The University of Texas at El Paso
Department of Civil Engineering

CE5358 Traffic Engineering (CRN 18598)

Course Syllabus (Fall 2019)

Version Date: August 22, 2019

Time & venue	MW 3:00 p.m.-4:20 p.m., CRBL 204
Instructor	Dr. Ruey (Kelvin) Cheu Office: Engineering Annex Room 208 Email: rlcheu@utep.edu Phone: (915)747-5717 Office hours: MW 1:00 p.m. – 3:00 p.m.
Teaching assistant	None
Course website	See Blackboard
Course description	See UTEP Graduate Catalog
Topics	Vehicle characteristics; human factors; macroscopic vs microscopic traffic parameters; volume-density-speed relationships; shock waves; hydrodynamic flow models; platoon dispersion; gap acceptance; car-following models; lane changing models; connected and automated vehicles; parking; term project/field work.
Prerequisite/Co-requisite	Graduate or PhD standing: no permission and prerequisite. Undergraduate seniors taking this course as CE4375/CE4376/CE4377 must have instructor's permission.

Textbooks	No prescribed textbook.
	References (not necessary to buy):
	  o Roess, R. P., Prassas, E. S. and McShane, W. R. (2011) Traffic Engineering, 4th edition, Pearson.
	  o May, A. D. (1990) Traffic Flow Fundamentals, Prentice Hall.

Grading	Contributions towards final mark (out of 100%)
	       15% Attendance
	       20% Exam #1
	       20% Exam #2
	       20% Exam #3
	       15% Homework
	       <u>10% Project, field work</u>
	       100% Total

	5% Professional development activities (extra credit)
	Grading criteria:
	<u>Final course mark (out of 100)</u> <u>Grade</u>
	90 or more A
	80-89.99 B
	70-79.99 C
	60-69.99 D
	Less than 60 F
Exams	Three exams will be given during the class times. Topics to be tested in the exams will be announced in the class at least one week prior to the exam.
Calculators	Only calculators permitted by NCEES for use in the FE/EIT exam are permitted to be used in the examinations. No other model of calculator will be allowed. Please check www.ncees.org for the permitted calculator models.
Homework	Homework problems will be given about once every 2 weeks. They are due in the following week on the same day in the class. All homework problems will be graded.
Late homework/ assignment policy	Late homework is normally accepted with the following penalties: Late by $<=24$ hours: 70% credit Late by >24 hours but $<=48$ hours: 50% credit Late by >48 hours: 0% credit.
Project/field work	A project will be given. All students are to work as a team to plan for field survey and data analysis.
Collaboration	Discussions between classmates on homework are strongly encouraged. However, the written work submitted must be your own effort (in your own words and your own style). Directly copying someone else's work is cheating.
Disability	If you have any disability and you need special assistance in taking this course, please contact the Center of Accommodations and Support Services (CASS), formerly known as Disable Student Service at Union East. You identity will be kept confidential.

Tentative Weekly Schedule (Subject to progress of class)

Wk	Date	Topic	Project
1	8/26	Introduction	
	8/28	Traffic flow parameters and detection	
2	9/2	9/2 Labor day	
	9/4	Macroscopic flow	
3	9/9	Macroscopic speed	
	9/11	Macroscopic density	
4	9/16	Macroscopic traffic stream models	
	9/18	Shock waves	
5	9/23		Project briefing
	9/25		Field data collection
6	9/30		Field data collection
	10/2	Exam 1	
7	10/7	Vehicle-human factors	
	10/9	Microscopic flow	
8	10/14	Microscopic speed	
	10/16		Project/lab work
9	10/21	Microscopic density	
	10/23	Car-following	
10	10/28	Gap acceptance	
	10/30	Platoon dispersion	
11	11/4	Lane changing	
	11/6	Exam 2	
12	11/11	BMW model	
	11/13	Hydrodynamic flow models	
13	11/18	Managed lanes	
	11/20	Ramp metering	
14	11/25	ITS	
	11/27	11/28 Thanksgiving Day	
15	12/2	Connected vehicles	
	12/4	Exam 3	
		12/6 Dead Day	
16	12/9	No final exam	