



CE 616 – 852 Construction Cost Estimation

Spring 2025

CE 616 852: CONSTRUCTION COST ESTIMATING

(3 Credits)

Lectures On-Line Virtual

Instructor **Godson Ike Oraedu** **Office Hours:** Wed. 6:00 PM to 7:00 PM
Email: Oraedu@njit.edu
Phone: 973-568-3715

Prerequisites/Co-requisites

CE 610-Construction Management

Required Textbook/Required Materials

Estimating In Building Construction, Ninth Edition, Frank R. Dagostino and Steven J. Peterson Published By: Prentice Hall 978-0134701165

Other Recommended Texts & Reading

Reference Materials/Text: Either of the following:
RS Means Estimating Handbook. 3rd Edition
Means Estimating Handbook. 2nd Edition

Course Description

Full range of construction cost-estimating methods including final bid estimates for domestic building and heavy/highway projects; computerized takeoff and estimating techniques; international construction; financial and cost reporting; databases; indices; risk; competition; performance; and profit factors.

General Information

Course Objectives / Learning Outcomes (General)

By the end of the course, students will be able to:

1. Demonstrate the estimating and quantity take-off process and how they are associated with construction cost control.
2. Identify the differences between various contracting systems in the construction bidding process.
3. Identify and extract the actual costs associated with construction materials from databases and trade publications.
4. Apply current tools and technologies in construction cost estimation.
5. Create a construction business plan proposal using cost estimation for the stakeholder.
6. Communicate effectively about construction cost estimation, contracts and ethics in estimating through weekly discussion posts, conversations and bidding projects.
7. Review scholarly articles and publications within the domain of construction cost estimation, evaluating their content, methodologies, and conclusions.

POLICIES & PROCEDURES

Academic Integrity: It is expected that NJIT's University Code on Academic Integrity will be followed in all matters related to this course. Refer to NJIT's Dean of Students website to become familiar with the Code on Academic Integrity and how to avoid Code violations.

<https://www.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf>

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the [NJIT academic code of integrity policy](#).

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"

Communication: I will typically respond to direct communications, such as email, within 48 hours. Allow up to 2 weeks for feedback on submitted assignments. This feedback will be provided in Canvas.

Etiquette

Throughout this course, you are expected to be courteous and respectful to classmates by being polite, active participants. You should respond to discussion forum assignments in a timely manner so that your classmates have adequate time to respond to your posts. Please respect opinions, even those that differ from your own, and avoid using profanity or offensive language.

Weekly Expectations

This course is organized by weekly modules. Each week, students must watch lecture videos, read required textbook chapters and/or articles, participate in a class discussion forum by Thursday at 11:59 p.m. and respond to two classmates' discussion posts by Sunday at 11:59 P.M. and complete any assignments and learning activities.

Course Modality:

This is an online course, which will be conducted fully online, asynchronously via Canvas. For more information on using Canvas and other supported learning tools, visit the IST Service Desk [Knowledgebase](#).

Instructor Information

Instructor	Email	Office Hours
Godson Ike Oraedu, P.E.	Oraedu@njit.edu	Instructor office location - Webex and office hour times- Furnished upon request*

Policy for Late Work

Module assignments, discussions, reflections and projects will not be graded if submitted late. Prior approval from the instructor is required for such a one-time submission.

Grading Policy

[NJIT Grading Legend](#)

Final Grade Calculation

Final grades for all assignments will be based on the following percentages:

Midterm/Final Exam	30%
Discussion Forums	15%
Assignments/Quizzes	20%
Bidding Project/Project Check-ins	30%
Knowledge Checks/Reflections	5%

Course Work

Midterm: (30% of grade) There will be open-book midterm/final exam. The exam will focus on the content covered in your textbooks and lectures. You will be provided with questions that will assess your understanding of the estimation process.

Discussion Forums: (15% of grade) There will be weekly discussion forums in Canvas. When all students participate in a discussion, it creates an active learning environment that will help you better understand the materials and be more successful in the class. You will post your initial response to the prompt by Thursdays at 11:59pm and respond to two classmates by Sunday at 11:59pm of the week they are listed.

Assignments/Quizzes: (20% of grade) Module assignments will be given weekly to give you an opportunity to apply course concepts for that week. These activities are designed to help you practice and prepare for the projects. There will also be a quiz to test your knowledge of certain concepts.

