

George Mason University
Fall 2008
CEIE 461/561 Traffic Engineering
Thursday 4:30-7:10pm
Location: Krug Hall Room 19

Course Syllabus

Lecture Date	Text Readings
August 28, 2008	Intro to Course/Road User and Vehicle Characteristics Ch 2
September 4, 2008	Roadways and their Geometric Characteristics Ch 3 Intro to Traffic Control Devices Ch 4
September 11, 2008	Signings & Markings for Freeways & Rural Highways Ch 15 Intro to Intersection Control Ch 16
September 18, 2008	Traffic Stream Characteristics Ch 5 Statistical Applications in Traffic Engineering Ch 7
September 25, 2008	Speed, Travel Time & Delay Ch 9 Accidents: Studies, Statistics & Programs Ch 10 Due: Deliverable #1 for Term Project
October 2, 2008	Elements of Intersection Design Ch 19 Analysis of Unsignalized Intersections Ch 23
October 9, 2008	Basic Principles of Intersection Signalization Ch 17 Fundamentals of Signal Timing and Design Ch 18 Exam Review
October 16, 2008	Exam #1 (ch 2,3,4,5,7,9,10,15,19,23)
October 23, 2008	Analysis of Signalized Intersections Ch 21
October 30, 2008	Applications of Signalized Intersection Analysis Ch 22
November 6, 2008	Signal Coordination for Arterials and Networks Ch 24 Analysis of Arterial Performance Ch 25
November 13, 2008	HCM Applications Guide Beyond HCM Analysis – Synchro/Vissim
November 20, 2008	Due: Deliverable #2 for Term Project Beyond HCM Analysis – Synchro/Vissim
November 27, 2008	Thanksgiving Break
December 4, 2008	Due: Term Projects & Presentations (30min each team) Final Exam Review
December 11, 2008	Final Exam

Course Text

Traffic Engineering, 2004, Third Edition, Roess, McShane and Prassas
Introduction to Traffic Engineering – A Manual for Data Collection and Analysis, 2001, Thomas R. Currin

Instructors Policy Regarding Homework and Assignment Due Dates:

*Late homework and assignments **will not be accepted**. They delay the return of graded assignments to the rest of the class. You will, however, be allowed to drop one homework. The lowest grade (including zero, for not submitted) will be dropped when final grades are computed.*

Course Requirements

Homework Assignments	20%	
Field Studies/Term Project		25%
Exam 1	25%	
Final Exam	25%	
<u>Class Participation</u>	<u>5%</u>	
Total	100%	

Student Conduct

Please refer to the University Catalog regarding the University Honor Code.

Term Project Description

The term project will require student groups of 4-5 students to analyze the performance of an urban arterial. Each group will select an urban arterial (and have it approved by the professor) which includes a minimum of 3 signalized intersections with maximum ½ mile spacing between signals. Once sites have been selected team members will be responsible for development of a term project which will build upon field studies throughout the semester as well as a final report and presentation on the overall project.

Several field studies will be conducted by each team to better understand the theories and practices introduced in this course and also to better understand the performance of each team's arterial. Towards the end of the semester,

the Highway Capacity Software will be used to analyze the performance of the arterial. More information will be provided when appropriate.

Due Dates for Term Project

September 25th

Deliverable #1 7% of final grade

Submit: Site selection and basic information including:

- *Geometric drawings of arterial including lane control information (preferably CAD drawings)*
- *Lane width, lane drops, turn lanes, shoulder width*
- *Location of pedestrian, bicycle, transit facilities*
- *One report submitted for the entire team*
- *Present your arterial as a team in a 15-min presentation*

November 20th

Deliverable #2 - 10% of final grade

Submit: Traffic volumes, saturation flow rate study, and travel time runs for study arterial

- *Turning & through movement counts for all intersections for a 1-hour peak period*
- *Pedestrian, bicycle counts for 1-hour peak period*
- *Transit observations/count for 1-hour period*
- *Travel time runs – minimum of 5 in each direction during volume counts including breakdown of running time and delays at each signal compare these delays to HCS point analysis*
- *Traffic signal timing information for all signals*
- *Saturation flow rate study conducted at 1-through movement lane on one approach for 15 min period**
- *HCS Signalized Intersection Analysis & HCS Arterial Analysis*
- *Present your findings as a team in a draft report*
- *(bullets 1-3 assigned to 2-3 students; bullets 4- 6 assigned to 1-2 students; bullets 7 & 8 assigned to entire team)*

December 4th

Deliverable #3 - 8% of final grade

Submit Final Term Report (making improvements based on my comments from previous submissions) and Final Group Presentations one report for the entire team

- *Present findings of HCS analysis in 30 min presentation to class and final report*
- *Present optimized signal timing as given by HCS, compare to existing plan in the field*
- *Compare HCS to field observations of arterial travel speed/running time/delay at signals*
- *Review overall study/conclusions*

Contact Information

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