

The University of Texas at El Paso
Department of Civil Engineering

CE5361 Traffic Flow & Simulation Modeling

Course Syllabus, Spring 2018 (CRN 28051)

Also cross listed as CE4375 (CRN 24993), CE4376 (CRN 25000), CE4377 (CRN 27880)

Time & venue	Class times: TR, 6:00 p.m. to 7:20 p.m., CRBL204
Instructor	Dr. Ruey (Kelvin) Cheu Office: Engineering Annex Room A208 Email: rlcheu@utep.edu Phone: (915)747-5717 Office hours: MTWR 1:30 p.m. to 2:50 p.m.
Teaching assistant	None
Course website	See Blackboard
Course objective	<p>In UTEP course catalog: “This is a comprehensive course to traffic flow and simulation modeling. Topics include: basic microscopic; mesoscopic and macroscopic traffic flow theories; advanced traffic flow theories such as high order traffic flow theories; analytical and simulation based traffic flow modeling; traffic simulation models and their applications.”</p> <p>More specifically (from me): This course has 4 components</p> <ol style="list-style-type: none">1. Cell transmission model. Required programming in Excel. https://en.wikipedia.org/wiki/Cell_Transmission_Model2. CORSIM3. VISSIM4. Dynus-T <p>For CORSIM, VISSIM & Dynus-T, we will not only learn how to code models, run simulations, analyze the outputs, but will also cover the theories that govern the vehicle behavior.</p>
Pre-requisite	CE4340 or equivalent. Microsoft Excel (intermediate level) Own a Windows laptop with i3 CPU or faster, min. 4GB RAM
Textbook	No required textbook. Materials will be distributed via Blackboard. We may refer to software manuals (free downloaded or provided).
Grading	Contributions towards final mark (out of 100%) 15% Class attendance

	<p>10% Exam 1 (in the middle of semester) 10% Exam 2 (in the end of the semester) 60% Assignments</p> <p>Grading criteria:</p> <table> <thead> <tr> <th><u>Final course mark (out of 100)</u></th> <th><u>Grade</u></th> </tr> </thead> <tbody> <tr> <td>90 or more</td> <td>A</td> </tr> <tr> <td>80-89.99</td> <td>B</td> </tr> <tr> <td>70-79.99</td> <td>C</td> </tr> <tr> <td>60-69.99</td> <td>D</td> </tr> <tr> <td>Less than 60</td> <td>F (please also see # below)</td> </tr> </tbody> </table>	<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 (please also see # below)
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Exams	Two exams are 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/ Assignments	Homework problems will be given about once every 2 weeks. The assignments typically require the use of your personal laptop to complete certain simulation tasks. The assignments will be graded.												
Late homework/ assignment policy	Late submission 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.												
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. Your identity will be kept confidential.												

Tentative Weekly Schedule

The following week by week topics indicates the sequence of main topics to be covered in the course. The actual topics taught in the classes may be faster or slower than the dates listed. Individual student's topical presentations will be schedule to match with the topics at the appropriate time slots in class.

Wk	Date	Topic
1	8/28	Course introduction
2	9/1, 9/3	Fundamental theory of traffic flow, CTM: 1-lane-1-dimension flow on freeway
3	9/8, 9/10	CTM: merging and diverging on freeway, street with traffic signals
4	9/15, 9/17	CTM: multi-lane flow on freeway, lane changing, merging and diverging on multi-lane freeway
5	9/22, 9/24	CTM: queuing at border crossing
6	9/29, 10/1	CORSIM
7	10/6, 10/8	CORSIM
8	10/13, 10/15	VISSIM, Exam 1
9	10/20, 10/22	VISSIM
10	10/27, 10/29	VISSIM
11	11/3, 11/5	Dynus-T
12	11/10, 11/12	Dynus-T
13	11/17, 11/19	Dynus-T
14	11/24, 11/26	To be decided
15	12/1, 12/3	To be decided, Exam 2
16	12/8	Final exam week – no exam