

COURSE SYLLABUS – CE 4910/6910 BIM in Construction Management

Fall 2015

INSTRUCTOR:

Kalyan R. Piratla, PhD
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Grader: Sepideh Yazdekhashti; syazdek@g.clemson.edu

COURSE HOURS:

T, Th: 08:00AM-09:15AM, 301 Lowry Hall; you can leave the room if the instructor is late by more than 15 minutes. Students are encouraged to attend all the classes.

OFFICE HOURS:

Tue 2:00-3:15PM, 310 Lowry Hall
Thu 2:00-3:15PM, 310 Lowry Hall
Also available by appointment; just send me an email giving me times you can meet.

INSTRUCTOR BIO:

Dr. Kalyan Piratla is an assistant professor in the Glenn Department of Civil Engineering in the College of Engineering and Science at Clemson University. He has a bachelors and masters in Civil Engineering from the Indian Institute of Technology (IIT) Madras, India. He got his PhD in Construction Management from Arizona State University. His research interests lie in the area of sustainable and resilient underground infrastructure systems with focus on design, construction and management aspects. He is a recipient of the 2015 Arthur M. Wellington Prize (a prestigious national award) from the American Society of Civil Engineering.

PRE-REQUISITE COURSES:

Basic Engineering Drawing Course, CE331 (Construction Engineering and Management)

COURSE OUTCOMES:

This course will introduce building information modeling (BIM), trains students in using Revit Architecture software (to a certain extent), and explores the use of BIM in construction management applications such as quantity takeoff, 4D scheduling, energy analysis and etc. Within a limited amount of class time, I developed realistic expectations for how much knowledge you will gain from this course. The expectations from this course are that you understand the type and extent of the positive impact BIM could have on a construction project and gain hands-on training of using a set of popular BIM-related software for construction management applications. Some of the topics that will be covered include (subjected to change):

- Construction Project Delivery Methods
- Introduction to BIM Fundamentals
- Current BIM Technologies (Revit)
- Hands-on BIM Experience
- Linking of Vital Information into the BIM Model
- Simulation Using BIM

- Challenges W/BIM and Integrated Project Delivery (IPD)

TEXTBOOKS:

The following text books are recommended as references for this course.

1. **Autodesk Revit Architecture 2016: No Experience Required**, Eric Wing, Sybex (ISBN-13: 978-1119059530) (optional)
2. **BIM Handbook: A Guide to Building Information Modeling for Owners, Managers, Designers, Engineers and Contractors**, 2nd Edition, Eastman et al., 2011. Published by Wiley. (optional)
3. Additional readings that will be posted on Blackboard.
4. Set of software used in this course are available for free at: <http://www.autodesk.com/education/free-software/revit>
 - a. Autodesk Revit Architecture 2016
 - b. Navisworks Manage 2016

CLASS WEBSITE:

The class website is located at <https://bb.clemson.edu> under the name kpiratl-F15_BIM. The site will contain class lecture notes, reading material, announcements, and laboratory materials. The student is responsible for checking this site frequently for any latest updates.

WEIGHTING OF GRADES:

Assignments – 60%

Graduate students will have to work on additional assignments for receiving full 60% credit.

Project – 30%

There will be a semester project that entails developing a BIM model for one of the Clemson campus buildings and using that to prepare a detailed quantity takeoff, 4D schedule and energy analysis reports.

Final Exam – 10%

GRADING SCALE:

There will be numerous assignments, potential pop quizzes, a multi-phase project, and two exams. Your final grade will be based on how many points you have received out of the total possible. The grade range indicated below will be followed for this semester. “X” represents your final average out of 100.

Range	Grade
$90 \leq X < 100$	A
$80 \leq X < 90$	B
$70 \leq X < 80$	C
$60 \leq X < 70$	D
$0 \leq X < 59$	F

STUDENT WORK:

You must come to class prepared – that is, with pens, pencils, reading notes and computers (when required), and etc.

ACADEMIC INTEGRITY:

Students are expected to perform class activities in keeping with standards outlined in the Clemson University Statement on Academic Integrity. All the lab submittals must reflect the individual student's efforts. Plagiarism will not be tolerated. Further, students are not allowed to provide or take any assistance during exams. Appropriate action will be taken towards any student suspected of violation of the following statement:

“As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a 'high seminary of learning.' Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.”

*“When, in the opinion of a faculty member, there is evidence that a student has committed an act of academic dishonesty, the faculty member **shall** make a formal written charge of academic dishonesty, including a description of the misconduct, to the Associate Dean of Undergraduate Services. At the same time, the faculty member may, but is not required to, inform each involved student privately of the nature of the alleged charge.”*

Please refer to the Academic Integrity Policy on the Clemson University website for additional information: <http://www.clemson.edu/academics/academic-integrity/>

GRADUATE REQUIREMENTS:

Graduate students need to work on the following assignments in addition to the normal class assignment work.

- Graduate Research Paper (report and presentation)

ASSIGNMENT POLICY:

All work will be turned in on time, by the end of period that it is due. A **25% penalty** will be applied once the work is submitted late. The bottom line is that work must be submitted on time and be professional – *just like in industry.*

MAKE-UP POLICY:

Prior notice, when possible, will be given to the instructor when a class will be missed. Only under the most extreme circumstances, supported by written documentation, will a make-up quiz or test be given. The final decision rests with the instructor. When a class is missed, it is the student's responsibility to obtain notes and assignments from fellow classmates.

STUDENT DISABILITY SERVICE

Students with disabilities who need accommodations should make an appointment with Arlene Stewart, Director of Student Disability Services, to discuss specific needs within the first month of classes. Students should present a Faculty Accommodation Letter from Student Disabilities Services when they meet with instructors. Student Disability Services is located in G-20 Redfern

(telephone number: 656-6848; email: sds-1@clemson.edu). Please be aware that accommodations are not retroactive and new Faculty Accommodation Letters must be presented each semester.

IMPORTANT RULES:

1. No use of personal electronics in the class except calculators and computers when required!
2. No eating and drinking in classroom, please!
3. Please cooperate for creating a great learning environment in the classroom

Good Luck!!!