Instructors: Mr. Brent Vaughn (weeks 3-8)  
email: bvbaughn@siue.edu; telephone: 618-650-3533; office EB2051  
office hours: M, W 4:30pm – 5:20pm, or contact the instructor for a  
special appointment.

Dr. Chiang Lin (weeks 1 & 2)  
email: clin@siue.edu  
office hours: contact the instructor for a special appointment

Lecture time: M, W 6:00pm – 9:00pm in EB1010

Textbooks:

References:

Course Objectives:
This course is to provide CE senior or graduate students with an understanding of the analysis and design of highway pavements, including both flexible and rigid types, with emphasis on the IDOT and MoDOT design methods as well as AASHTO’s new ME-PDG method. The course requires students have background knowledge in both asphalt and Portland cement concrete (PCC) materials, geotechnical engineering and basic PCC structural design.
**Course Outline:**
The following table represents an approximate schedule of the topics to be covered in the course and may be changed as needed.

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics Covered</th>
<th>Reading</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to pavement design: comparison of empirical and mechanistic designs</td>
<td>Huang Ch. 1</td>
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<tr>
<td>2</td>
<td>Flexible and rigid pavement analytical models</td>
<td>Huang Ch. 2 and 4</td>
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<tr>
<td>3</td>
<td>Traffic analysis for highway pavements Pavement distresses</td>
<td>Huang Ch. 6</td>
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<tr>
<td>4</td>
<td>Climate, environment and material properties Exam 1 (covers weeks 1-3)</td>
<td>Huang Ch. 1</td>
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<td>5</td>
<td>Distress transfer functions, distress models and IRI Input study of the ME-PDG method</td>
<td>AASHTO ME-PDG Ch. 1-3; LCG-1 Ch. 1-2</td>
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<tr>
<td>6</td>
<td>Input study of the IDOT and MoDoT methods</td>
<td>IDOT manual Chapter 54, MoDOT EPG (Other Aspects…)</td>
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<tr>
<td>7</td>
<td>Exam 2 (covers weeks 4-6) Pavement remedial methods</td>
<td>IDOT manual Chapter 53 - Pavement Rehabilitation</td>
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<tr>
<td>8</td>
<td>Pavement technologies for sustainability Final Projects</td>
<td>See in-class handouts</td>
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</table>

**Grading:**

- Homework 30%
- Exams (2 at 20% each) 40%
- Final Project Report 30%
- Total 100%

**Class and Homework Requirements:**

1. Class participation is encouraged. You should inform the instructor if you cannot attend any sessions of the class due to an emergency.
2. Problems will be assigned regularly as various homework sets. In general, each set of homework will be given one-week time for completion, unless there is an approved excuse. A deduction of 20% of the grade will be exercised for each day of delay.
3. Work has to be neatly done on normal size paper (8.5 x 11”), and using necessary tools for making required drawings.
4. Discussion among students for topics presented in this course for the purpose of increasing their understanding is encouraged. However, work used in grading individual assignments must be the product of the individual. Cheating in any forms will not be allowed. Students are required to follow the university policy in conduct themselves in the classroom.
Plagiarism:

Deliberate plagiarism is a serious act of academic misconduct. Students may be suspended from the University if they are found to have plagiarized their course work. Whether inadvertent or deliberate, plagiarism includes the following:

(a) word-for-word copying of sentences or whole paragraphs or presenting of substantial extracts from either paper-based or electronic sources the work or data of others that are published or unpublished (such as books, internal reports, and lecture notes or tapes) without clearly indicating their origin

(b) using very close paraphrasing of sentences or whole paragraphs without due acknowledgement in the form of reference to the original work

(c) submitting another student’s work in whole or in part

(d) use of another person’s ideas, work or research data without acknowledgement

(e) copying computer files, algorithms or computer code without clearly indicating their origin

(f) submitting work that has been written by someone else on the student’s behalf

(g) submitting work that has been derived, in whole or in part, from another student's work by a process of mechanical transformation (e.g., changing variable names in computer programs).

Students with Disabilities:

Please notify me no later than the end of the first week of class concerning any academic accommodations you will need. You must have a documented disability and an ID CARD from Disability Support Services. If you need accommodations not indicated on the Disability Support Services ID CARD, please contact me or the Disability Support Services office as soon as possible so arrangements can be made for the additional equipment or accommodations.