# University of Kansas

# CE 582: highway engineering

# Course Syllabus: fall 2007

**1.0 Course Information**

1.1 Meeting Times and Location: MWF 8:00 - 8:50 a.m.; Learned Hall, Room 2111

1.2 Course Professor: Steven D. Schrock, Ph.D., P.E.

2159B, Learned Hall

(785) 864-3418 (Office)

(785) 218-5966 (Cell)

schrock@ku.edu

1.3 Professor’s Office Hours: M,W 9:00 - 10:00 a.m.

Other times by appointment

1.4 Teaching Assistant: Howard Lubliner

(785) 296-4139 (KDOT office)

(785) 760-4611 (Cell)

howardl@ksdot.org

1.5 Teaching Assistant’s Office Hours: T 7:00 - 9:00 p.m.

1014 Eaton Hall

1.6 Course Text: Garber, N.J. and L.A. Hoel. *Traffic and Highway Engineering*, *Third Edition*. Brooks/Cole, Thomas Learning, Pacific Grove, California, 2002.

**2.0 Goals of This Course**

1. To develop an appreciation of highway engineering as a profession.

2. To develop an appreciation for the planning, design, and operation of highways.

3. To introduce the students to current software used by highway agencies.

4. To develop teamwork skills among students.

5. To foster a professional attitude.

6. To help the students develop their written and oral communication skills.

**3.0 ABET Criteria**

1. The ability to use techniques, skills, and modern engineering tools necessary for engineering practice.

2. The ability to identify, formulate, and solve engineering problems.

3. The ability to work in a team.

4. The ability to communicate both orally and in the written word.

5. The ability to understand the social and political impacts of engineering decisions.

**4.0 Course Schedule**

**Date Lecture Topic Reading Homework**

Aug. 17 Course Introduction #1 Assigned

Aug. 20 Transportation Systems and Orgs. pp. 3-14, 17-37

Aug. 22\* Driver and Pedestrian Characteristics pp. 43-48

Aug. 24\* Vehicle Characteristics pp. 48-69 #2 Assigned

Aug. 27\* Roadway Characteristics/Design Overview pp. 72-79, 671-688

Aug. 29\* Horizontal Curve Design pp. 70-72

Aug. 31\* Horizontal Curve Design pp. 705-723 #3 Assigned

Sept. 3 LABOR DAY - NO CLASS

Sept. 5\* Vertical Curves pp. 688-705

Sept. 7 Computer Applications (1014 Eaton Hall) #4 Assigned

Sept. 10\* Traffic Safety/Review for Exam I pp. 131-163

Sept. 12 Exam I

Sept. 14 Computer Applications (1014 Eaton Hall) #5 Assigned

Sept. 17 Exam I Handed Back/Project Team Selection

Sept. 19 Traffic Flow Theory pp. 173-191, 191-204

Sept. 21 Computer Applications (1014 Eaton Hall) #6 Assigned

Sept. 24\* Traffic Flow Theory/Highway Capacity pp. 359-375, 321-327

Sept. 26\* Highway Capacity pp. 329-359

Sept. 28 Computer Applications (1014 Eaton Hall) #7 Assigned

Oct. 1 Kansas City TMC Field Trip

Oct. 3\* Forecasting Travel Demand pp. 527-546

Oct. 5 Computer Applications (1014 Eaton Hall) #8 Assigned

Oct. 8\* Forecasting Travel Demand pp. 547-561

Oct. 10\* Design of Pavements pp. 1015-1024, 965-973, 1048-1061

Oct. 12 FALL BREAK - NO CLASS

Oct. 15\* Design of Pavements pp.955-990

Oct. 17\* Pavement Management pp. 1065-1107

Oct. 19 Computer Applications Day (1014 Eaton Hall) #9 Assigned

Oct. 22\* Highway Drainage pp. 739-745, 801-806

Oct. 24\* Signing pp. 277-291

Oct. 26 Computer Applications (1014 Eaton Hall)

Oct. 29\* Intersection Design pp. 215-274

Oct. 31\* Howard Lubliner Guest Lecture

Nov. 2 Computer Applications (1014 Eaton Hall)

**Date Lecture Topic Reading Homework**

Nov. 5 Plan Review Day

Nov. 7 Team Preparation Day

Nov. 9 Team Preparation Day

Nov. 12 Project Presentations

Nov. 14 Highway Design in Third World Countries

Nov. 16\* Intersection Control pp. 291-304

Nov. 19 \* Intersection Control pp. 304-309

Nov. 21 THANKSGIVING BREAK - NO CLASS

Nov. 23 THANKSGIVING BREAK - NO CLASS

Nov. 26\* Intersection Control/Review for Exam II pp. 310-320

Nov. 28 Exam II

Nov. 30 Exam II Handed Back/Ethics Reading Packet #3

Dec. 3\* The Future of Transportation Reading Packet #4

Dec. 5 Course Review

Dec. 7 STOP DAY - NO CLASS

Dec. 14 Final Exam, 7:30 - 10:00 a.m.

**5.0 Policies of the Professor**

5.1 Homework is due at the beginning of class on the days listed in the syllabus. No late work will be accepted. See Policy 3.6 for the exception policy.

5.2 All work is expected to be clearly presented, showing enough detail for the instructor to see all the work performed. Work may be either handwritten or typed according to the preference of the student.

5.3 References must be cited to avoid plagiarism.

5.4 Unethical behavior will not be tolerated and will result in an F for the course.

5.5 Students who are on-time and prepared for class will have the opportunity for a reward for this behavior. On each day with an asterisk (\*) shown on the schedule, there will be an oral, closed-book, closed-notes quiz at the beginning of class for two randomly-selected students. Each student will be asked one question selected from the assigned reading material for that day and from the material covered during the previous lecture:

* Students that correctly answer the question will receive a one point bonus to be applied to their final exam score;
* Students that incorrectly answer the question will receive no points. However, they can receive a 0.5 point bonus if by the next class period they email the professor two PowerPoint slides: the first indicating the problem, and the second indicating the answer. This must be done in PowerPoint in order to receive the 0.5 point; bonus
* Students not present when their name is called will receive a four point penalty to be applied to the final exam score. See Policy 3.6 for the exception policy.

5.6 Absences will be excused for legitimate reasons and the student does one of the following:

* Face-to-face discussions with the professor at least one-day prior to the absence.
* At least 30 minutes prior to class an email is sent to the professor explaining the absence.
* At least 10 minutes prior to class a telephone call is made to the professor, either to his cell phone or to his office phone. If contact is not made a voice mail message is required.

Legitimate reasons include: illness, illness in the immediate family, funeral attendance, field trips for another course, and car trouble. Other reasons may be approved by the professor if prior approval is sought. Inclement weather by itself is not a legitimate reason.

**6.0 Determination of Final Grade**

Homework Assignments 20% A 90-100

Design Project 25% B 80-89

Exam #1 15% C 70-79

Exam #2 15% D 60-69

Final Exam 25% F < 60

TOTAL 100%

**7.0 Final Thoughts**

1. The syllabus is subject to change at the discretion of the instructor as course or other circumstances require.

2. Students with documented special needs are encouraged to discuss with me arrangements that will enhance their learning in this class.

3. Please feel free to discuss with me problems or concerns with this or other courses.