

1. *Course number and name*
ENGR 429: Construction Management

2. *Credits and contact hours*
3 credit hours; three 50-minute lecture sessions/week, or two 1-hr-15-minute lecture sessions/week, depending on semester

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

4. *Text book, title, author, and year*
Mubarak, Saleh, Construction Project Scheduling and Control, 3rd ed. Wiley, 2015.
 - h. *other supplemental materials*
None

5. *Specific course information*
 - s. *brief description of the content of the course (catalog description)*
Construction engineering and management; professional practice and ethics; bidding and contracting; planning and scheduling, network diagrams, scheduling computations, resource management, computer applications; cost estimating; construction safety.

 - t. *prerequisites or co-requisites*
ENGR 235: Surveying

 - u. *indicate whether a required, elective, or selected elective course in the program*
Required for Civil Engineering

6. *Specific goals for the course*
 - m. *specific outcomes of instruction, ex. The student will be able to explain the significance of current research about a particular topic.*
 - The students will demonstrate an understanding of the characteristics of the construction industry and the challenges facing it.
 - The students will demonstrate familiarity with the environment of engineering professionalism, including licensing requirements and professional regulations.
 - The students will demonstrate an understanding of the contractual relationships in construction.
 - The students will demonstrate familiarity with pertinent code(s) of ethics and an understanding of, and an appreciation for the ethical obligations of engineers.
 - The students will demonstrate an understanding of network diagrams as used in CPM and PERT.

- The students will demonstrate the ability to perform scheduling computations, including activity start and finish times, floats, and determining the effect of activity crashing on project duration and cost.
- The students will demonstrate an understanding of scheduling software commonly used in the construction industry (e.g. PRIMAVERA), and the ability to use it in simple scheduling problems.
- The students will demonstrate the ability to perform quantity take-off, obtain unit prices, and estimate project costs.
- The students will demonstrate an understanding of the safety issues in construction projects and familiarity with construction safety programs.

n. *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):

B3: Engr. Tools, software, instrumentation

C3: Professional ethics

7. *Brief list of topics to be covered*

- Overview of the construction industry
- Contractual relationships in construction
- Bidding and contracting
- Professional practice and ethics
- Network diagrams (Arrow and Precedence)
- Project planning and scheduling
- Crashing
- Time-scale networks
- Resource management
- Introduction to PERT
- Computer applications in project scheduling
- Estimating
- Construction safety