CMCE 4800 – SENIOR CAPSTONE

Course Description
The senior capstone project is an integrating experience that draws together diverse elements of the curriculum and develops student competence by focusing on both technical and non-technical skills to solve problems. Students work in teams to solve a comprehensive problem beginning with conceptual design all the way through to final design, preparation of construction documents and cost estimation. Nontechnical skills such as presentation skills, teamwork, accountability and ethics are emphasized.

Prerequisites: CMCE 4700 or department approval
1 Class hour, 4 Lab hours, 3 credits

References: Instructor will provide digital copies of journal articles and selected design standards, & drawings relating to the specific capstone project.

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);
- Demonstrate utilization of measuring methods, hardware, and software that are appropriate for field, laboratory, and office processes related to construction (Criterion c);
- Apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to construction engineering; (Criterion d);
- 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);
- Performance of standard analysis and design in at least one sub-discipline related to construction engineering (Criterion i).

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 design systems, components, or processes meeting specified needs for broadly-defined engineering problems appropriate to the discipline (Criterion 2);
- 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 conduct standard tests, measurements, and experiments and to analyze and interpret the results to improve processes; (Criterion 4);
- 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

Week	Topic	Assignment
1	Defining the Project	
2	Scope of Work	
3	Scheduling	Progress Report 1
4	Conceptual Design	
5	Conceptual Design	Progress Report 2
6	Presentation Skills Seminar	
7	Midterm Presentation	
8	Final Design	
9	Final Design	Progress Report 3
10	Final Design	
11	Cost Estimates	
12	Construction Drawings and Specifications	
13	Construction Drawings and Specifications	Progress Report 4
14	Final Presentation	
15	Final Presentation and Wrap-up	