JOHN A. REIF, JR. DEPARTMENT OF
CIVIL AND ENVIRONMENTAL ENGINEERING

NJIT New Jersey Institute of Technology

CE 410-102 – CONSTRUCTION ESTIMATING AND SCHEDULING – SPRING 2018

Time & Location Tuesday 6:00-9:05PM, COLT 416

Instructor Muhammad Elgammal, PE, PMP
njcivilengineer@gmail.com

Office Hours TBD, COLT 261

Prerequisites CE 210, Construction Materials & Procedures

Text Estimating Construction Costs, 6th Edition
Robert L. Peurifoy and Garold D. Oberlender
McGraw Hill, ISBN No. 978-0-07-339801-3

Course Description Quantity take off, 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 (Microsoft Project).

Wk	Date	Topic
1	1/16	Introduction Estimating Overview Scheduling Overview
2	1/23	Contract Drawing Review Industry Standards Activity Relationships
3	1/30	Bid Documents & Preparation Estimating Process Conceptual Cost Estimating
4	2/6	Cost of Construction Labor & Equipment Construction Safety Handling and Transporting Material
5	2/13	Earthwork and Excavation
6	2/20	Highways & Pavements Portland Cement Concrete Asphalt Concrete
7	2/27	Drainage & Utilities Total Cost of Engineering Projects

Wk	Date	Topic
8	3/6	*Midterm Examination*
9	3/13	***Spring Recess***
10	3/20	Project Control Principles Network Modeling
11	3/27	Construction Sequencing
12	4/3	Contract Requirements & Provisions
13	4/10	Critical Path Method
14	4/17	Monitoring & Control Change Management
15	4/24	Cost Schedule Integration
16	*5/8**	*Final Examination*

General Notes

Lecture slides will be uploaded to Moodle after lecture.
No late assignments accepted. No use of electronic devices.
The NJIT Honor Code will be upheld in this course. Students participating in this course agree to conform to, abide by, and agree to the sanctions of the University Code on Academic Integrity.

Grading

Participation	5%	Midterm Examination	25%
Assignments	13%	Term Project	25%
Quizzes	12%	Final Examination	20%

Outcomes Course Matrix – CE 410 -102 – Construction Estimating and Scheduling

Strategies, Actions and Assignments	ABET Student Outcomes (1-7)	Program Educational Objectives	Assessment Measures
Student Learning Outcome 1: Recognize the various components of construction.			
Review bid documents and the cost estimating process using labor, materials, equipment, overhead and profit.	1	1	Homework, mid-term exam.
Student Learning Outcome 2: Prepare cost estimates.			
Prepare cost estimates for various civil areas of construction.	1, 7	1, 2	Homework, project assignment
Student Learning Outcome 3: Prepare a CPM schedule for a project.			
Present project control principals, CPM and cost schedule integration.	1, 7	1,2	Homework, project assignment, final exam.

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 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: 2/13/18