College of Engineering Department of Civil Engineering



CE 541 Mass Transportation Systems

Credit and Contact hours	3 / 3 (Lectures), 0 (Tutorials), 0 (Laboratory)			
Required, or Elective	Elective			
Course Description	This course explores the planning, design, operation, and management of mass transportation systems. Topics include transit modes, system integration, capacity analysis, sustainability, and emerging technologies. Students will develop skills to evaluate and optimize public transport networks, addressing urban mobility challenges and promoting efficient, sustainable transportation solutions.			
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. Apply advanced engineering concepts to analyze and interpret complex mass transportation system challenges using modern tools and techniques. K1	SO1		
	CLO2. Conduct independent or collaborative research to investigate emerging issues in mass transportation, utilizing critical thinking and advanced management principles. S2	SO3		
	CLO3. Develop and propose innovative solutions for real-world transportation problems, considering sustainability, safety, and socio-economic impacts. S4	SO5		
	CLO4. Critically evaluate and communicate scientific literature and research findings in mass transportation, demonstrating ethical responsibility and effective teamwork. V1	SO6		
	SO 1 Recognize advanced engineering knowledge, concepts, and techniques to identify, interpret, and analyze complex and real-life engineering problems.			
Student	SO 3 Investigate scientific research problems independently or through teamwork using critical thinking, appropriate techniques, advanced tools, and management principles.			
related to this Course	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			
	SO 6 Demonstrate scientific integrity, ethical responsibility, and academic values in scientific publications, research projects, and thesis work.			

Topics Covered	List of Topics		Related CLOs
	1. Introduction to Mass Transportation Systems		CLO 1
	2. Transit Modes and Technologies		CLO 1,2
	3. System Planning and Network Design		CLO 1,2,5
	4. Capacity Analysis and Operations		CLO 1,2
	5. Sustainable and Smart Transit Solutions		CLO 2,3,5
	6. Integration with Urban Development		CLO 2,3,5
	7. Policy, Economics, and Funding		CLO 2,4
	8. Emerging Trends and Innovations		CLO 3,4
Textbook(s)			
and Other	• Thomas A, Sustainable Mass Transit: Challen	ges and Opportu	inities in Urban
Required	Public Transportation, 1st Edition (2017)		
Material			
Grading System	Assignments	10%	
	Research work	10%	
	Mid-term 1	20%	
	Mid-term 2	20%	
	Final Exam	40%	
Instructors	Appointed Faculty		
Date of Review	November, 2024		