CEE 362: Transportation Engineering

Monday and Wednesday
10:00 – 11:15 AM
SEB – 1242

CLASS SYLLABUS – Fall 2010

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SEB – 3214
http://faculty.unlv.edu/apaz/

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OFFICE HOURS:

Monday and Wednesday
8:30 – 9:30 AM
COURSE DESCRIPTION

This course covers concepts fundamental to the planning, design, operation and maintenance of transportation systems (with a focus on highway engineering and traffic analysis) and their social, environmental and economic considerations. The objective is to stimulate the basic skill set that will allow students to solve transportation problems that are likely to appear in professional practice and on the Fundamentals of Engineering exam (FE) and the Principles and Practice of Engineering exam (PE). The material covered also serves as foundation for future coursework in transportation should students wish to pursue further coursework in the field.

COURSE MATERIAL

The course will be taught using material from various books. Some required reading material will be placed on the course WebCampus website. The primary references contain material directly relevant to the course. The other references contain material of broader interest to the course. Several software packages will be use to further enhance concepts, apply gained knowledge, and address real-world problems.

REFERENCES

Primary:


Other:


**KEY DATES:**

September 20th: Submit description of proposed design project. Provide a problem statement indicating the characteristics and significance of the project. Provide information about the data that will be collected, the source of information, and the methodology from the course that will be used to perform the analysis. Approval of instructor is required.

November 15th: Group project reports due.

**PREREQUISITES**

Undergraduate calculus; basic probability; PHY 180 & 180L or PHY 151 & 152; CEE 110 or IS 101; CEE 121.

**TEACHING ASSISTANT**

Andrew Nordland
nordlan2@unlv.nevada.edu
Office Hours: Tuesday and Thursday 2:00 – 3:30 @ SEB 3229

**STUDENT EVALUATION**

Students will be assessed in the course based on five (5) activities:

Reading and assignments: The reading and assignments are fundamental to obtain the expected outcomes. Students are expected to check class schedule and read the appropriate material before class. This will help understanding class lectures.

Class presentations: There will be a presentation at the end of the semester. The objective of this presentation is to help students enhance their oral skills. Specific details will be provided in class.

Midterm: The midterm will include fundamental transportation engineering topics. More information will be provided in class. See the course outline.

Final project: Students will be required to work in teams on a semester long project. This will be the FINAL ASSESSMENT and is VERY important. The project will demonstrate how well prepared students are to perform transportation engineering analysis. Students will also be required to make a 15-20 minutes presentation of the project. Each student must be able to address any question relevant to the project. That is, student must know what has been done to address the entire project. More information is provided below.
Final exam: The final exam will include the material covered during the entire semester. See the course outline.

GRADING

- Reading and assignments 20%
- Midterm 20%
- Class presentations 20%
- Final project 20%
- Final exam 20%

COURSE WEBSITE AND EMAIL

WebCampus will be highly utilized to post course material. Please see https://webcampus.nevada.edu for instructions on logging into your account. In accordance with UNLV policy, all students are to be contacted using their UNLV email. (user_name@unlv.nevada.edu). This will be the email address that I use. If you don’t know your email address, then go to http://rebelmail.unlv.edu/. Do NOT use the e-mail tool provided in WebCampus, instead use your UNLV e-mail address.

ACADEMIC ETHICS

Ethics in this course are very serious:

1. If a student is found cheating on an exam, he/she will receive an F in this course.
2. As I stated earlier, students can work in groups to do the homework, but each student is responsible for his/her own work. Students submitting nearly identical homework will not receive credit for that assignment.
3. Academic Misconduct – “Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV’s function as an educational institution.”
   An example of academic misconduct is plagiarism: “Using the words or ideas of another, from the internet or any source, without proper citation of the sources.” See the “Student Academic Misconduct Policy” (approved December 9, 2005, located at < http://studentconduct.unlv.edu/misconduct/>).
4. Copyright - The University requires all members of the University Community to familiarize themselves and to follow copyright and fair use requirements. YOU ARE INDIVIDUALLY AND SOLELY RESPONSIBLE FOR VIOLATIONS OF COPYRIGHT AND FAIR USE LAWS. THE UNIVERSITY WILL NEITHER PROTECT NOR DEFEND YOU NOR ASSUME ANY RESPONSIBILITY FOR EMPLOYEE OR STUDENT VIOLATIONS OF FAIR USE LAWS. Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. To familiarize yourself with copyright and fair use policies, you are encouraged to visit the following website: <http://www.unlv.edu/committees/copyright/>.
CLASS ATTENDANCE

Students’ attendance to class is highly recommended. Some of the lectures and assignments will deal with material that is not in the text. We will also be doing many classroom activities. The use of computers, cell phones and other devices is prohibited in class.

