# CMCE 4471 QUALITY ASSURANCE

**Course Description**: Topics covered include total quality management; management responsibilities and best practices; the established quality elements of management responsibility; documented quality management system; design control; document control; purchasing; product identification and traceability; process control; inspection and testing; nonconformance; corrective action; quality records; quality audits and training, documented in ISO 9000, 9001: 2000 FTA QA/QC Guidelines.

**Prerequisites**: CMCE 2421 or CMCE 3520
3 Class hours, 3 credits

**Textbook:** Goetsch, D. L. & Davis, S. B. Quality Management for Organizational Excellence, Introduction to Quality, 8th Ed., Pearson Publishers, ISBN 13: 978-0-13-379185-3
**Reference**: Prof. notes

## 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 4800 curriculum provides instruction in the following areas:

- Demonstrate utilization of techniques that are appropriate to administer and evaluate construction contracts, documents, and codes; (Criterion a);
- Apply fundamental computational methods and elementary analytical techniques in sub-disciplines related to construction engineering; (Criterion d);
- Demonstrate production and utilization of documents related to design, construction, and operations (Criterion e);
- Apply 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 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);

Additionally, students will achieve the following outcomes:

- A commitment to quality, timeliness, and continuous improvement;
- An understanding of and a commitment to address professional and ethical responsibilities including a respect for diversity.

**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.

# Course Outline

| Session | Meeting location / format | Topic | Deliverables |
|---|---|---|---|
| 1 – 8-26 | Zoom | • Introduction to QA & Course policies<br>• Student introductions<br>• Total Quality Approach to Quality Management.<br>• Achieving Organizational Excellence | • InClass01<br>• Read after class: Ch 01-2<br>• HW01: Page 15, Problems 4,7, 9 & 10; Page 31 Problems 1,4, 5 &7 |
| 2 – 9/2 | BB Collaborate | Quality & Global Competitiveness | • InClass02<br>• Read after class: Ch 03<br>• HW02: Page 48 Problems 1, 2, 3 & 5 |
| 3 – 9/9 | BB Collaborate | Strategic Management: Ethics and Corporate Social Responsibility | • InClass03<br>• Read after class: Ch 04<br>• HW03: Page 62, Problems 1, 2, 6 &7 |
| 4 – 9/16 | BB Collaborate | Quality Management, Ethics, and Corporate Social responsibility | • InClass04<br>• Read after class: Ch 06<br>• HW04: Page 89. Problems 7, 8, 9 & 11 |
| 5 – 9/23 | BB Collaborate | Quality Culture: Changing Hearts, Minds& Attitudes. | • InClass05<br>• Read after class: Ch 08<br>• HW05: Page 116, Problems 2, 4, 7 & 10 |
| 6 – 9/30 | BB Collaborate | Employee empowerment. | • InClass06<br>• Read after class: Ch 09 |
| 7 – 10/7 | BB Collaborate | Leadership & Change | • Lab01 DUE<br>• InClass07 |
| 8 – 10/21 | BB Collaborate | MIDTERM EXAM | • Read after class: Ch 10 |
| 9 – 10/28 | BB Collaborate | Team Building & Teamwork | • InClass08<br>• Read after class: Ch 11 |
| | | MIDTERM GRADES POSTED – 10/29 | |
| 10 – 11/4 | BB Collaborate | Effective Communication | • InClass09<br>• Read after class: Ch 15 |
| 11 – 11/11 | BB Collaborate | Overview of Total Quality tools. | • InClass 10<br>• Read after class: Ch 16 |
| 12 – 11/18 | BB Collaborate | Design and Document control | • InClass11<br>• Read after class: Prof handout |
| 13 – 12/2 | BB Collaborate | QA technology | • Lab02 DUE<br>• InClass12 |