

CE 4313-001/2 – Traffic Engineering
Fall 2015
Room WH 208
MW 7 to 8:20 pm

Instructor:

Jim Williams
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Office Hours:

Monday through Thursday: 10:30 am to 12:00 m; 1:30 pm to 6:00 pm
EXCEPT: Monday and Wednesday: 3:00 pm to 5:00 pm

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

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, 2010
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, 2010 edition, 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. 292-426, 2013-2014 Edition, LexisNexis Publications, 2013, 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.

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|--------------|----------------|-----------|---|
| Final Grade: | 20% - homework | 90 - 100: | A |
| | 80% - tests | 80 - 89: | B |
| | | 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.

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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: 2010 *Highway Capacity Manual*
 TSTM: *Traffic Signal Timing Manual*, 2nd edition

* Reading assignments in Kyte & Tribelhorn and the *Traffic Signal Timing Manual*, 2nd edition, will be made later in the semester and apply only to topic 4.

| Course Outline | |
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| 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 | 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 |

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://wweb.uta.edu/aao/fao/>).

Americans with Disabilities Act:

The University of Texas at 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). 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 that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX:

The University of Texas at Arlington is committed to upholding U.S. Federal Law "Title IX" such that no member of the UT Arlington community shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity. For more information, visit www.uta.edu/titleIX.

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 as they see fit in their courses, including (but not limited to) 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.

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>.

Student Feedback Survey:

At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be 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 enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

Final Review Week:

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 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:

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 www.uta.edu/resources.

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.

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