ENGR 439 Syllabus

1. Course number and name
   ENGR 439: Construction Engineering

2. Credits and contact hours
   3 credit hours; three 50-minute lecture sessions/week, or two 75-minute lecture
   sessions/week, depending on semester

3. Instructor’s or course coordinator’s name
   Instructor: Ghassan Tarakji, Professor of Civil Engineering
   Course coordinator: Ghassan Tarakji, Professor of Civil Engineering

4. Text book, title, author, and year
   Recommended Reference
   (Latest Edition)

5. Specific course information
   a. brief description of the content of the course (catalog description)
      Topics in construction engineering; construction methods and equipment, Excavating,
      loading, hauling, and finishing; production of construction materials; compressed air and
      water systems; concrete form design; quality control.

   b. prerequisites and/or co-requisites
      ENGR 309: Mechanics of Solids
      ENGR 430: Soil Mechanics (co-requisite)

   c. indicate whether a required, elective, or selected elective course in the program
      Elective in Civil Engineering

6. Specific goals for the course
   a. specific outcomes of instruction, ex. The student will be able to explain the significance of
      current research about a particular topic.
      • The student will demonstrate an understanding of the characteristics of the
        construction industry.
      • The student will show familiarity with current issues pertaining to the construction
        industry.
      • The student will demonstrate an understanding of soil properties and characteristics.
      • The student will demonstrate the ability to calculate production rates of various
        construction equipment.
      • The student will demonstrate an understanding of the design of concrete formwork.
      • The student will demonstrate an understanding of QC/QA and the application of
        acceptance plans in construction projects.
      • The student will demonstrate an understanding of commonly used construction
        materials and equipment, and the ability to design certain construction systems.
• The student will conduct research on one aspect of construction engineering and management of his/her choosing and be ready to present the findings to the class.

b. explicitly indicate which of the student outcomes listed in Criterion 3 or any other outcomes are addressed by the course.
   Course addresses ABET Student Outcome(s):
   N/A

7. Brief list of topics to be covered
   • Characteristics of the construction industry
   • Earthmoving materials and operations
   • Excavating equipment
   • Loading and hauling equipment
   • Cranes and lifting equipment
   • Miscellaneous construction equipment
   • Air and water systems
   • Asphalt and bituminous concrete
   • Concrete mix design
   • Concrete form design
   • Quality control