

CEE 6110 Syllabus

Computer Applications in Construction CEE 6110, Section A, 3 Credits

Fall 2026

Instructor Information

Instructor: Francis Baek

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General Course Information

Description

This course examines the application of computing technologies to address challenges and emerging needs in construction. Rather than focusing solely on individual technologies, the course emphasizes the full logic of technology application: identifying construction problems, defining the information or capabilities needed to address them, examining how computing technologies can provide those capabilities, and evaluating current applications, limitations, and future directions.

Students will explore major computing technologies used or emerging in construction, including computer vision, the Internet of Things (IoT), robotics and physical AI, and building information modeling (BIM). Through lectures, research and industry examples, hands-on activities, and a final project, students will develop the ability to critically assess the relevance, feasibility, and potential impact of computing technologies in construction.

Course Learning Outcomes

Upon successful completion of this course, you should be able to:

- Explain the fundamental concepts, capabilities, inputs, outputs, and limitations of major computing technologies relevant to construction.
- Analyze construction problems and identify the information or capabilities needed to address them, independent of any specific technology.
- Evaluate existing computing applications in construction based on their technical performance, practical feasibility, limitations, and potential impact.

- Formulate well-justified future applications or research directions by connecting construction needs with appropriate computing capabilities and identified knowledge gaps.
- Develop and evaluate a proof-of-concept computing application for a construction problem and communicate its rationale, results, limitations, and implications

Required Course Materials

All course materials (e.g., slides) will be provided through Canvas or in class. Students are expected to bring a laptop computer to class on days involving hands-on activities. Many activities will use browser-based or freely available computing tools. Specific software or system requirements, if any, will be announced in advance.

Grading Policy:

Your final grade will be determined based on the following weighted categories. Please note that these percentages and requirements are subject to change as the semester progresses.

- Assignments: 20%
- In-Class Activities: 20%
- Team Project Deliverables: 40%
- Individual Contribution: 10%
- Peer Review: 10%
- Total: 100%

The following grading scale will be used to determine your final letter grade. Please note that these thresholds represent the minimum requirements for each grade.

- ≥ 90 : A
- ≥ 80 : B
- ≥ 70 : C
- ≥ 60 : D
- < 60 : F

Description of Graded Components

Graded components would be like follows:

- **Assignments:** Take-home assignments will reinforce concepts introduced in class and extend in-class activities. Students may be asked to analyze computing

technologies, examine their capabilities and limitations, and explore potential applications to construction problems and needs.

- **In-Class Activities:** In-class activities will provide hands-on experience with selected computing technologies and opportunities to apply course concepts through guided exercises, discussions, and short analytical tasks. These activities are intended to help students connect technical capabilities with construction applications.
- **Team Project Deliverables:** Students will work in teams to develop and evaluate a proof-of-concept computing application addressing a construction-related problem or need. Project deliverables will include an initial project idea, intermediate in-class project activities and checkpoints, a final presentation, and a final report. Detailed project guidelines and evaluation criteria will be provided during the semester.
- **Individual Contribution:** Each student will be evaluated on their individual contribution to the team project. Evaluation will consider the extent and quality of each student's involvement in project development, analysis, implementation, and communication.
- **Peer Review:** Students will review and provide constructive feedback on the work of other teams during selected project activities. Peer review is intended to develop students' ability to critically evaluate technology applications, identify strengths and limitations, and suggest meaningful improvements

Course Policies

Attendance and/or Participation

Regular attendance and active participation are expected because the course includes hands-on exercises, discussions, demonstrations, and other in-class activities that are difficult to reproduce outside of class.

- **In-Class Activities:** In-class activities constitute 20% of the final grade. Students are expected to attend and participate in scheduled activities in order to receive credit.
- **Absences:** Students who must miss class for circumstances recognized under Georgia Tech policies should notify the instructor as soon as reasonably possible. Appropriate arrangements for missed graded activities will be considered when applicable.

- **Responsibility for Course Material:** Students are responsible for material, announcements, and instructions provided during class, including information related to assignments and the team project.

Late Submission Policy

Assignments and project deliverables are expected to be submitted by the stated deadline. Late submissions may be accepted with a penalty of **10% per day for up to two days**. Submissions more than **48 hours late may not be accepted**, unless prior arrangements have been made with the instructor or the delay is associated with circumstances recognized under Georgia Tech policies.

Academic Integrity

Georgia Tech aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. Review [Georgia Tech's Honor Code](#) and the student [Code of Conduct](#).

Any student suspected of cheating or plagiarism on a quiz, exam, or assignment will be reported to the Office of Student Integrity, who will investigate the incident and identify the appropriate penalty for violations.

Accommodations for Students with Disabilities

If you are a student with learning needs that require special accommodation, [contact the Office of Disability Services](#) (404-894-2563) as soon as possible to make an appointment to discuss your special needs and to obtain an accommodations letter. Please also e-mail me as soon as possible in order to set up a time to discuss your learning needs.

Student-Faculty Expectations Agreement

At Georgia Tech, we believe that it is important to strive for an atmosphere of mutual respect, acknowledgement, and responsibility between faculty members and the student body. [The Student-Faculty Expectations](#) articulate some basic expectations that you can have of me and that I have of you. In the end, simple respect for knowledge, hard work, and cordial interactions will help build the environment we seek. Therefore, I encourage you to remain committed to the ideals of Georgia Tech while in this class.

Campus Resources for Students

Undergraduate Student Academic Success Resources:

- Academic Support: Academic Success and Advising (a unit in the Office of Undergraduate Education & Student Success) provides free support for your courses. Students can attend scheduled supplemental review (PLUS) sessions, stop by Drop-In Tutoring, or schedule a one-on-one appointment through Knack. To explore what options work best for you, please visit us online at success.gatech.edu/tutoring, email us at tutoring@gatech.edu, or come see us at Clough Undergraduate Learning Commons, Suite 283.

Graduate Student Academic and Professional Success Resources:

A list of resources for graduate students is given on the Office of Graduate and Postdoctoral Education website. Specific information for current graduate students includes

- Academic Resources such as the Communications Center, Language Institute, Library, Catalog, Registrar, resources for conducting research, Advocacy and Conflict Resolution resources, and how to manage unexpected situations that may impact your academic performance;
- Student Resources such as Campus Services, Child Care/Family programs, Health & Wellness, Career Services, and the Student Resource Guide; and
- Professional Development such as the programming from the Career Center and other professional development resources and events”

Student Well-Being:

At Georgia Tech, we are concerned about your overall physical, social, and mental well-being. A comprehensive list of wellness related resources has been compiled and maintained by the Office of the Vice President for Student Engagement and Well-being ([student-resource-guide \(gatech.edu\)](https://student-resource-guide.gatech.edu))