

CE 5331 - Traffic Engineering Operations
Fall 2009
Room NH 202
MW 7 to 8:20 pm

Instructor:

Jim Williams
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Office Hours:

Monday & Tuesday: 2:00 to 3:30 pm, 5 to 6 pm
Wednesday & Thursday: 2:00 to 6 pm

Course Description:

Design of fixed-time, actuated, and computer-controlled traffic signals; optimization of traffic flow at intersections; capacity analysis of intersections, legal requirements and traffic studies for installation of traffic control devices; characteristics of signs, signals, and markings; traffic laws.

Pre-requisite: CE 3302

ABET Outcomes:

- a: Apply knowledge of mathematics, science, and engineering.
- c: Design a system, component, or process to meet desired needs.
- e: Identify, formulate, and solve engineering problems.
- f: Understanding of professional and ethical responsibility.
- j: Knowledge of contemporary civil engineering issues.
- k: Use the techniques, skills, and modern engineering tools necessary for engineering practice.

Texts: *Highway Capacity Manual*, 2000 edition, Transportation Research Board (US Customary units), selected chapters provided on the class MavSpace site.

Texas Traffic Laws, Title 7, Vehicles and Traffic, Subtitle C. Rules of the Road, Chapters 541-600, pp. 226-335, 2007-2008 Edition, LexisNexis Publications, 2007, provided on the class MavSpace site.

Texas Manual on Uniform Traffic Control Devices, Texas Department of Transportation, 2006 edition.

http://www.txdot.gov/txdot_library/publications.htm

Get individual parts & chapters under “2006 Texas Manual of Uniform Traffic Control Devices (MUTCD) - Revision 1”

Manual on Uniform Traffic Control Devices, Federal Highway Administration, U.S. Department of Transportation, 2003 edition with Revisions 1 and 2 incorporated (December 2007).

http://mutcd.fhwa.dot.gov/pdfs/2003r1r2/pdf_index.htm

Texts continued on the next page

Texts (continued):

Traffic Signal Timing Manual, FHWA-HOP-08-024, Federal Highway Administration, 2008, provided on the class MavSpace site.

Richard W. Denney, *Traffic Signals*, Units 7 and 8 of the *TexITE Correspondence Course*, 1989, provided on the class MavSpace site.

MavSpace site:

<http://mavspace.uta.edu/cejcwill/ce9644>

you will need your NetID and corresponding password

Tests: 2 tests

Weighted equally

Test 1 will cover topics 1-3, Test 2 will cover topic 4

Homework:

There will be approximately three homework assignments. Due dates will be noted on the assignment sheets.

Projects:

There will be two design projects, one dealing with sign design, the second with the design and evaluation of a signalized intersection.

Final Grade:	10% - homework	90 - 100:	A
	15% - projects	80 - 89:	B
	75% - tests	70 - 79:	C
		60 - 69:	D
		- 59:	F

Attendance Policy:

Attendance is not mandatory; however, no special accommodations will be made for incomplete or missed assignments and exams due to unexcused absences.

Drop Policy:

Please see the university drop policy and deadlines.

Course Objectives:

Basic elements of traffic law and its impact on traffic operation; basic elements of the need for and design of traffic control devices (signs, signals, and markings); and the design, operation, and evaluation of signalized and unsignalized intersections, using both manual and computer methods.

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Texts: RWD: Denney, *Traffic Signals* from the *TexITE Correspondence Course*
 TTL: *Texas Traffic Laws*
 TMUTCD: *Texas Manual on Uniform Traffic Control Devices*
 HCM: *Highway Capacity Manual*
 TSTM: *Traffic Signal Timing Manual*

Course Outline

1. Introduction	
2. Traffic Laws	TTL
3. Design & Use of Traffic Control Devices	
Introduction	TMUTCD, Part 1
Signs	TMUTCD, Part 2A
Signs: Regulatory	TMUTCD, Part 2B
Signs: Warning	TMUTCD, Part 2C
Signs: Guide	TMUTCD, Parts 2D-2I
Markings	TMUTCD, Part 3
Signals	TMUTCD, Part 4
4. Intersection Operation	
Traffic Signals: Fixed Time	TSTM, Chapters 1-4 RWD, Unit 7, Parts A & B
Traffic Signals: Actuated	TSTM, Chapter 5 RWD, Unit 8, Part D
Traffic Signals: Capacity	HCM, Chapters 10, 15, 16
Unsignalized Intersection Capacity	HCM, Chapter 23

Americans with Disabilities Act:

The University of Texas at Arlington is on record as being committed to both the letter and spirit of federal equal opportunity legislation; reference Public Law 92-112, The Rehabilitation Act of 1973, as amended. With the passage of federal legislation entitled the Americans with Disabilities Act (ADA), pursuant to section 504 of the Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with informing faculty of their need for accommodation and in providing authorized documentation through designated administrative channels. Information regarding specific diagnostic criteria and policies for obtaining academic accommodations can be found at <www.uta.edu/disability>. Also, you may visit the Office for Students with Disabilities in room 102 of University Hall or call them at (817) 272-3364.

Academic Integrity:

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents’ Rules and Regulations, Series 50101, Section 2.2)

Student Support Services Available:

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. These programs include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.

Final Review Week:

Final Review Week consists of the five class days prior to the first day of final examinations in the long sessions. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there will be no scheduled activities such as required field trips; and no new homework will be assigned. During Final Review Week, no examinations constituting 10% or more of the final grade will be given, except makeup tests and laboratory examinations. In addition, no portion of the final examination will be given during Final Review Week. Classes are held as scheduled during this week and lectures and presentations may be given.

Librarian to Contact:

Barbara Howser, Science and Technology Library, basement of Nedderman Hall.

E-mail:

The University of Texas at Arlington has adopted the University email address as an official means of communication with students. Through the use of email, UT-Arlington is able to provide students with relevant and timely information, designed to facilitate student success. In particular, important information concerning registration, financial aid, payment of bills, and graduation may be sent to students through email.

All students are assigned an email account and information about activating and using it is available at <www.uta.edu/email>. New students (first semester at UTA) are able to activate their email account 24 hours after registering for courses. There is no additional charge to students for using this account, and it remains active as long as a student is enrolled at UT-Arlington. Students are responsible for checking their email regularly.