CE 757 PAVEMENT MANAGEMENT SYSTEMS
Syllabus

INSTRUCTOR: Dr. Y. Richard Kim, P.E.; Room 210, Mann Hall
Tel: 515-7758; E-mail: kim@ncsu.edu

Dr. Cassie Castorena; Room 431-A, Mann Hall
Tel: 515-6411; E-mail: cahintz@ncsu.edu

CLASS TIMES: Tuesdays and Thursdays 1:30 pm – 2:45 pm

LOCATION: 331 Daniels Hall

OFFICE HOURS: Phone calls, office visits, e-mails: Any time available

PREREQUISITE: Graduate standing in civil engineering (CE 755 Highway Pavement Design is recommended.)

COURSE OBJECTIVES/DESCRIPTION:
The primary goal of this course is to educate graduate level civil engineering students in the principles of pavement management and preservation. Both network and project-level pavement management processes are included; however, the emphasis is on project-level in this class. Incorporation of pavement preservation into pavement management systems is covered, including concepts related to routine maintenance, preventive maintenance, and minor rehabilitation.

Several computer programs in pavement evaluation and management will be introduced during the lectures and the student will get familiar with them through the homework assignments and term project. Recent research results in pavement evaluation and preservation will be also shared during the lectures.

STUDENT LEARNING OUTCOMES:
At the end of the course, the students should be able to:

- describe the elements included in project and network-level pavement management process;
- define the difference between project and network-level pavement management processes and explain the reasons for the division and the interface required between them;
- explain how to determine, what data to collect, and the methods available for collecting it at both project and network-level;
- explain how to define the condition of a pavement, the advantages and disadvantages of different collection methods, and how to decide which condition data and collection methods should be used for a given agency;
- describe different techniques to evaluating structural capacity of pavement systems;
- explain different approaches to analyzing Falling Weight Deflectometer deflections;
- design overlays using the AASHTO overlay design method;
- describe different approaches to analyzing data at project and network levels and discuss the advantages and disadvantages of each; and
- describe typical problems encountered in implementing pavement management processes and approaches which can be used to overcome them.
- describe the elements included in pavement preservation
- select appropriate timing and pavement preservation strategy based on existing pavement conditions
- describe different treatment techniques for routine maintenance, preventive maintenance, and minor rehabilitation

**TEXTBOOK:** None required.


**GRADING POLICY:**

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Assignments:</td>
<td>30%</td>
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<tr>
<td>Mid-term Exam:</td>
<td>25% (Closed book)</td>
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<tr>
<td>Final Exam:</td>
<td>25% (Closed book)</td>
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<tr>
<td>Term Project:</td>
<td>20%</td>
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Grade scale:

- A+ 97-100
- A 93-97
- A- 90-93
- B+ 87-90
- B 83-87
- B- 80-83
- C+ 77-80
- C 73-77
- C- 70-73
- D+ 67-70
- D 63-67
- D- 60-63
- F Below 60

For Engineering On-Line students, please submit all homework and exams to:
Mike Myers
Engineering Online, 256 Page Hall
21 Current Avenue
Raleigh, NC 27695-7547
Fax: 919.515.8415
E-mail: mike_myers@ncsu.edu

Please include the University Course number on all returned homework and exams.

**POLICY OF LATE WORK:**
Make-up exams will only be granted in extraordinary circumstances and should, if possible, be requested well in advance of the exam. Homework should be handed in at the beginning of the period in which it is due. Late homework will be accepted up to the last day of class, but a maximum grade of 60% will be awarded for it. Late project reports will be accepted
only up to the scheduled final exam date, but a maximum grade of 60% will be awarded for it. Extensions will only be granted in extraordinary circumstances and must also be requested in advance of the deadline, in accordance with the university policy and regulation on attendance (see below).

**POLICY OF ATTENDANCE:**
Students are responsible for all material covered in class. In general, if a student misses classes, he/she should not expect to do well in this course. The university policy on attendance can be found at [http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php](http://www.ncsu.edu/policies/academic_affairs/pols_regs/REG205.00.4.php).

**ACADEMIC INTEGRITY:**
Students may work in groups on the required homework. Individual work must be handed in, however. Acceptance of academic responsibility will be according to the University policy on academic integrity as defined by the Honor Pledge. Any suspected case of academic dishonesty will be turned over to the Student Judiciary Board for investigation. If students have any questions about what constitutes academic dishonesty, consult the Student Handbook, the Student Code of Conduct (available online at [http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php](http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php)).

**STUDENTS WITH DISABILITIES:**
Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State’s policy on working with students with disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.1).