Bidding Project/Project Check-ins: (30% of grade) There will be a bidding project assigned to you in the middle of the semester, which will need to be completed by the end of semester. You will have to show progress through project check-ins. The progression of this project will be as follows:

- **Bidding Project** (you will work on this between Module 8-Module 14)
- **Project Check-in #1**-Module 10
- **Project Check-in #2**-Module 12
- **Bidding Project Reflections**-Module 14
- **Final Project Submission**-Module 15

Knowledge Checks/Reflections: (5% of grade) These activities will provide you with the opportunity to recall knowledge learned throughout the semester. Through the reflections, you will also be able to connect what you have learned with your future careers and ask any questions that you may have.

Feedback

I will deliver feedback on each module assignment using the comments feature in Canvas.

Letter to Number Grade Conversions

A	90-100
B+	85-89
B	80-84
C+	75-79
C	70-74
F	0-74

Instructor Commitment: You can expect the instructor to be courteous, punctual, organized, and prepared for lecture and other class activities; to answer questions clearly; to be available during office hours or to notify you beforehand if office hours are moved; to provide a suitable guest lecturer or pre-recorded lecture when they are traveling or unavailable; and to grade uniformly and consistently.

AI statement: The use of artificial intelligence (AI) is permitted in this course only when explicitly stated in assignments. If students use AI for any course-related work, they must cite it according to the guidelines provided on the [NJIT Library AI Citation page](#). If you have any questions about AI use in this course, please contact the course instructor before submitting any assignments. In cases where AI use is not allowed, students are expected to complete work without AI assistance to develop their skills in this subject area.

Students with Documented Disabilities: NJIT is committed to providing students with documented disabilities equal access to programs and activities. If you have, or believe that you may have, a physical, medical, psychological, or learning disability that may require accommodations, please contact the Coordinator of Student Disability Services located in the Center for Counseling and Psychological Services, in Campbell Hall, Room 205, (973) 596-3414. Further information on disability services related to the self-identification, documentation and accommodation processes can be found on the webpage at: (<http://www.njit.edu/counseling/services/disabilities.php>)

Course Schedule

Week	Topic	Reading/Assignment	Due Dates
1 1/21/25 – 1/27/25	Introduction to Estimating and Contract Documents	Read: Chap 1 Discussion-Peer Introductions	Initial Post-Thurs Peer Reply-Sun
2 1/28/25 – 2/03/25	Contracts, Bonds, Insurance, Project Manuals, Labor, Equipment, Overhead and Contingencies	Read: Chap 2, Chap 3, Chap 6, Chap 7 and Chap 8 Discussion-Renting vs. Buying Equipment Module 2 Assignment	Initial Post-Thursday Peer Reply-Sunday Sunday
3 2/04/25 – 2/10/25	Profit, Estimate, Quantity Takeoff	Read: Chap 4, Chap 5 and Chap 21 Knowledge Check Discussion-Finding a Subcontractor Module 3 Assignment Reflection	Sunday Initial Post-Thursday Peer Reply-Sunday Sunday Sunday
4 2/11/25 – 2/17/25	Excavation	Read: Chap 10 Discussion-Excavation Module 4 Assignment	Initial Post-Thursday Peer Reply-Sunday Sunday
5 2/18/25 – 2/24/25	Masonry, Metal and Wood	Read: Chap 12, Chap 13 and Chap 14 Discussion-Masonry Module 5 Assignment	Initial Post-Thursday Peer Reply-Sunday Sunday
6 2/25/25 – 3/03/25	Concrete Estimating	Read: Chap 11 and Review for midterm Discussion-Estimating Concrete Quantities Reflection	Initial Post-Thursday Peer Reply-Sunday Sunday
7 3/04/25 – 3/10/25	Midterm Exam	Discussion-Midterm-related Questions Midterm Exam	Sunday

Week	Topic	Reading/Assignment	Due Dates
8 3/11/25 – 3/17/25	Bidding Project Assignment	Discussion-Sharing Bidding Experience Bidding Project Assigned	Initial Post-Thursdays Peer Reply-Sunday
3/18/25 – 3/24/25	SPRING RECESS		
9 3/25/25 – 3/31/25	Thermal and Moisture Protection, Doors and Windows, Finishes	Read: Chap 15, Chap 16 and Chap 17 Discussion-New Construction vs. Renovation Article Review Reflection	Initial Post-Thursdays Peer Reply-Sunday Sunday Sunday
10 4/01/24 – 4/07/24	Mechanical Insulation Estimating	Read: Chap 19 and Chap 20 Discussion-Geographical Influence Article Review Project Check-in #1	Initial Post-Thursdays Peer Reply-Sunday Sunday Sunday
11 4/08/24 – 4/14/24	Anatomy of a Construction Project	Discussion-Business Plan vs. Sustainability Practices Module 11 Assignment	Initial Post-Thursdays Peer Reply-Sunday Sunday
12 4/15/25 – 4/21/25	Value Engineering	Read: Value Engineering Theory Discussion-Value Engineering in Construction Quiz Project Check-in #2	Initial Post-Thursdays Peer Reply-Sunday Sunday Sunday
13 4/22/25 – 4/28/25	Bidding Project Focus	Discussion-Bidding Project-related Questions Reflection	 Sunday

