

CE 4313-001/101 – Traffic Engineering
CE 5331-001/101 – Traffic Engineering Operations
Fall 2017

Instructor: Dr. Sirwan Shahooei

Office Number: NH B24

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Office Hours: Tu We, 10:00 am-12:00 pm or by appointment

Time and Place of Class Meetings: Mo We 7:00PM - 8:20PM, WH 404

Teaching Assistant: TBA

Course Description

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

Pre-requisite Grade of C or better in CE 3302

Learning Objectives

1. Students will understand the need for and development of traffic laws in the United States.
2. Students will understand the appropriate selection and use of traffic signs, roadway markings, and traffic signals.
3. Students will be able to design guide signing for conventional roads and freeways.
4. Students will understand the basic concepts and determination of cycle length, phase splits, and offsets for traffic signals.
5. Students will be able to design a signalized intersection (with regard to signal timing and detector placement).

Student Learning (ABET) Outcomes

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

C_I – This outcome is implicitly covered.

C_E – This outcome is explicitly covered.

T_I – This outcome is covered and implicitly assessed for by one or more means.

T_E – This outcome is explicitly tested for by one or more means.

Techniques, Skills, and Modern Engineering Tools Used:

Manual on Uniform Traffic Control Devices, current Federal and Texas editions
Highway Capacity Manual, 6th edition, 2017
Highway Capacity Software

Requirements:

Study and homework preparation will be required outside scheduled class time.

Texts: Michael Kyte, Maria Tribelhorn, *Operation, Analysis, and Design of Signalized Intersections*, 1st edition, CreateSpace Independent Publishing Platform, 2014.
Roger P. Roess, Elena S. Prassas, William R. McShane, *Traffic Engineering*, 4th edition, Prentice Hall, 2011.
Highway Capacity Manual, 6th edition, 2016, Transportation Research Board, selected chapters provided on the class Blackboard site.
Texas Traffic Laws, Title 7, Vehicles and Traffic, Subtitle C. Rules of the Road, Chapters 541-600, pp. 311-441, 2015-2016 Edition, LexisNexis Publications, 2015, provided on the class Blackboard site.
Texas Manual on Uniform Traffic Control Devices, Texas Department of Transportation, 2011 edition, with Revision 2 (October 2014).
<http://www.txdot.gov/inside-txdot/division/traffic/signs/tmutcd.html>
Individual parts & chapters will be placed on the class Blackboard site.
Manual on Uniform Traffic Control Devices, Federal Highway Administration, U.S. Department of Transportation, 2009 edition (December 2009), with Revisions 1 and 2 (May 2012).
http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm
Traffic Signal Timing Manual, 2nd edition, NCHRP Report 812, Transportation Research Board, 2015, provided on the class Blackboard site.
<http://www.trb.org/Main/Blurbs/173121.aspx>

Tests: 2 tests

Weighted equally

Test 1 will cover topics 1-3 and will be given at approximately mid-semester.

Test 2 will cover topic 4 and will be given during the scheduled final time.

Homework:

There will be five to eight homework assignments. Due dates will be noted on the assignment sheets. Homework assignment(s) may be due during Final Review Week.

Final Grade:	20% - homework	90 - 100:	A
	80% - tests	80 - 89:	B
		70 - 79:	C
		60 - 69:	D
		<59:	F

Texts: KT: Kyte, Tribelhorn, *Operation, Analysis, and Design of Signalized Intersections**
 RPM: Roess, Prassas, McShane, *Traffic Engineering*, 4th edition
 TTL: *Texas Traffic Laws*
 MUTCD: 2011 *Texas Manual on Uniform Traffic Control Devices*
 HCM: *Highway Capacity Manual*, 6th edition, 2016
 TSTM: *Traffic Signal Timing Manual*, 2nd edition

Course Outline	
1. Introduction	RPM, Chapter 1
2. Traffic Laws	TTL
3. Design & Use of Traffic Control Devices	RPM, Chapter 4
Introduction	MUTCD, Part 1
Signs	MUTCD, Part 2A
Signs: Regulatory	MUTCD, Part 2B
Signs: Warning	MUTCD, Part 2C
Signs: Guide	MUTCD, Parts 2D-2I
Markings	MUTCD, Part 3
Signals	MUTCD, Part 4
4. Intersection Operation	RPM, Chapters 18-20
Traffic Signals: Fixed Time	KT, Chapters 1-9 TSTM, Chapters 1-4 RPM, Chapter 21
Traffic Signals: Actuated	TSTM, Chapter 5 RPM, Chapter 22
Traffic Signals: Capacity	HCM, Chapter 18 RPM, Chapters 23 & 24
Unsignalized Intersection Capacity	HCM, Chapters 19 & 20

As instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

Attendance Policy:

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

At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Drop Policy:

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/aao/fao/>).

Electronic Communication:

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Disability Accommodations:

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA), and Section 504 of the Rehabilitation Act. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is

also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy:

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos.

Title IX Policy:

The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

Academic Integrity:

Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents' Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

Campus Carry:

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

Student Feedback Survey:

At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week:

For semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures:

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When leaving our classroom, turn right down the hall, go down the stairs and exit the building. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Student Support Services Available:

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. Non-emergency number 817-272-3381.
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