CNST 6375 BUILDING INFORMATION MODELING (BIM) APPLICATIONS FOR CONSTRUCTION MANAGEMENT

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Instructor
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Office Hours:
Thursday 5 – 7 p.m. or by appointment

Teaching and lab Assistants
TBD

Catalog Description
Theory and Application of Building Information Modeling (BIM) Concepts for Construction Engineering and Management Practices.

Class Schedule
- Lecture: Thursday 2 – 5 p.m. (T 120J)
- Lab: Labs will be during the lecture time

Class Website
- Blackboard will be used

Textbook: These are recommended books. But, most of required readings will be provided to students as electronic copies
- "BIM and Construction Management: Proven Tools, Methods, and Workflows", Brad Hardin, Dave McCool, John Wiley & Sons
- "BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors", Chuck Eastman, Paul Teicholz, Rafael Sacks, Kathleen Liston, Wiley
- Online readings posted in BlackBoard

Course Objectives and Outcomes
The objective of this course is to introduce students to concepts of model-based workflows in the construction industry using Building Information Modeling (BIM) technologies. Students in this class will understand how construction practices can be improved by BIM. Topics include using BIM for modeling, design/construction coordination, estimating, scheduling, safety planning, as-built modeling, etc. Lab hours will help students to learn hands-on skills of using BIM-related software programs and real-world project information. Different software programs will be used to teach major concepts and functionalities of BIM for modeling (Autodesk Revit), multidisciplinary design coordination and clash detection (Autodesk Navisworks, Assemble Systems), construction visualization (Autodesk Navisworks, Assemble Systems), cost estimating (RS Means, Assemble Systems), etc. After learning leading industry practices and tools, students will conduct research studies. Students will identify technical limitations and drawbacks in current practices and propose conceptual or well-developed solutions to overcome the problems.

Prerequisite Course(s)
N/A

Course Composition

Grading

Attendance and participation	5%
5 reports (10% each)	50%
Term Project (abstract 5%, presentation 20%, project report 20%)	45%
Total	100%

Schedule
The tentative schedule is follows:

Week	Topic
1.	Introduction to BIM
2.	Basic modeling and project navigation
3.	Overview of BIM uses for construction management
4.	BIM tools and new workflows of construction planning & management
5.	Model-based quantity-takeoff and cost estimating
6.	Scheduling and planning with 4D BIM
7.	Construction safety planning using BIM
8.	Cloud-BIM for design/construction coordination & clash detection
9.	Point cloud data for as-built modeling
10.	Rule-based model checking
11.	Term project plan presentation
12.	Case study: BIM for construction management
13.	Future of BIM
14.	Review session
15.	Term project final presentation

Academic Honesty
The instructor reserves the right to adjust letter grades, upward only, based on individual attendance and class participation if numerical grade warrants such consideration. Students who violate University rules on scholastic dishonesty are subject to disciplinary penalties, including the possibility of failure in the course and dismissal from The University. Since dishonesty harms the individual, all students, and the integrity of The University, policies on scholastic dishonesty will be strictly enforced.

Students with Disabilities
University of Houston provides, upon request, appropriate academic adjustments for qualified students with disabilities. Any student with a documented disability (physical or cognitive) who requires academic accommodations should contact the Center for Students with Disabilities (713/743-5400) for more assistance.

Exam Policy
Exams will include material covered in class discussions and homework assignments. Make-up exams will be given only in the event of a verified emergency or doctor-verified sickness. The student is responsible for all reading assignments and class handouts whether or not covered in class or listed on the syllabus.

Course/Instructor Evaluation
A course/instructor evaluation will be conducted in class during the last scheduled lecture. Any suggestions you have on improving the course, however, are welcome throughout the term.
For detailed information about Disabilities, Religious Holy Days, the Academic Calendar, and Academic Honesty, and other information, please visit the UH website:
http://www.uh.edu/provost/stu/stu_syllabsuppl.html

UH CAPS Statement
Counseling and Psychological Services (CAPS) can help students who are having difficulties managing stress, adjusting to the demands of a professional program, or feeling sad and hopeless. You can reach CAPS (UH main campus www.uh.edu/caps, or UH Sugar Land campus http://www.uh.edu/dsaes/uhsugarland/) by calling 713-743-5454 during and after business hours for routine appointments or if you or someone you know is in crisis. No appointment is necessary for the "Let's Talk" program, a drop-in consultation service at convenient locations and hours around campus.
UH main campus http://www.uh.edu/caps/outreach/lets_talk.html
UH Sugar Land campus http://www.uh.edu/dsaes/uhsugarland/