

**CM 3040 – Building Information Modeling I**  
**Construction Management Department**  
**College of Architecture & Construction Management**  
**Term: Summer 2019**

**Prerequisite:** CM 2000, CM 3000

**Class Meeting time:** M & W 1:00 – 4:00 PM

**Course Website:** <http://d2l.kennesaw.edu>

**Class Location:** H-339

**Class instruction methodology:** Lecture & Lab (2-2-3)

**Instructor:** Pavan Meadati

**Office Location:** H 336

**Office Hours:** M and W 6:30 to 7:00 PM

**Email /Phone:** [pmeadati@kennesaw.edu](mailto:pmeadati@kennesaw.edu)/470-578-4217

**Course Communications:** D2L email within the KSU D2L Brightspace Access

**Required Text/ISBN Number:** None

**COURSE SYLLABUS**

The intent of the syllabus is to provide the students with information on the course content, required learning outcomes, grading policy, course policies, and Kennesaw State University student policies and resources. This syllabus also includes the tentative topical outline and schedule. Each student is expected to abide by the stated policies.

**Course Catalog Description:**

A course on study of building information modeling for pre-construction applications. The course will enable the students to develop and modify building information models. It includes integration of estimates and schedules with building information models. It also prepares the students to identify conflicts caused by architectural, structural, mechanical, plumbing, and electrical systems during pre-construction stages.

**Student Learning Outcomes covered in this course:**

SLO 1 – Create written communications appropriate to the construction discipline.

SLO 9 – Apply construction management skills as a member of a multi-disciplinary team.

SLO 10 – Apply electronic-based technology to manage the construction process.

**Course Learning Outcomes:**

Upon completion of the course the student will have the ability to:

CLO 1 – Develop a building information model.

CLO 2 – Prepare quantity estimates from BIM.

CLO 3 – Resolve the constructability problems using BIM.\*\*

CLO 4 – Develop a four dimensional model by integrating BIM and the project schedule.

\*\* Able to apply coordination skills of construction manager.

**Purpose of this course:**

All courses in the Construction Management program contribute to the body of knowledge required to complete the Capstone project necessary for graduation. Each course in the Construction Management program provides the student with an opportunity to attain knowledge, skills, and abilities in one or more of the 20 Student Learning Outcomes (SLO) set forth by the American Council for Construction Education (ACCE). The student's level of achievement of SLO is measured through one or more Course Learning Outcomes (CLO). The mapping of CLOs with SLOs for the course is shown in the table below followed by the table that presents the mapping of CLO with assessment tools.

**Mapping of CLO with SLO**

Assessment	CLO 1	CLO 2	CLO 3	CLO 4
SLO 1	X			
SLO 9			X	
SLO 10		X		X

**Mapping of Assessment with CLO**

Assessment	CLO 1	CLO 2	CLO 3	CLO 4
HW – Create BIM	X			
HW – Model based Quantity Takeoff		X		
HW – Constructability Analysis			X	
HW – 4D Modeling				X

**COURSE POLICIES**

**Attendance Policy:** Attendance is required for this course. Excused absences are given with proper notice and/or documentation. The Class Participation grade is based on your attendance to the class and other approved functions.

**Quiz / Exam Policy:** A cumulative final exam is given at the end of the semester, all students must be present for the final exam.

**Make-up Policy:** No make-up exams are given.

**Assignment Policy:** Assignments are posted on D2L. Each assignment has either a Drop Box or is identified as a graded component of the course. Students are expected to attend class and complete assignments in a timely manner. Due dates and times are given for all assignments. It is your responsibility to submit the work in the appropriate Drop Box in D2L before the time expires. If the Drop Box has an End Date, then that is the last possible date to submit late work. All student work will be graded within one week of submission.

**Course Technology:** This course requires access to a computer. The Construction Management Department has 105 computer stations available for student use. At a minimum, students should be able to use a word processing application, a spreadsheet application and a presentation application (i.e., Microsoft Word, Excel and PowerPoint). Construction documents are supplied in PDF format, students may view them using Bluebeam software in the department, or on PDF viewers of their choice.

