



## CEE 6140: Advanced Planning and Estimating Methods Spring 2022

### Instructor

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### Office Hours

Instructor is available by appointment at most times. Email the instructor your availability to setup an appointment.

### Class Schedule and Location

2:00 PM to 3:15 PM on Tuesday and Thursday  
Klaus Advanced Computing Building Room 1447

### Course Reading Text

Required Textbook: *R.S. Means Building Construction Cost Data* (2010 to 2020 is acceptable)  
Other research articles and industry news documents will be posted on the class website for appropriate course modules.

### Course Website

[canvas.gatech.edu](https://canvas.gatech.edu)

### Course Objectives

Students will learn advanced methods for planning and estimating construction projects including resource allocation/management, project control techniques, interpretation of schedules and estimates, and value engineering.

### Course Outcomes

This course is designed to meet the following outcomes:

- 1) Identify the concepts and phases of project management and pre-construction planning
- 2) Explain advanced topics in project planning including resource planning and risk analysis
- 3) Apply common project cost control, progress measurement and earned value methods of project management
- 4) Describe relationship types when ordering activities in a project plan
- 5) Apply Microsoft Project to plan activities and analyze a construction project
- 6) Describe and differentiate between types of construction estimates and the role they play in the project process
- 7) Perform estimates, including conceptual and detailed estimates for building construction
- 8) Apply RS Means to determine project costs.
- 9) Describe and differentiate between relationship types when ordering activities in a plan
- 10) Explain the fundamental concepts, tools and techniques to organize and develop estimates

<b>Academic Integrity</b>	The Georgia Institute of Technology aims to cultivate a community based on trust, academic integrity, and honor. Students are expected to act according to the highest ethical standards. For information on Georgia Tech’s Academic Honor code, please visit <a href="http://www.catalog.gatech.edu/policies/honor-code">http://www.catalog.gatech.edu/policies/honor-code</a> .	
<b>Assignment Policy</b>	Assignments are an essential part of understanding the lecture material. After the submission deadline, solutions will be available on Canvas. Apart from normal “take-home” assignments, several “in-class” assignments will be completed throughout the semester. These in-class assignments will be completed and submitted at the end of a class meeting. Students can be provided alternative assignments by the instructor and awarded up to half credit for the original assignment. Specific arrangements must be made with the instructor to submit alternative assignments. All alternative assignments must be submitted no later than 2:00 PM on April 26, 2022.	
<b>Exam Policy</b>	Exams will cover material given in class (lecture, notes, and handouts), posted articles, site visits, and assignments. Exam dates are listed in the course schedule and will not be changed. Only university excused circumstances will be considered for make-up exams.	
<b>Attendance Policy</b>	Regular attendance is expected and encouraged. Each student is responsible for all material and administrative instructions given during the lecture period. Attendance may be taken periodically throughout the semester.	
<b>Academic Accommodations for Students with Disabilities</b>	Reasonable accommodations are provided to self-identified students with disabilities who meet the academic and technical requisite to admission or participation in the program of study. Incoming students with apparent course work deficiencies due to a disability should contact the coordinator for Student with Disabilities at (404) 894-2564 or <a href="http://disabilityservices.gatech.edu">http://disabilityservices.gatech.edu</a> to obtain an accommodation letter. Please also contact the instructor as soon as possible to set-up a time to discuss your learning needs.	
<b>Grading Scheme</b>	<i>Percentage</i>	<i>Grade</i>
	90.0 - 100.0	A
	80.0 - 89.9	B
	70.0 - 79.9	C
	60.0 - 69.9	D
	59.9 or lower	F
<b>Grading Weights</b>	<i>Criteria</i>	<i>Weight</i>
	Assignments	35%
	Projects	20%
	Exam #1	15%
	Exam #2	15%
	<u>Final Exam</u>	<u>15%</u>
	Total	100%

### Class Schedule

Weekday	Date	Topic
Tuesday	Jan. 11	Introduction to Construction Planning
Thursday	Jan. 13	Construction Project Stakeholder Alignment (PDRI)
Tuesday	Jan. 18	Schedule Types
Thursday	Jan. 20	Time and Contracts
Tuesday	Jan. 25	Last Planner
Thursday	Jan. 27	Pull Planning
Tuesday	Feb. 1	Parade of Trades
Thursday	Feb. 3	Review of Critical Path Method (CPM)
Tuesday	Feb. 8	Guest Presentation: Carroll Daniel Construction
Thursday	Feb. 10	Introduction to Microsoft Project
Tuesday	Feb. 15	Construction Productivity
Thursday	Feb. 17	<b>Exam 1</b>
Tuesday	Feb. 22	Line of Balance (LOB)
Thursday	Feb. 24	Probabilistic Scheduling
Tuesday	Mar. 1	Estimating Activity Durations
Thursday	Mar. 3	Resource Allocation and Leveling
Tuesday	Mar. 8	BIM for Construction Project Planning: 4D and 5D
Thursday	Mar. 10	<b>Planning Group Presentations</b>
Tuesday	Mar. 15	Introduction to Construction Estimating
Thursday	Mar. 17	Quantity Take-Off
Tuesday	Mar. 22	<b>No Class: Spring Break</b>
Thursday	Mar. 24	<b>No Class: Spring Break</b>
Tuesday	Mar. 29	R.S. Means
Thursday	Mar. 31	<b>Exam 2</b>
Tuesday	Apr. 5	Estimating General Conditions / Single Parameter Estimates
Thursday	Apr. 7	Completing the Estimate
Tuesday	Apr. 12	Cash Flow
Thursday	Apr. 14	Development Puzzle
Tuesday	Apr. 19	Course Summary and Final Exam Review
Thursday	Apr. 21	<b>Estimating Group Presentations</b>
Tuesday	Apr. 26	<b>Estimating Group Presentations</b>
Thursday	Apr. 28	<b>Final Exam 2:40 PM - 5:20 PM</b>

Note: Guest lectures will be integrated into the existing schedule. The presented schedule can be changed based on various factors. The scheduled dates for bolded activities will not change.