

College of Engineering

Department of Civil Engineering

جامعة
الملك سعود
King Saud University



CE 436 Traffic Engineering

Credit and Contact hours	3 / 3 (Lectures), 1 (Tutorials), 0 (Laboratory)	
Required, or Elective	Elective for a BSCE degree	
Course Description	This course give students in-depth explanations on the Traffic Stream Characteristics, Volume Studies and Characteristics, Speed, Travel Time and Delay Studies, Parking Studies, Accident Studies, Traffic Control Devices, and Intersection Signalization.	
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. Determine the effects of Traffic stream variables and characteristics, and Traffic Management on transportation network	SO1
	CLO2. Use modern techniques to conduct traffic analysis for speed, travel time, delay, accident, parking and traffic management (through a project - Complex problem)	SO1
	CLO3. Illustrate the observed or collected traffic accidents through reviewing the recent accident studies either inside or outside the Kingdom. (through a project or report)	SO7
CLO4. Design intersection signalization by using the appropriate traffic control device, and considering safety, social and economic factors	SO2	
Student Outcomes related to this Course	<p>SO 1. an ability to <u>identify, formulate,</u> and <u>solve complex engineering problems</u> by applying principles of engineering, science, and mathematics, and using <u>modern engineering tools</u> .[ABET 1]</p> <p>SO 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors. .[ABET 2]</p>	

	SO 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies. [ABET 7]	
Topics Covered	List of Topics	Related CLOs
	1. Introduction to Traffic Engineering and Management.	CLO1
	2. Traffic Engineering, Basic Concepts.	CLO1
	3. Traffic Stream Variables and Characteristics.	CLO1
	4. Traffic Control Devices.	CLO4
	5. Traffic Studies: Introduction and Overview.	CLO1
	6. Volume Studies and Characteristics.	CLO2
	7. Speed, Travel Time and Delay Studies.	CLO2
	8. Parking Studies.	CLO2
	9. Accident Studies.	CLO3
	10. Basic Principles of Intersection Signalization.	CLO4
	11. Fundamentals of Signal Design and Timing.	CLO4
	12. Analysis of Signalized Intersections.	CLO4
Textbook(s) and Other Required Material	<ol style="list-style-type: none"> 1. Traffic Engineering, by William R. McShane, Roger P. Roess and Elena S. Prassas, Prentice Hall , Fourth Ed., (2011) 2. Traffic Control Systems Handbook (Publication No. FHWA-SA-95-032) 3. Freeway Traffic Management Handbook (Publication No. FHWA-SA-97-046) 4. Manual on Uniform Traffic Control Devices, Federal Highway Administration, U.S. Department of Transportation, 2009 edition (December 2009). (http://mutcd.fhwa.dot.gov/pdfs/2009/pdf-index.htm) 5. <i>Highway Capacity Manual</i>, 2010 edition, Transportation Research Board 6. <i>Manual on Uniform Traffic Control Devices</i>, Federal Highway Administration, U.S. /<i>Traffic Signal Timing Manual</i>, FHWA-HOP-08-024, Federal Highway Administration, 2008 	
Grading System	Assignments	20%
	Two Midterm Exams	40%
	Final Examination	40%
Instructors	Dr. Hamad Alsolieman (Room 2A21), email; halsolieman@ksu.edu.sa	
Date of Review	September 2020	