CMCE 3520 Construction Management for Civil Engineering Technologists

Course Description:
A thorough overview of advanced planning and management techniques for the construction process. Topics include project communications, CPM scheduling, safety, construction processes, risk allocation, accounting principles, material testing and quality control techniques, change orders, claims and disputes. Project safety is addressed in a 10-hour OSHA certification training course. Students also study the LEED rating system and take a LEED certification exam (if qualified). Industry standard computer scheduling software, industry standard project management software and the use of value engineering (VE) workshop to reduce construction costs are also covered. This course is open to civil engineering technology students only..

Prerequisites: CMCE 2457
4 Class hours, 4 credits

Textbook: Construction Project Management, Gould, 4th edition, Pearson 2014.
Reference: Documents available from General Contractors Association and OSHA

Program Criteria

ABET, Inc. is the nationally recognized accrediting body for engineering technology programs. The CMCE department has adopted the most current ABET Program Criteria. Graduates of baccalaureate degree programs typically specify project methods and materials, perform cost estimates and analyses, and manage construction activities. The CMCE curriculum provides instruction in the following areas:

- Utilization of techniques that are appropriate to administer and evaluate construction contracts, documents, and codes (Criterion a);
- Estimation of costs, estimation of quantities, and evaluation of materials for construction projects (Criterion b);
- Production and utilization of documents related to design, construction, and operations (Criterion e);
- Performance of economic analyses and cost estimates related to design, construction, and maintenance of systems associated with construction engineering; (Criterion f);
- Selection of appropriate construction materials and practices (Criterion g);
- Application of appropriate principles of construction management, law, and ethics (Criterion h);

Student Outcomes

The CMCE department has adopted the most current ABET student outcomes criteria. Student performance in this course will be assessed based on the following learned capabilities:

- An ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve broadly-defined engineering problems appropriate to the discipline (Criterion 1);
- An ability to apply written, oral, and graphical communication in broadly defined technical and non-technical environments; and an ability to identify and use appropriate technical literature (Criterion 3);

- An ability to function effectively as a member as well as a leader on technical teams (Criterion 5);

Academic Integrity Policy

Students and all others who work with information, ideas, texts, images, music, inventions, and other intellectual property owe their audience and sources accuracy and honesty in using, crediting, and citing sources. As a community of intellectual and professional workers, the College recognizes its responsibility for providing instruction in information literacy and academic integrity, offering models of good practice, and responding vigilantly and appropriately to infractions of academic integrity.

Accordingly, academic dishonestly is prohibited in The City University of New York and at New York City College of Technology and is punishable by penalties, including failing grades, suspension, or expulsion.

Course Outline

Session	Topic	In Class Work	After Class Assignment
1	Introduction Informal Communication: Email The Construction Industry & Project Delivery		ASSGN1: Practice Email Ch.1-2, 5
2	Construction Services During Design, Construction, & On Site Work Breakdown Structures Specifications & Workmanship Reports: Research & Library Use	Case Study 1 ASSGN2: WBS Library Research Practice	ASSGN3: Email on CS1 Ch. 12
3	LEED Module 1 & LEED Module 2 Project Planning & Scheduling Fundamentals of CPM Construction Scheduling	ASSGN4: LEED Case Study 2	ASSGN5: CPM Ch. 6, 8
4	Fundamentals of CPM Construction Scheduling cont'd.	ASSGN6: CPM Case Study 3	ASSGN7: Email & CPM on CS3
5	LEED Module 3 Meetings and Negotiations	ASSGN8: LEED Case Study 4	ASSGN9: Class Project Part 1 Ch. 7, 14
6	Award & Contracts Change Orders Billing & Accounting Practices Accounting (Progress Measurement & Payment)	ASSGN10: Requisition Case Study 5	Study for Midterm
7	MIDTERM EXAM		Ch. 9, 13
8	Codes, Plans & Specifications Labor Law	ASSGN11: Invoices Case Study 6	ASSGN12: LEED
9	LEED Module 4 – PRACTICE EXAM	OSHA	---
10	OSHA certification course (3 hr.) Risk Allocation & Management	OSHA Class Project Due	---
11	OSHA certification course (3 hr.) Value Engineering Principles	OSHA ASSGN13: VE Exercise	---
12	OSHA certification course (2 hr.) Value Engineering, cont'd. Project Documentation: RFIs & Reports	OSHA ASSGN13: VE Exercise, cont.	---
13	OSHA certification course (2 hr.) Insurance & EMR Project Closeout	OSHA	ASSGN14: EMR OSHA Certification Exam
14	Review for Final		Study for Final
15	FINAL EXAM		