**Evaluation & Grading:**

Exam	15%
Home Work	70%
Class Projects	15%
<b>Total:</b>	<b>100 %</b>

A = 90-100

B = 80-89

C = 70-79

D = 60-69

F = Below 60

## CM 3040: COURSE TOPICAL OUTLINE & SCHEDULE

Week	Topic	Reading	Assignment
1	Administrative Matters & Introduction to BIM Modeling - Architectural Families		
	Modeling - Architectural Families	[HW - Creating BIM] Work Session	[HW - Creating BIM] Assigned
2	Modeling - Architectural Families	[HW - Creating BIM] Work Session	
3	BIM Application – Quantity Estimation (Schedules)	[HW – Model based Quantity Takeoff] Work Session	[HW - Creating BIM Due & HW – Model based Quantity Takeoff] Assigned
4	Modeling - Structures Families	[HW: Modeling (Structural)] Work Session	[HW – Model based Quantity Takeoff] Assigned Due & [HW: Modeling (Structural)] Assigned
	BIM Application – (Design Options)	[HW: Design Options] Work Session	[HW: Modeling (Structural)] Due & [HW: Design Options] Assigned
5	BIM Application - Class Project 1 (Phasing)		[HW: Design Options] Due & [Class Project 1] Due
6	Modeling - MEP Families	[HW: Modeling (MEP)] Work Session	[HW: Modeling (MEP)] Assigned
7	BIM Application - Class Project 2 (Creation of New Families)		[HW: Modeling (MEP)] Due & Class Project 2 Due
	BIM Application - Four Dimensional Modeling	[HW: 4D Modeling] Work Session	[HW: 4D Modeling] Assigned
8	BIM Application - Design & Pre-Construction Coordination	[HW: (Constructability Analysis)]: Work Session	[HW: 4D Modeling] Due & [HW: (Constructability Analysis)]: Assigned
	BIM Application - Design & Pre-Construction Coordination	[HW: (Constructability Analysis)]: Work Session	[HW: (Constructability Analysis)]: Due
9	BIM Application - Class Project 3 (BIM Application – Object Animation)		Class Project 3 Due
10	Developing 3D As-builts & Documentation, Exam		

Note: The topical outline and schedule is tentative and subject to change as per the progress of the course.

## **UNIVERSITY POLICIES: Statement of Student Rights and Responsibilities KSU Student Code of Conduct**

### **Plagiarism and Cheating:**

No student shall receive, attempt to receive, knowingly give or attempt to give unauthorized assistance in the preparation of any work required to be submitted for credit (including examinations, laboratory reports, essays, themes, term papers, etc.). Unless specifically authorized, the presence and/or use of electronic devices during an examination, quiz, or other class assignment is considered cheating. Engaging in any behavior which a professor prohibits as academic misconduct in the syllabus or in class discussion is cheating. When direct quotations are used, they should be indicated, and when the ideas, theories, data, figures, graphs, programs, electronic based information or illustrations of someone other than the student are incorporated into a paper or used in a project, they should be duly acknowledged. No student may submit the same, or substantially the same, paper or other assignment for credit in more than one class without the prior permission of the current professor(s).

University Policy on Academic Misconduct: Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the KSU Student Academic Integrity Policy at [http://kennesaw.edu/handbooks/faculty/section2\\_13.php](http://kennesaw.edu/handbooks/faculty/section2_13.php)

### **University Policy on Accommodating Students with Disabilities:**

Students requesting accommodation for disabilities must first register with the Office of Disabled Student Support Services at [http://www.kennesaw.edu/stu\\_dev/dsss/dsss.html](http://www.kennesaw.edu/stu_dev/dsss/dsss.html). The Office of Disabled Student Support Services will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

### **\*\*Netiquette: Communication Courtesy:**

All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats. <http://teach.ufl.edu/docs/NetiquetteGuideforOnlineCourses.pdf>

### **Electronic Recording & Social Media Policy**

Electronic recording performed without the consent of the people being recorded chills the free exchange of ideas. Academic freedom, free inquiry, and freedom of expression should not be limited by the fear that one's brainstorming, polemic discourse, speculative inquiry, or any other kind of expressed curiosity made within the space of a university classroom will be made public without one's consent. This fear is unacceptable regardless of whether one is in an online, hybrid, or face-to-face classroom setting. Accordingly, no person shall electronically record any class discussion without the written permission of the instructor. No person shall publish online or elsewhere any electronic recording of a class discussion without the written permission of the instructor and any other persons who were recorded. This policy is not intended to discourage electronic recording in the classroom or the use of social media when such actions are performed with the written consent of the instructor and any other persons who were/will be recorded. Faculty accommodate all reasonable requests to electronically record a class discussion; these requests must be documented by the Disabled Student Support Services available at: [http://www.kennesaw.edu/stu\\_dev/dsss/prospect.shtml](http://www.kennesaw.edu/stu_dev/dsss/prospect.shtml)

## GETTING HELP

For issues with technical difficulties, please contact the Student Helpdesk:

1. Fill out a service form <http://uits.kennesaw.edu/support/formselect.php?s=tech>
2. Email: [studenthelpdesk@kennesaw.edu](mailto:studenthelpdesk@kennesaw.edu)
3. Call: 770-499-3555

