

California Polytechnic State University, San Luis Obispo

Construction Management Department

CM 421-01, Advanced Building Information Modeling, Fall 2019

Instructor:	Jeong Woo
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Office Hours:	MTW 4:00 – 6:00 PM
Assistant Instructors	TBD
Class Days/Times:	Monday & Wednesday 6:10 PM – 8:00 PM
Classroom:	Construction Innovations Center: 186 – Room A215
Prerequisite(s):	Third-year standing

Emerging trends related to construction management concepts and practices. Goals and objectives achieved through analysis, study, and research of a particular construction emerging trend. Total credit 2 activities.

Course Content and Objectives

- Analyze how BIM integrates into daily and project lifecycles utilizing company examples
- Apply the concepts of 3D, 4D, and 5D through group and individual projects
- Research and experience various VDC/BIM programs and their strengths and weaknesses
- Exercise critical thinking skills to communicate clearly and effectively utilizing the tools available
- Be able to describe and communicate data workflows
- Gain industry "entry-level" training of technology applications for document control, coordination management, and pre-construction

Assignments and Exams

The following assignments and their associated point values are subject to change by the instructor as needed.

Description	Points
Participation / Attendance	20
Ongoing Projects	60
Final	20
Total Points Possible	100

Late/Missed Work and Make-Up Policy

According to Academic Senate Resolution AS-592-03/IC, 485.2, the following are considered “excusable” reasons for make-up missed work:

- Illness with a doctor's statement
- Severe illness or death of close relatives
- Active participation in official university events or field trips (with a statement from the adviser involved certifying that the student was actively participating in the event or field trip)
- Religious holidays
- Selective service and military reasons
- NCAA athletic competitions
- Instructionally Related Activities (IRA)/competitions
- Jury duty or any other legally required court appearances
- Job or internship interviews

See this link on ["Excusable" Reasons for Missing Class](#) provided on the university website.

Grading Policy

Listed below is the grading scale for this course.

Letter Grade	Percentage	Performance	Definition
A	93 – 100%	Excellent Work	Superior Attainment of Course Learning Outcomes
A-	90 – 92%	Mostly Excellent Work	
B+	87 – 89%	Very Good Work	Good Attainment of Course Learning Outcomes
B	83 – 86%	Good Work	
B-	80 – 82%	Mostly Good Work	
C+	77 – 79%	Very Acceptable Work	Acceptable Attainment of Course Learning Outcomes
C	73 – 76%	Acceptable Work	
C-	70 – 72%	Mostly Acceptable Work	
D+	67 – 69%	Mostly Poor Work	Poor Attainment of Course Learning Outcomes
D	63 – 66%	Poor Work	
D-	60 – 62%	Very Poor Work	
F	0 – 59%	Failing Work	Non-Attainment of Course Learning Outcomes

Grades will be derived from assignments, attendance, and a final project/final.

University Policies

Participation and Attendance

Students are responsible for knowing the University policy regarding class attendance. See this link on [Class Attendance Policy](#) provided on the university website.

You are expected to attend all scheduled classes. There will be an attendance grade and points will be deducted if you are late or do not attend class without a valid excuse. Please notify the instructor *beforehand* if you know you will miss class, or be in contact by e-mail or phone if you have a prolonged illness.

Add/Drop Policy

Students are responsible for knowing the University policies, procedures, and schedule for dropping or adding classes. See this link on [Add/Drop Policy](#) provided on the university website.

Academic Integrity

Students are responsible for knowing the [Academic Honesty Policy](#).

We encourage working together NOT copying. Any instance of cheating or plagiarism will be referred to the campus Judicial Affairs office. The Cal Poly rules and policies are listed in the Catalog (page 20 in the 2005-2007), as well as the Office of Student Rights & Responsibilities website, osrr.calpoly.edu. If the rules are unclear or you are unsure how they apply, ask the instructor before-hand. If you cheat you will receive a "fail" grade, and the above will apply.

Students with Disabilities

If you have a disability for which you are or may be requesting an accommodation, you are encouraged to contact both your instructor and the Disability Resource Center, Building 124, Room 119, at (805) 756-1395, as early as possible in the term, as accommodations may take several weeks to arrange. If you are a student with a disability, please consider discussing your needs and possible accommodations with me as soon as possible, and visit the [DRC Website](#) for additional information.

