



## CE 466 – Construction Productivity

**Code and Name:** CE 466 – Construction Productivity

**Credit Hours:** 3 (Lecture: 3, Tutorial: 1)

**Textbook:**

- Productivity Improvement for Construction and Engineering: Implementing Programs That Save Money and Time, ASCE Press, 2014.

**Other References:**

- Construction Productivity Management, Paul O. Olomaiye, Ananda K.W. Jayawardane, Frank C. Harris, 1st Edition, Pretence Hall, 1998

- *Construction Productivity: A Practical Guide for Building and Electrical Contractors*, Eddy M. Rojas (2010), 3<sup>rd</sup> Edition, J. Ross Publishing, 2008

**Course Description:**

Introduction to the application of scientific principles to the measurement and forecasting of productivity in construction engineering. Conceptual and mathematical formulation of labor, equipment, and material factors affecting productivity, Motivation and construction productivity, Productivity Improvement programs. Learning curves, Fatigue, Overtime, The physical environment, Quality circles, Safety considerations. A System view of construction Productivity, Techniques for measuring productivity: Cost methods.

**Pre-requisites:** CE461 Construction Engineering and Management

**Co-requisites:** None

**Course Learning Outcomes:**

With relation to ABET Student Outcomes (From Fall 2019-SOs: 1-7)

1. To recognize ethical and professional responsibilities in construction productivity situations related to codes and standards, the semester project, and response to issues in the course. (4)
2. To identify, formulate, and solve complex engineering problems in construction productivity techniques, cost methods, and their applications. (1)
3. To analyze and apply construction productivity techniques and methods, to meet needs with consideration of health, safety and economic factors. (2)
4. Demonstrate communication skills in both oral and written during the semester project presentation (3)
5. To acquire and apply new knowledge with emphasis on productivity improvement issues, using appropriate learning strategies. (7)

**Topics to be covered:**

- Introduction, Productivity-related characteristics of the construction industry
- A System view of construction Productivity, Techniques for measuring productivity: Cost methods.
- Work sampling and related techniques, Foreman delay survey, Questionnaires / interviews,
- Improving Construction methods and use of modern Equipment
- Recording techniques and Method of analysis; Quality circles, Safety considerations
- Learning curves, Fatigue, use of Overtime and motivational methods,
- The physical environment and the Productivity Improvement programs

**Grading Policy:**

The grading for the course is: 60% coursework and 40% Final Exam. The course work consists of two Midterm Exams, where each midterm exam is worth 20%. The remaining 20% includes quizzes, and projects that the course instructor can modify.

