

College of Engineering

Department of Civil Engineering

جامعة
الملك سعود
King Saud University



CE 438 Urban Public Transportation

Credit and Contact hours	3 / 3 (Lectures), 1 (Tutorials), 0 (Laboratory)	
Required, or Elective	Elective for a BSCE degree	
Course Description	This course introduces students to the Conceptual Framework for Estimating Transit Demand, Technological Characteristics and Their Impacts on Capacity, Service Quality, and Cost. In additions, it covers Data Collection and Analysis, Performance Monitoring, Route Design, Frequency Determination, and Vehicle and Crew Scheduling.	
Prerequisites or Co-requisites	CE 430 (Transportation Systems)	
Course Learning Outcomes	Students completing this course successfully will be able to	
	Course Learning Outcomes	<i>Related Student Outcomes (SO)</i>
	CLO1. Identify the effects of transit use characteristics, benefits of transit, route location and route design on urban transportation systems.	SO1
	CLO2. Review the transit project development process including the development of alternatives, analysis, and major investment studies.	SO7
	CLO3. Assess alternative technologies for public transportation and their impact on capacity, service quality and cost.	SO4
	CLO4. Estimate transit demand using transit data applying conceptual framework and analysis methods.	SO1
	CLO5. Assess existing transit planning and its management projects through the use of performance indicators including transit vehicle and crew schedules.	SO4
Student Outcomes related to this Course	<p>SO 1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics, and using modern engineering tools .[ABET 1]</p> <p>SO 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must</p>	

	<p>consider the <u>impact of engineering solutions in global, economic, environmental, and societal contexts.</u>[ABET 4]</p> <p>SO 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. [ABET 7]</p>	
Topics Covered	List of Topics	Related CLOs
	1. Background information	CLO1
	2. Estimation of transit demand	CLO4
	3. Transit capacity and level of service	CLO3
	4. Transit technology alternative systems	CLO2
	5. Transit data collection and analyses	CLO5
	6. Planning for transit operations	CLO5
	7. Transit route location and analysis	CLO1
	8. Analysis procedures for operations	CLO5
	9. Transit scheduling	CLO5
	10. Transit cost analysis	CLO2
11. Case studies	CLO5	
Textbook(s) and Other Required Material	<ol style="list-style-type: none"> 1. V. R. Vuchic. Urban Transit: Operations, Planning, and Economics. John Wiley & Sons, Inc., 2005. 2. Black, A., Urban Mass Transportation Planning, McGraw-Hill, 1995. 3. Kittelson and Associates, et. al., Transit Capacity and Quality of Service Manual, Special Report 100, 2nd Edition, Transportation Research Board, Washington, D.C., 2003. 	
Grading System	Home-work	10%
	Class activities	10%
	Two Midterm Exams	40%
	Final Examination	40%
Instructors	Dr. Mohammed H. AlMannaa (2A70), email; malmannaa@ksu.edu.sa	
Date of Review	September 2020	