although all the material incorporated in the project management course are vital to be a successful project manager, I was able to narrow down specific topics that students found either more intriguing and/or would like more in depth knowledge about due to their current comprehension. Using all this data, I have concluded that my contribution to the course will be said project, emphasizing the project scope, time, cost, and risk.

**Deliverables**

Deciding on the course long project due to the survey listed above, this project will consist of four different deliverables, each covering one or two chapter in the course textbook: A Guide to the Project Management Body of Knowledge (PMBOK). Each of these deliverables will not only be related, but contingent on each other.

Starting off with the procurement of the project itself, we have the potential risk behind accepting the job. With construction being one of the riskiest industries out there, this is one of the most important components that a project manager must take into consideration. Within the risk deliverable, there will be two portions of work; one relating solely to contracts and the important factors that constitute a good contract from a bad one as well as another pertaining to both job and construction hazards and how to immigrate these factors - effectively, safety on site.

Second, we have the project scope and cost. While these are two different chapters in the course textbook, PMBOK, these go hand in hand as understanding the scope of work is necessary in choosing a subcontractor and thus finalizing a budget for the potential project. The first portion of work for this deliverable will be understanding a few specified scopes on site and all that they entail. Second, with that information, the following portion of the assignment will consist of a list of subcontractor’s bids relating said scopes, where a subcontractor will be chosen per scope;
taking both inclusion and exclusions into account as well as their pricing, attempting to ensure all work is completed at a reasonable price.

Similar to a scope and budget portion of work, the schedule and logistics will also be placed together as they go hand in hand. Based on a project, the students will need to create a sizable schedule and logistics plan, taking a few factors into considerations; procurement, limited space on site, and efficiency of trades among other components.

Lastly, the final deliverable pertains to the general conditions of the jobsite. This portion of work was placed as at the end of the project due to the rather extensive knowledge one must know in order to properly staff and equip the jobsite; having to take the intensity of work throughout the project, the type of work being done, as well as all necessary job requirements into consideration.

Lessons Learned

Throughout the course of completing my senior project, I had a fantastic opportunity to not only voice my opinion about the Construction Management curriculum, but contribute physical work being introduced into a course that will eventually be taught. Using experience with internships, ASC Region 3 and Region 6 & 7, A Guide to a Project Managers Body of Knowledge as well as aid from Lonny G. Simonian; I was able to assemble a course long project based on a few of the various topics introduced through the duration of the course placing an emphasis on the perspective of a project manager. The project consists of four deliverables - Project Risk, Budget, Schedule & Logistics, and General Conditions. With in these four deliverables, there will be one to three separate portions of work relating to various thought processes that a project manager would take into consideration. While producing this project, I was able to learn an enormous amount myself when pulling information from the textbook PMBOK as well as taking a much more in depth look at the project of the three ASC competition that I was a participant of. Reviewing the textbook PMBOK, I was able to learn a number of helpful tips pertaining to the overall outlook and understanding that a project manager must have to be successful in the Construction Management industry. Alongside PMBOK, taking a look at the entire ASC competition projects, instead of the sole 2 - 4 deliverables that one particular student is in charge of while competing, I was able to view all aspects of work ranging from scheduling to contract risk gaining a much better understanding the perspective attempted to be taught. The combination of these two bodies of knowledge will greatly benefit myself in my industry endeavors as well as any other student able experience it.
References:


*ASC Regions 6 & 7 Student Competition*, asc67.org/competition.html.
Reflection

Throughout the course of completing my senior project, I had a fantastic opportunity to not only voice my opinion about the Construction Management curriculum, but contribute physical work being introduced into a course that will eventually being taught. Using experience with internships, ASC competitions, *A Guide to a Project Managers Body of Knowledge* as well as aid from Lonny G. Simonian; I was able to assemble a course long project based on a few of the various topics introduced through the duration of the course placing an emphasis on the perspective of a project manager. The project consists of four deliverables - Project Risk, Budget, Schedule & Logistics, and General Conditions. With in these four deliverables, there will be one to three separate portions of work relating to various thought processes that a project manager would take into consideration.

While producing this project, I was able to learn an enormous amount myself when pulling information from the three ASC competition that I was a participant of in addition to taking a much more in depth look at the textbook PMBOK. Alongside PMBOK, taking a look at the entire ASC competition projects, instead of the sole 2 - 4 deliverables that one particular student is in charge of while competing, I was able to view all aspects of work ranging from scheduling to contract risk gaining a much better understanding the perspective attempted to be taught. Reviewing the textbook PMBOK, I was able to learn a number of helpful tips pertaining to the overall outlook and understanding that a project manager must have to be successful in the Construction Management industry. The combination of these two bodies of knowledge will greatly benefit myself in my industry endeavors as well as any other student able experience it.