

# Recommendation to Implement a Microsoft Excel Topics Course



The purpose of my senior project is to recommend the addition of a Microsoft Excel course to the Cal Poly Construction Management curriculum. My interest in this topic was sparked when I began my internship at Decker Electric in San Francisco during the summer of 2017. As a result of this internship, I discovered how inadequate my Excel skills were and how important Microsoft Excel is to the construction industry. Upon graduation, Cal Poly Construction Management students enter a workforce that relies heavily upon many different types of software programs that analyze information used daily in construction. With a rapidly growing industry that is constantly changing with new technology, Microsoft Excel will always be an important tool. There is currently no other platform by which one can create detailed spreadsheets and analyze and manipulate data. In the future, this senior project could translate into the implementation of a technical elective course that Cal Poly Construction Management students could elect to take and from which they could benefit greatly.

## Learning Objectives:

1. Develop an understanding of how to navigate through the program Microsoft Excel.
2. Be able to write and comprehend common Excel Formulas that are used in the Construction industry.
3. Be able to write and comprehend basic Excel Functions that are used in the Construction industry.
4. Gain a general knowledge of how to create and properly format an Excel document that is polished enough to be shown to a future employer.
5. Demonstrate the ability to create charts and graphs in order to display information in a clear and concise way to the reader.
6. Demonstrate the ability to use Array formulas in the proper circumstances while being able to evaluate all individual values in an array to perform multiple calculations.
7. The ability to create Pivot tables in order to allow the user to summarize large quantities of data in a tabular format that makes it easier to analyze.
8. Use all accrued information through the course to be able to create a clear and detailed estimate in Excel for the Cal Poly Student Housing Project.
9. Synthesize and be able to apply the tools and techniques learned throughout the course to construction projects.

## Course Goals:

1. Learn the full capabilities of Excel and how they can be practically applied to the Construction Management field
2. Be able to formulate, analyze, manipulate and comprehend intermediate level Excel spreadsheets using CM data
3. Learn to make charts, graphs and pivot tables, formatting, hyperlinking spreadsheets, etc used commonly in the CM field
4. Gain the skills necessary to prepare students for estimating and take offs that are taught in the Residential, Commercial, Heavy Civil, Specialty and Jobsite CM labs
5. Apply and practice the Microsoft Excel knowledge gained in this course to be well-prepared and successful working in the construction field

Week	Topic / Readings (PMI)	Class Activities
1	Syllabus, Schedule, Course Introduction; Introduction to Microsoft Excel	Course Introduction Introduction/ Program debrief
2	Lecture 1 Assessment #1	Lecture 1 – Basic Formulas, Calculation, Formatting Lecture #1 Assessment
3	Lecture 2 Assessment #2	Lecture 2 – Charts and Graphs Lecture #2 Assessment
4	Mid Term Exam 1 Mid Term Exam Debriefing	Review Midterm
5	Lecture 3 Assessment #3	Lecture 3 – Array Formulas Lecture #3 Assessment
6	Lecture 4 Assessment #4	Lecture 4 – Forecasting, Regression and Trend Analysis Lecture #4 Assessment
7	Mid Term Exam 2 Mid Term Exam Debriefing	Review Midterm Introduction to Final Project
8	Lecture 5 Assessment #5	Lecture 5 – Pivot Tables Lecture #5 Assessment
9	Lecture 6 Assessment #6	Lecture 6 – Excel and other BIM Programs, Hyperlinking
10	Practice Final Exam Final Exam	Final Project

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