Getting Started With Technology Services <http://uits.kennesaw.edu/>

Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from ITS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

### Additional Technology Resources

1. Student Service Desk and Help Center [studenthelpdesk@kennesaw.edu](mailto:studenthelpdesk@kennesaw.edu)
2. Browser Checker  
[https://usg.desire2learn.com/d2l/tools/system\\_check/systemcheck.asp?ou=6606](https://usg.desire2learn.com/d2l/tools/system_check/systemcheck.asp?ou=6606)
3. USG Desire2Learn Help Center <https://d2lhelp.view.usg.edu/>
4. D2L Training Options & Resources for Students  
<https://web.kennesaw.edu/acs/pages/desire2learn/student-resources-d2l>
5. Computertrain Online Courses <http://www.kennesaw.edu/dlc/FacultyResources/>
6. ITS Documentation Center  
[http://uits.kennesaw.edu/docs/netaccess/guides/windows7\\_wifi\\_instructions.pdf](http://uits.kennesaw.edu/docs/netaccess/guides/windows7_wifi_instructions.pdf)
7. Check Service Outages <http://status.usg.edu/>
8. Maintenance Schedule <https://usg.desire2learn.com>

### Academic Resources

1. Academic Tutoring Services [http://www.kennesaw.edu/stu\\_dev/alp/academic.shtml](http://www.kennesaw.edu/stu_dev/alp/academic.shtml)
2. Disability Resources [http://www.kennesaw.edu/stu\\_dev/dsss/dsss.html](http://www.kennesaw.edu/stu_dev/dsss/dsss.html)
3. ESL Study and Tutorial Center <http://www.kennesaw.edu/us/programs/esl.php>
4. Library <http://www.kennesaw.edu/library/>
5. Supplemental Instruction <http://www.kennesaw.edu/us/programs/si.php>
6. The Writing Center <http://www.kennesaw.edu/writingcenter/index.php>
7. Math Lab <http://mathlab.kennesaw.edu/>

### Student Support and Wellness Resources

1. Career Services Center <https://careerctr.kennesaw.edu/>
2. Counseling and Psychological Services <http://sss.kennesaw.edu/cps/>
3. Center for Health, Promotion and Wellness [http://www.kennesaw.edu/col\\_hhs/wellness/](http://www.kennesaw.edu/col_hhs/wellness/)
4. Student Health Clinic <http://studenthealth.kennesawstateauxiliary.com/>

KSU desires to resolve student grievances, complaints and concerns in an expeditious, fair and amicable manner. The Complaints and Appeals Page was developed to assist current and prospective students in submitting complaints and appeals and to direct them to the most effective venue for accurate information and resolution. The resources on the page will direct students to the specific venue to appropriately address related student complaint. [http://www.kennesaw.edu/complaints\\_appeals.shtml](http://www.kennesaw.edu/complaints_appeals.shtml)

Complaints for online students are resolved following the same general procedures for students who attend classes on campus. However, for any process that requires that a student appear in person, the university may make other arrangements. For processes that cannot be completed via telephone, e-mail, or written

correspondence, the university may set up a two way Video conference site in place of a meeting on the KSU campus.

## STUDENT LEARNING OUTCOMES

Upon graduation from an accredited ACCE 4-year program a graduate shall be able to:

ACCE SLO	TARGET
SLO 1 – Create written communications appropriate to the construction discipline.	
SLO 2 – Create oral presentations appropriate to the construction discipline.	
SLO 3 – Create a construction project safety plan.	
SLO 4 – Create construction project cost estimates.	
SLO 5 – Create construction project schedules.	
SLO 6 – Analyze professional decisions based on ethical principles.	
SLO 7 – Analyze construction documents for planning and management of construction processes.	
SLO 8 – Analyze methods, materials, and equipment used to construct projects.	
SLO 9 – Apply construction management skills as a member of a multi-disciplinary team.	
SLO 10 – Apply electronic-based technology to manage the construction process.	
SLO 11 – Apply basic surveying techniques for construction layout and control.	
SLO 12 – Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	
SLO 13 – Understand construction risk management.	
SLO 14 – Understand construction accounting and cost control.	
SLO 15 – Understand construction quality assurance and control.	
SLO 16 – Understand construction project control processes.	
SLO 17 – Understand the legal implications of contract, common, and regulatory law to manage a construction project.	
SLO 18 – Understand the basic principles of sustainable construction.	
SLO 19 – Understand the basic principles of structural behavior.	
SLO 20 – Understand the basic principles of mechanical, electrical and piping systems.	