

Fall 2024

## **CE 410 - 101: CONSTR SCHEDLNG/ESTIMTNG**

Alan Slaughter

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**CEE 410– Course Section 101: Course Title:**  
(3 credits)

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**Lectures** Day(s) Mon.:6:00 pm – 8:50 pm  
Colton Hall, Room 416

**Instructor** Alan Slaughter, P.E. Office Hours: Monday: 4:15 to 5:30PM  
Colton Hall, Room 416  
Email: [slaughte@njit.edu](mailto:slaughte@njit.edu)  
Phone: 973 567 2726

**Prerequisite:**

**Required Textbook**

Estimating Construction Costs, 6<sup>th</sup> Edition  
Authors: Robert Peurifoy and Garold Oberlender  
Published By: McGraw Hill, ISBN No. 0-07-243580-1

**Other Recommended Texts & Reading**

2023 National Construction Estimator, 71<sup>st</sup> Edition

**Course Description**

Quantity takeoff. cost estimate and CPM computer analysis of typical building or highway projects. A study is made of construction project organization, contract requirements and management control techniques with an introduction to computer applications.

<http://catalog.njit.edu/undergraduate/newark-college-engineering/civil-environmental/civil-engineering-bs/>

**Course Objectives (General)**

By the end of this course, the student will be able to

**Course Topic 1**

Students will listen to the lectures and read the text in order to Identify the individual parts to an estimate and be able to understand and Identify the various items that make up an estimate.

**Course Topic 2:**

During the semester the students will prepare a project estimate and schedule based on the project in the book. This included a prebid conference for the project during the semester. It all dramatizes the way a bid is actually done.

### Course Topic 3

The students will identify, demonstrate, describe and organize schedules using CPM and bar chart compositions.

## 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>

**Communication:** I maintain communications with my students by having office hours before class and after class if necessary. They can also contact me either by E-mail or canvas.

**Lectures/Class:** Attendance is checked early on in one of the first classes. If it appears that fewer students are showing up for some reason, attendance is taken again. The class is open communication and they ask questions as needed.

**Handouts:** Canvas is used to provide any handouts, electronically in its website.

**Homework:** Homework is provided on a weekly basis where possible. Students are expected to work individually and not in groups. The only change to this is the project where they may work in groups of two.

**Homework Format:** Homework is prepared in different formats depending on the assigned work. It may be a schedule, calculations, or writeups. They set their own format.

**Late Homework:** Late homework is accepted by email only. Generally, 5 points are taken off which can be adjusted on the quality of work or the lateness of the work.

**Homework Solutions:** Homework can be provided only after all home work have been completed.

**Exams:** Exams are put on canvas. But given in class where I can proctor them. The students are allowed to use the book and notes in word, excel and powerpoint.

**Calculation of Course Grade:** A weighted average grade will be calculated as follows:

Homework	15%
Midterm Exam	25%
Project	30%
Final Exam	30%

The minimum requirements for final letter grades are as follows:

A = 90%, B+ = 85.0%, B = 80%, C+ = 75%, C = 70%, D = 65%, F < 65%

*Grades are based on the sum of the various numerical grades throughout the semester.*

**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.

**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:** Include a table with a preliminary schedule including estimated exam dates, course topics, project dates, etc.

## Course Outline

<u>Week No. /Date</u>	<u>Topics</u>	<u>Chapters</u>
1/ Sept. 9	Introduction Bid Documents	Chapt. 1 Chapt. 2
2/ Sept.16	Estimating Process	Chapt. 3
3/ Sept.23	Conceptual Cost Estimating Cost of Labor and Equipment	Chapt. 4 Chapt. 5
4/ Sept. 30	Material Handling & Transport Earthwork and Excavation	Chapt. 6 Chapt. 7
5/ Oct. 7	Foundations Highway	Chapt. 9 Chapt.8
6/ Oct. 14	Concrete Masonry	Chapt. 10 Chapt. 14
7/ Oct. 21	Steel Structures	Chapt. 11
Oct. 20	<b>Midterm Examination in - class</b>	
8/ Oct. 28	Historic Structures, Carpentry	Chapt. 12
9/ Nov. 3	Roofing and Flashing Flooring Systems and Finishes	Chapt. 13 Chapt. 15
10/ Nov. 11	Electrical, Mechanical, Plumbing	Chapt. 17 Chapt. 18

11/ Nov. 28

Sewerage and Water Distribution

Chapt. 19  
Chapt. 20

12/ Dec. 2 **Projects Due-Bid Opening- Apparent Award of Bid**

Dec.9 **Final Examination (on canvas)**

**Course Objectives Matrix – Course No. CE 410 – Section Number 101**

Strategies and Actions	Course Student Learning Outcomes	ABET Student Outcomes (a-k)	Program Educational Objectives	Assessment Methods/Metrics
<b>Course Objective 1: Lectures and reading and homework to understand the various aspects of creating an estimate</b>				
Examples in class and homework	To be knowledgeable in the methods of assembly of an estimate	1, 5, 7	1	Quality of homework and participation in class.
<b>Course Objective 2: Evaluate a set of plans and specs and prepare a complete estimate</b>				
Prepare an estimate and work together in a group	What it takes to breakdown a project and prepare an estimate for each item and the assemble the estimate.	1, 3, 5, 6	1	At the end of the semester compete with the other students to present their results and compare with the other students in class
<b>Course Objective 3: To prepare schedules for homework and the project</b>				
Assembly of bar charts and CPMs to help understand how to breakdown a project and put the items in a proper order	Results from homework and the project	1, 2, 4, 6,	1, 2	To evaluate the chart elements and their assembly. To review how the students understand the process.

**CEE Mission, Program Educational Objectives and Student Outcomes**

The mission of the Department of Civil and Environmental Engineering is:

- to educate a diverse student body to be employed in the engineering profession
- to encourage research and scholarship among our faculty and students
- to promote service to the engineering profession and society

Our program educational objectives are reflected in the achievements of our recent alumni:

1. Engineering Practice: Alumni will successfully engage in the practice of civil engineering within industry, government, and private practice, working toward safe, practical, resilient,

sustainable solutions in a wide array of technical specialties including construction, environmental, geotechnical, structural, transportation, and water resources.

2. Professional Growth: Alumni will advance their skills through professional growth and development activities such as graduate study in engineering, research and development, professional registration and continuing education; some graduates will transition into other professional fields such as business and law through further education.
3. Service: Alumni will perform service to society and the engineering profession through membership and participation in professional societies, government, educational institutions, civic organizations, charitable giving and other humanitarian endeavors.

Our Student Outcomes are what students are expected to know and be able to do by the time of their graduation:

1. an ability to identify, formulate and solve complex engineering problems by applying principles of engineering, science and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety and welfare, as well as global, cultural, social, environmental and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies

Revised: 2/20/2024