CE 463 / 563 TRAFFIC FLOW AND CAPACITY ANALYSIS
Fall 2005 Course Syllabus

Catalog Description:	Methods for the efficient and safe operation of transport facilities through analysis of capacity, safety, speed, parking, and volume data. 3 credit hours of engineering design. Prerequisites: CE 363. Graduate-level requirements include a research paper or project.
Course Objectives:	Provide students with a working knowledge of driver behavior, traffic characteristics, traffic operations, highway capacity and level of service, and operational considerations for design of traffic facilities. Students should be prepared to work and to take other advanced courses in the area of traffic engineering.
Instructor:	Dr. Mark Hickman Civil Engineering Building, Room 214B Phone: 626-9420, E-mail: mhickman@engr.arizona.edu Office hours: Tuesday and Thursday 10 am – 12 noon; other times by appointment.
Class Hours:	Tuesday and Thursday 2:00-3:15 pm, in Education 349
Textbook:	Traffic Engineering, 3rd edition, Roger P. Roess, Elena S. Prassas, and William R. McShane; Prentice Hall, 2004. ISBN # 0-13-142471-8.
Grading:	25% Homework, 25% total for Quizzes (4), 25% Mid-term Exam, 25% Final Exam A = above 90%; B = 80 to 89%; C = 70 to 79%; D = 60 to 69%; E = below 60%. Graduate student projects are worth 20% of the total grade for graduate students, with proportional adjustments in the percentages above.
Homework:	There will be approximately 8-10 homework assignments; each is worth 20 points toward the total homework grade. Homework that is late will have the following penalties: up to 1 class late: 5 points; up to 3 classes late: 10 points; more than 3 classes late: no credit. Working on homework in groups of two is permitted. However, each student should submit homework prepared by his/her own hand. This means that the problem description and any steps taken to solve the problem must be generated by each student individually. In the case where computer output is generated jointly (Excel files, other software output, etc.), the group should submit only one solution, with both group members' names. Copying another person's work, *without attribution, including copying of any part or the whole of computer files or material from the Internet*, is considered plagiarism. It will be prosecuted as a violation of the University of Arizona Student Code of Conduct, in accordance with the Code of Academic Integrity, on-line at http://w3.arizona.edu/~studpubs/policies/cacaint.htm. It is the student's responsibility to be familiar with these Codes.
Desire2Learn: (D2L)	To complement the in-class instruction, and to provide content for the web section, additional course material, assignments, and other on-line features will be available using Desire2Learn (D2L). You can access D2L directly from Student Link under the listing for this class. There will be an introduction to D2L (http://d2l.arizona.edu) during the first week of class. Within D2L, we will be using the following tools: • Content modules for each unit within the course (topical list below) • Assignments • Threaded discussions and chats on course topics • On-line self-tests and quizzes to assess understanding of course material While all students in the web section will be using D2L exclusively, the use of these tools by students in the lecture-based section is also strongly encouraged.

Graduate Students: Graduate students will need to complete an additional project or research paper during the semester. Selection of the project or research topic should be in consultation with the instructor. The following milestones are *guidelines* for completion of the project:

September 23:	One-page description of project or research subject to instructor
October 21:	One-page progress report to instructor
November 23:	One-page progress report to instructor
December 6:	Final report due to instructor (last day of class)

Again, the project will count as 20% of the semester grade for graduate students.

Course Outline

Topic	Reading in Text	Web Modules
What is traffic engineering?	Chapter 1	1
Driver behavior and information processing	Chapter 2 and supplemental reading	2, 3, 4
Traffic control devices	Chapter 4	5, 6
Traffic studies	Chapters 7, 8 and 9	7, 8, 9
Uninterrupted traffic characteristics	Chapter 5	10, 11
Capacity and LOS of uninterrupted facilities	Chapters 12, 13 and 14	12, 13, 14
Mid-term, tentatively Tuesday, October 11 in class (or via proctor for web students)		
Interrupted traffic flow characteristics	Chapter 16	15, 16
Intersection control warrants and design issues	Chapters 16 and 19	17, 18, 21, 22
Traffic characteristics at unsignalized intersections	Chapters 19 and 23	19, 20
Signal timing and delay	Chapters 17 and 18	23, 24
Capacity and LOS of signalized intersections	Chapters 21 and 22	25, 26
Actuated signal control and progression	Chapters 20 and 24	27, 28
Arterial travel times and LOS	Chapters 25 and 26	29
Neighborhood traffic control	–––	30
Final Exam: Thursday December 15, 2-4 pm		

Additional References

Highway Capacity Manual 2000 (HCM 2000), U.S. Customary Units, Transportation Research Board, 2000.

Federal Highway Administration, Manual of Uniform Traffic Control Devices (MUTCD), 2003 Edition (2003). On line at http://mutcd.fhwa.dot.gov/

H. D. Robertson (ed.), Manual of Transportation Engineering Studies, Institute of Transportation Engineers, Prentice Hall, 1994.

J. Pline (ed.), Transportation Engineering Handbook, 5th Edition, Institute of Transportation Engineers, Prentice Hall, 1999.

N. Gartner, C. Messer, and A. Rathi (eds.), Traffic Flow Theory, Transportation Research Board Special Report 165 (newest edition), http://www.tfhrc.gov/its/tft/tft.htm.