

CE 429V-001 TRANSPORTATION ENGINEERING

SPRING 2013

Department: Engineering

Professional Component: 3 Credit Hours, Engineering Topics

Prerequisites: “C” or better in CE 2202 (CE Presentation)

Class Time: Lecture: MW 7:35 – 8:50 AM

Class Location: Agricultural Building AG# 249

Instructor: Zahid Hossain, Ph.D., Assistant Professor of Civil Engineering

Office: ABI 318

Office Hours: M/W 11:00 – 12:00 or by appointment

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Course Description:

This course will cover the theory and application of methods and modes of transportation of goods and services and basic concepts of public policies.

Course Objectives:

- Students will better understand the fundamental procedures in locating, designing, and observing the construction of a transportation system.
- Students will learn the relationship between the different methods and modes of transporting goods and services.
- Students will be introduced to the basic concepts of public policies and public administration for transportation planning. This will include the political process, laws, regulations, funding mechanisms, public education and involvement in transportation planning. The government-business interaction in transportation planning/construction and the public service responsibility of professionals will also be covered in this section of the course.
- Students will learn the basic concepts of traffic engineering.
- Students will learn about the geometric and pavement design of roadways.
- Students will design a section of a roadway as an outside of class project.

Relation to Program Outcomes:

- Outcome No. 1: *A good understanding of mathematics, science, and engineering, and ability to apply this knowledge in engineering practice.* The lecture material covers the fundamental procedures to collect data and design the elements necessary to produce construction drawings that represent the knowledge.
- Outcome No. 4: *An ability to identify, formulate, and solve engineering problems.* The fundamental knowledge will allow the student to analyze data collected and formulate a logical solution to solving engineering problems and present them with graphic representation.
- Outcome No. 7: *The broad education necessary to understand the impact of engineering solutions in a global and society context.* The fundamental knowledge will allow the student to recognize the impact an engineering solution has on the environment and social activities both in the local community and globally.
- Outcome No. 10: *All graduates will have an ability to use the techniques, skills, and modern tools necessary for entry-level practice in their area of concentration.* The student will use modern tools, such as Excel, AutoCAD, and HEC or similar software, to prepare reports and engineering drawings.
- Outcome No. 11: *All graduates will be able to analyze and design a system, component, or process to meet desired needs in their area of concentration.* The student will be able to analyze, formulate a report, and design a transportation system.
- CE Outcome No. 14: *All graduates should will be able to explain the basic concepts of public polices and administration, including the political process, formulation of public policy, laws and regulations, funding mechanisms, public education and involvement, government-business interaction, and the public service responsibility of professionals.*

Class Policies:

- Class policies will follow applicable university rules and policies for attendance, cheating and plagiarism.
- The University email system will be the official method of communication. If you have an objection to this rule, then please contact the instructor.
- Disabled students are encouraged to register with the Office of Disability Services. Thereafter, they are invited to schedule appointments to see the instructor during his office hours to discuss accommodations and other special needs.

Specific Course Information

Textbook(s): Traffic and Highway Engineering 4th Edition by Nicholas J. Garber and Lester A. Hoel

Reference(s): ASTM Standards, AHTD Specification and Construction Manual, Soil and Water Conservation Soil Survey Manual.

Grading System:

It is anticipated that grades will be based on the following scale:

90.0 and above	A
80.0 –89.9	B
70.0 – 79.9	C
60.0 – 69.9	D
Less than 60.0	F

Distribution of Points:

Mid-term Exam:	25
Design Project:	25
Homework:	15
Final exam:	30
<u>Participation:</u>	<u>5</u>
Total:	100

Class Topics and Assignment Schedule:

The following is a tentative class schedule. Schedule modifications and adjustments will be applied as necessary as the semester progresses.

Week No.	Topic Assignments
1	Course Contents Introduction Chapter 1
2	Transportation Systems & Organizations Chapter 2 Characteristics of Driver/Vehicle/Pedestrian Chapter 3
3	Characteristics of Driver/Vehicle/Pedestrian Traffic Engineering Studies Chapter 4
4	Traffic Engineering Studies Traffic Flow Chapter 6
5	Traffic Flow Intersection Design Chapter 7
6	Intersection Design Capacity and Level of Service Chapter 9
7	Capacity and Level of Service Capacity and Level of Service Chapter 10
8	Review – Design Project Mid-term Exam No. 1
9	Transportation Planning and public policy Chapter 11 Laws, regulations and funding mechanism
10	Spring Break Spring Break
11	Public involvement and government/business interaction Travel Demand Forecasting Chapter 12
12	Highway Surveys & Location Chapter 15 Highway Surveys & Location
13	Geometric Design Chapter 16 Geometric Design
14	Soil Engineering for Highway Design Chapter 18 Bituminous Materials Chapter 19
15	Design of Flexible Pavement Chapter 20 Design of Flexible Pavement
16	Review – Design Project Due (last day of class) Final Exam (check academic calendar)