SensusAccess

SensusAccess is a self-service, alternate media solution made available by Kennedy Library to automatically convert files into a range of alternate media including audio books (MP3 and DAISY), e-books (EPUB, EPUB3 and Mobi) and digital Braille. The service can also be used to convert inaccessible files such as image-only PDF files, JPG pictures and Microsoft PowerPoint presentations into more accessible and less tricky formats. This service is available at no charge for all Cal Poly students, faculty, staff and alumni. For additional information, visit [SensusAccess at the Kennedy Library](#).

Technical Support and Contact Information

Support is available for troubleshooting and access issues for PolyLearn. Please visit the [PolyLearn Student Support Web Site](#) for further information.

Campus Resources to Support Student Learning

Cal Poly offers programs and resources that are available to assist students during your academic studies, such as the [Cal Poly Student Academic Services Web Site](#).

Class Recordings

Students may not record (audio or video) in this class except in accordance with ADA accommodations. Any recordings made in connection with disability accommodation are for the student's personal academic use only and may not be distributed in any manner to any other individual. Exceptions will be considered on a case-by-case basis.

Other Policies

Notebook

It is strongly encouraged for you to take notes. Consider this an experimentation in effective note-taking if you need to utilize your notes for reference on the job in the future. Remember, digital note-taking can be especially helpful for using "CTRL + F." All resources will be posted to PolyLearn. Taking notes will be important for open note quizzes, and speeding up how quickly you learn the programs.

PolyLearn

There will be a PolyLearn for this class where assignments will be due and instructor announcements will be posted. Reference websites and tutorial videos will also be posted to PolyLearn. Please notify the instructor if you have trouble accessing the PolyLearn page immediately.

Software

You are not required to install any new software on your personal laptops this quarter because all of the programs are already installed on the computers in the computer lab. However, many of the programs are available for free if you want to download them on your personal laptops. Downloading the programs below is openly supported. Most software companies have free student licensing – especially Autodesk has a 3-year license for all their programs. PolyLearn has the list of programs covered in order.

Guest Speakers

Every quarter we invite guest speakers to share their experiences and knowledge to the class. You are required to be present for the guest lectures in order to receive an attendance grade, and the material covered in the lecture included in quizzes and final.

Cal Poly Cares

Cal Poly is committed to creating an environment for all students to reach their full potential and thrive. Along this journey, many students are unable to afford expenses core to their ongoing success, including housing and meals, academic supplies and materials, personal care items, professional clothing and unplanned emergencies. Our Cal Poly Foundation Board members have come together to support these students in their highest areas of need and created the Cal Poly Foundation Fund for Students. This fund provides awards to students through the Cal Poly Cares Grant program and is administered by the Student Affairs Division in collaboration with the Financial Aid Office. **Cal Poly Cares can award grants up to \$2,000. If you have a greater need, please contact the Dean of Students office at (805) 756-2472 or deanofstudents@calpoly.edu.**

Course Schedule

Week	Monday	Wednesday
Week 1	Syllabus/Meet with your project teams/Install Revit, Navisworks, and BIM 360/Sign up the Autodesk Design Academy course: https://academy.autodesk.com/BIM360Preconstruction	<ul style="list-style-type: none"> • Term Project Intro • Working on Assignment #1 - Design Review and Clash Detection
Week 2	Autodesk Guest Lecture and Demo – Field Management with BIM 360	DUE: Assignment #1 Design Review and Clash Detection
Week 3	Lecture and Demo – Model Coordination with BIM 360	Working on Assignment #2 - Design Review using BIM 360 Model Coordination
Week 4	Lecture and Demo - Model-based QTO with Assemble Systems	DUE: Assignment #2 Working on Assignment #3 – BIM-based QTO using Assemble Systems
Week 5	Lecture and Demo - QTO using 3D PDF in Bluebeam Revu	DUE: Assignment #3 Working on Assignment #4: QTO using 3D PDF in Bluebeam Revu
Week 6	Site Logistics & Constructability Analysis with Bluebeam Revu	DUE: Assignment #4 Working on Assignment #5 – 2D Site Logistics
Week 7	Site Logistics using Infraworks	DUE: Assignment #5 Working on Assignment #6 - 3D site logistics using Infraworks
Week 8	Time-lapsed Simulation with Synchro	DUE: Assignment #6 Working on Assignment #7 -VE using 4D Scheduling
Week 9	BIM Execution Plan	DUE: Assignment #7 Working on Team Presentation
Week 10	Team Presentation	Due: Team Project Submission
Week 11	Final Exam	