



The Hashemite University
Faculty of Engineering
Civil Engineering Program
Course Syllabus



Course Title:	Construction Methods	Course Number: 110401542
Designation:	Elective	Prerequisite(s): 110401346
Instructor:	Prof. Khaled Hyari	Instructor's Email: hyari@hu.edu.
Office Hours:	9:00 – 10:00: Sun., Tue. & Thurs., 8:30 – 9:30: Mon. & Wed.	

Course Description: Study of construction operations as dynamic production processes. The course covers a wide range of equipment utilization in various construction operations such as; earthmoving operations, excavating and lifting, loading and hauling, compaction and finishing, tunneling, and asphalt paving and surface treatment operations. Also it covers estimating and measuring equipment productivity, work improvement techniques, construction equipment economics, maintenance management of equipment, and nighttime construction operations.

Textbook(s):

Nunnally, S. W. (2008) "Construction Methods and Management." 8th Edition, Pearson Prentice Hall.

Other supplemental materials

- Gransberg, D., Popescu, C., and Ryan, R., "Construction Equipment Management for Engineers, Estimators, and Owners", 2006, (ISBN -10: 0-8493-4037-3). Taylor and Francis
- Purifoy, R.; Schexnayder, C., and Aviad, S., Construction Planning, Equipment, and Methods, seventh edition, 2006. McGraw Hill.

Course objectives: The primary objective of this course is to provide students with advanced knowledge and skills to be able to effectively manage construction projects through an understanding of basic theories and advanced techniques for project management planning, optimization, and control in addition to basic knowledge and skills in human resources management and construction disputes resolution

Major Topics Covered:

Topics	No. of Weeks	Contact hours*
Introduction to construction equipment	1	3
Earthmoving Materials and Operation	1.5	4.5
Excavating and Lifting Operations	2	6
Trenchless Technology and Cranes	1	3
Loading and Hauling Operations (Equipment Travel Time , Resistance to Movement)	1	3
Loading and Hauling Operations (Dozers, Scrapers, Loaders, Hauling equipment and operations)	2	6
Compacting and Finishing	2	6
Paving and Surface Treatment	2.5	7.5
Improving Productivity and Performance	2	6
Total	15	45

*Contact hours include lectures and exams

Specific Outcomes of Instruction (Course Learning Outcomes):

After completing the course, the student will be able to:

- 4) To study and become familiar with the types and functions of common construction equipment. (k)
- 5) To understand how to estimate production rates of various types of construction equipment.(a,k)
- 6) To study and become familiar with the ownership and operating costs for construction equipment. (a)



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- 7) To understand and become familiar with tools used to measure construction productivity and work improvement techniques. **(a,k)**

Student Outcomes (SO) Addressed by the Course:

#	Outcome Description	Contribution
General Engineering Student Outcomes		
(a)	an ability to apply knowledge of mathematics, science, and engineering	H(50)
(b)	an ability to design and conduct experiments, as well as to analyze and interpret data	
(c)	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	
(d)	an ability to function on multidisciplinary teams	
(e)	an ability to identify, formulate, and solve engineering problems	
(f)	an understanding of professional and ethical responsibility	
(g)	an ability to communicate effectively	
(h)	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
(i)	a recognition of the need for, and an ability to engage in life-long learning	
(j)	a knowledge of contemporary issues	
(k)	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.	H(50)
H=High, M= Medium, L=Low		

General Notes:

First Exam: Wednesday, 8/11/ 2018

Second Exam: Wednesday, 13/12/ 2018

Prepared by:

Prof. Khaled Hyari

Date: 9th May 2018