


College of Engineering Department of Civil Engineering		
CE 513 Construction Engineering		
Credit and Contact hours	3 / 3 (Lectures), 0 (Tutorials), 0 (Laboratory)	
Required, or Elective	Required	
Course Description	<p>This course encompasses the technical, economic, and safety issues associated with construction engineering. Specifically, this includes project layout, equipment selection, equipment performance, productivity, economics, and project-specific health and safety plans. The course addresses typical design problems encountered during construction projects as well as quality control, project documentation requirements, and technological innovations that improve productivity or enhance safety.</p>	
Prerequisites or Co-requisites	None	
Course Learning Outcomes	Students completing this course successfully will be able to:	
	Course Learning Outcomes (CLOs)	Related Student Outcomes (SO)
	CLO1. Identify basic concepts in construction business that is related to construction management, construction safety; and health hazard. K1	SO1
	CLO2. Evaluate the productivity of earthmoving equipment for different types of real construction works with consideration of economic factors. S4	SO5
	CLO3. Design concrete formworks for different constructions considering public safety, and economics factors. S4	SO5
	CLO4. Design Belt Conveyor Systems considering factors affecting efficiency. S4	SO5
Student Outcomes related to this Course	CLO5. Design of sheet piles and its applications. S4	
	SO 1 Recognize advanced engineering knowledge, concepts, and techniques to identify, interpret, and analyze complex and real-life engineering problems. SO 5 Design novel advanced Civil Engineering systems and evaluate their performance, sustainability, and effectiveness for engineering practice and their impact in global, economic, environmental, and societal contexts	

Topics Covered	List of Topics		Related CLOs
	1. Introduction to construction Management issues.		CLO 1
	2. Equipment Economics		CLO 1,2
	3. Planning for Earthwork Construction		CLO 2
	4. Excavating Equipment		CLO 2
	5. Loading and Hauling equipment		CLO 2
	6. Compacting and Finishing equipment		CLO 2
	7. Safety in construction sites		CLO 1
	8. Concrete Construction (Formwork Design)		CLO 3
	9. Construction Economics		CLO 1,2
	10. Belt Conveyor System.		CLO 4
	11. Sheet Pile design		CLO 5
Textbook(s) and Other Required Material	<ul style="list-style-type: none"> •R. L. Peurifoy, C. J. Schexnayder, A. Shapira, and R Schmitt, Construction Planning, Equipment, and Methods, McGraw-Hill Publishing Company, last edition. •S.W. Nunnally, Construction Methods and Management, Prentice-Hall, Inc., Last edition 		
Grading System	Assignments	10%	
	First mid-term exam	15 %	
	Second mid-term exam	15 %	
	Term paper	20 %	
	Final Exam	40 %	
Instructors	Dr. Abdulrahman Fnais		
Date of Review	March 2025		