DISABILITY RESOURCE CENTER:

The Office of the Executive Vice President and Provost and Faculty Senate have endorsed the following statement to be included in all course syllabi. [NOTE: Over two-thirds of the students in the DRC reported that the syllabus statement, often read aloud by the faculty during class, directed them to the DRC office.]

The Disability Resource Center (DRC) coordinates all academic accommodations for students with documented disabilities. The DRC is the official office to review and house disability documentation for students, and to provide them with an official Academic Accommodation Plan to present to the faculty if an accommodation is warranted. Faculty should not provide students accommodations without being in receipt of this plan.

UNLV complies with the provisions set forth in Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, offering reasonable accommodations to qualified students with documented disabilities. If you have a documented disability that may require accommodations, you will need to contact the DRC for the coordination of services. The DRC is located in the Student Services Complex (SSC), Room 137, and the contact numbers are: VOICE (702) 895-0866, TTY (702) 895-0652, FAX (702) 895-0651. For additional information, please visit: <http://studentlife.unlv.edu/disability/>.

SUGGEST STRATEGY

Students must complete and understand the homework. Students should not wait to clarify issues they did not comprehend regarding class or homework. There are no bad questions. Students should take advantage of office hours. If a student has conflict with the suggested hours, the student must contact the instructor (phone or email) to set up an appointment. Do not wait till the last moment to schedule an appointment. Only students requesting appointment in advance (at least one day) will be considered.
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<thead>
<tr>
<th>Week</th>
<th>Class</th>
<th>Date</th>
<th>Subject</th>
<th>Chapter</th>
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<td>Intro &amp; Vehicle Performance (Resistant Forces) [Read the syllabus]</td>
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<td>Vertical Alignment (example problems)</td>
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Guidelines for Group Project Report

1. Any transportation-related design problem is acceptable. Examples of topics include:
   • Alternative fuels
   • Study of signal dilemma zones
   • Analysis of a specific intersection’s sight distance
   • Study of bicycle braking distances
   • Effects of advanced braking and stability systems in urban driving conditions
   • The effect of alternate fuels on vehicle performance, emissions and economics
   • Report on the impact of speed humps as a speed control mechanism
   • A study of school zone speed limit compliance
   • Geometric analysis of a specific highway segment
   • Redesign of a specific congested or dangerous intersection
   • Study of traffic calming devices
   • Braking bicycles: A study of disk rotor diameter effect on braking distances
   • Assessment of high-speed rail transportation
   • Assessment of race-track design
   • Motorcycle analysis: The most efficient braking
   • America’s dependency on oil and the need for alternative fuel
   • Car accident and the effects of age, race, gender and speeding
   • Analysis of the influence of anti-lock brakes on pickup trucks

2. There are two general types of design papers:
   A. **Site Specific Study** - In this case you analyze an existing problem (poorly designed intersection, deteriorated pavement) and propose a solution. You can also evaluate a solution proposed by someone else. You can get information from state/city officials and/or gather reports from library/internet sources. You may also have to collect some data (counts of vehicles, etc.).
   B. **General Design Analysis** - Information is collected from library/internet sources on a design problem that is local, nationwide, or worldwide in scope. A number of journals available online are an excellent place to start.

3. It is important for your paper to be well structured. Although each paper will be different, most papers should have:
   A. **Problem Statement**, including the significance of the problem and who is likely to be interested in the solution.
   B. **Evaluation** of the important factors involved in solving the problem.
   C. **Presentation** of one or more proposed solutions.
   D. **Conclusions**.

4. The paper should be 10 to 15 pages typed (including figures and tables). Try to be succinct and to the point but be careful not to leave out important information. The paper can be done individually or in groups of two to three. Submit both soft and hard copies. For example, site specific studies may require more than one person to collect data and other design information.

5. The paper should be defended during a 15-20 minutes oral presentation as indicated in the course outline (further details will be provided in class).