Week	Topic	Reading/Assignment	Due Dates
14 4/29/24 – 5/05/24	Final Project Revisions	Review for Final Exam Discussion-Bidding Project Reflections Final Project Revisions	Initial Post-Thurs Peer Reply-Sun
15 5/06/24 – 5/12/24	Bidding Project Submission	Submit Bidding Project	5/12/2024

Additional Information and Resources

Accessibility:

This course is offered through an accessible learning management system. For more information, please refer to Canvas's [Accessibility Statement](#).

Requesting Accommodations:

The Office of Accessibility Resources and Services works in partnership with administrators, faculty, and staff to provide reasonable accommodations and support services for students with disabilities who have provided their office with medical documentation to receive services.

If you need accommodations due to a disability, please contact the [Office of Accessibility Resources and Services](#) to discuss your specific needs.

Resources for NJIT Online Students

NJIT is committed to student excellence. To ensure your success in this course and your program, the university offers a range of academic support centers and services. To learn more, please review these [Resources for NJIT Online Students](#), which include information related to technical support.

Exam Information and Policies

NJIT policy requires that all midterm and final exams must be proctored, regardless of delivery mode, in order to increase academic integrity. Note that this does not apply to essay or authentic based assessments. Effective beginning Fall semester 2019, students registered for a fully online course section (e.g., online or Hyflex mode) must be given the option to take their exam in a completely online format, with appropriate proctoring.

Any course that uses online proctoring for exams may require you to do an environmental scan. You are responsible for selecting a location where you are comfortable with yourself and your room being video, and audio recorded. You may be asked to use your camera to scan all four walls of the room you are in, as well as the workspace, desk, and area around the computer. Ideally, your exam environment should be well-lit and free from distractions and interruptions.

In this course you will be required to use the following proctoring method to ensure academic integrity for exams. See below for more information about how exams will be proctored in this course.

ProctorU Record+

ProctorU **Record+**, is an automated proctoring solution that uses Artificial Intelligence during the exam. Both you and your screen are recorded throughout the duration of the exam, followed by a full review from a ProctorU proctor. The proctor then sends an incident report to the instructor if any potential academic integrity violations occur.

In using ProctorU Record+, students need:

- [Guardian Browser](#)
- High-speed internet connection
- Webcam (internal or external)
- Microphone and Audio (internal or external)
- Windows or Apple Operating System
- NJIT ID or Photo-Issued ID

Recommendations for students in using ProctorU Record+

1. [Create a ProctorU account](#) and confirm your email address.
2. Download and install [Guardian Browser](#).
3. [Test your equipment](#) prior to your proctoring session. It is recommended you click on the button that says "Connect to a Live Person" to **fully** test out your equipment.
 - a. **Important Notice for OSX Users:** You will need to [enable screen sharing in your browser](#) **prior** to taking the exam.
4. Try one of the following practice quizzes:
 - a. [Record+ Practice Quiz](#)
 - b. [Record+ Practice Quiz with File Upload](#)
5. When it is exam time, log into Guardian Browser.

6. Navigate to your exam in Canvas and click “Take the Quiz” to begin the startup sequence.
 - a. **Note:** If you are asked for an access code, it means you are not logged into the ProctorU browser. Click the owl icon in your browser to log in and begin again.
7. It may require you to sign into your ProctorU account.

Helpful Resources

- [Record+ \(Guardian\) Instructions for Test-Takers](#)
- [How to get started with your Testing Session](#)
- [Tips on Ensuring a Smooth Experience](#)
- [ProctorU Privacy Policies](#)
- [ProctorU Accommodations](#)
- Questions or Problems? Contact:
 - [ProctorU LiveChat](#) (Immediate Help with an Account)
 - [ProctorU Help Center](#) (Immediate Help without an Account, or Non-Urgent Requests)
 - ProctorU Support: 855-772-8678
 - IST Service Desk: 973-596-2900 or [Help.njit.edu](https://help.njit.edu)