

University of Texas at Tyler - Department of Civil Engineering
CENG 4353/CENG 5360: Introduction to Pavement Engineering

Instructor: Dr. Mena Souliman
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Office Hours:
Tuesday & Thursday: 11:00AM-
12:00PM or by appointment

Lectures:

Tuesday/Thursday: 3:30 PM-4:50PM, RBS 2019 and/or via Zoom.

Laboratory:

None

Course Website:

Canvas will be used to manage the course material for the semester. There you will find homework assignments, solutions, handouts and other material pertaining to the class. **Please check there regularly.**

Catalog Description:

Evaluation of stresses in flexible and rigid pavements, materials characterization, design of flexible and rigid pavements for highways and airports.

Learning Objectives:

1. Explain the different pavement design methodologies.
2. Develop a fundamental understanding of the analysis of pavement structures (develop necessary analytical skills to analyze stresses and strains in pavement system).
3. Explain the concepts and theory behind the materials and traffic characterization requirements for input in pavement structural design and performance.
4. Explain the basics of fracture mechanics and its application to paving materials and design.
5. Design asphalt pavements using the Pavement-ME design procedure.

Prerequisites:

CENG 3336: Soil Mechanics.

Required Texts:

Pavement Analysis and Design, Y. H. Huang, 2nd Edition, Prentice Hall, 2004. ISBN-10: 0131424734. ISBN-13: 978-0131424739. Available at the bookstore and web outlets.

Supplemental Textbooks/References:

- Additional handouts/references for the use of pavement design and analysis software will be provided in due course.

Course Schedule (Tentative and Subject to Change):

Course Schedule - Subject to Revision			
Date	Day	Material Covered	Lesson Material
1/16/2024	T	Introduction	Ch. 1
1/18/2024	TR		
1/23/2024	T		
1/25/2024	TR	Stresses and strains in flexible pavements	Ch. 2
1/29/2024	M	Census Date	
1/30/2024	T	Stresses and strains in flexible pavements	Ch. 2
2/1/2024	TR		
2/6/2024	T		
2/8/2024	TR	Stresses and strains in Rigid pavements	Ch. 4
2/13/2024	T		
2/15/2024	TR		
2/20/2024	T		
2/22/2024	TR	Traffic loading and volume	Ch. 6
2/27/2024	T		
2/29/2024	TR		
3/5/2024	T	Material Characterization	Ch. 7
3/7/2024	TR		
Spring Break 3/11/2024-3/15/2024			
3/19/2024	T	Drainage Considerations	Ch. 8
3/21/2024	TR	Exam 2	
3/25/2024	M	Last Day to Withdraw	
3/26/2024	T	Flexible Pavement Design Methods	Ch. 11
3/28/2024	TR		
4/2/2024	T	Flexible Pavement Design Methods	Ch. 11
4/4/2024	TR		
4/9/2024	T	Rigid Pavement Design Methods	Ch. 12
4/11/2024	TR		
4/16/2024	T		
4/18/2024	TR		
4/23/2024	T	Term-Project Presentation	
4/25/2024	TR	Final-Exam Prep.	
April 29th - May 3rd		Final Exam Week	

Exams:

There will be 2 midterm examinations and one final examination. The exams are **TENTATIVELY** scheduled for:

- Exam 1: February 20
- Exam 2: March 21
- Final Exam: TBD

Exams dates may be moved up or pushed back depending on the progress of the lectures. You can use a calculator and instructor approved reference material. Solutions to exams will **NOT** be posted however, key answers will be demonstrated at class. No make-up exams will be given except for medical or other similar hardships where advanced arrangements are made with the instructor; or in case of non-selective medical emergencies with appropriate physician's note or documentation. Other than circumstances described above, failure to take the exam at the scheduled time will constitute a grade of zero in the exam.

Homework:

Homework will be assigned on regular basis. **Homework is due on the date assigned at the beginning of lecture.** No late homework will be accepted except when arrangements are made with the instructor ahead of time. Solutions will be posted on blackboard. **5% Extra credit will be given for each fully computer-typed homework assignments.**

Laboratory:

No Laboratory.

Term Project (For Undergraduate Students):

There will be also a design term project that can be completed by groups of 2 students. You will also be required to prepare and present a poster at the end of the term project to be presented at the Lyceum competition in April.

Term Paper (For Graduate Students):

Term paper topic will be assigned by the end of January. You will also be required to prepare and present a poster at the end of the term paper to be presented at the Lyceum competition in April.

Grades(For Undergraduate Students):

Homework/Quizzes = 20%
Professional Practice = 5%
Midterm Exams (2) = 30%
Final Exam = 20%
Term Project (Report + Poster)= 25%

Grade Scale:

A: 90-100
B: 80-89
C: 70-79
D: 60-69
F: <60

Grades(For Graduate Students):

Homework/Quizzes = 20%
Professional Practice = 5%
Midterm Exams (2) = 30%
Final Exam = 20%
Term Paper (Paper + Poster)= 25%

Grade Scale:

A: 90-100
B: 80-89
C: 70-79
D: 60-69
F: <60

****NOTE:**

There will be no makeup work or extra credit allowed/granted at the end of or during the semester unless allowed/granted to everyone by the instructor. All assignments must be turned in at the appropriate time to receive credit.

Professional Practice:

Your professional practice grade will be computed based upon your attendance and the number of assignments you turn in that are completed in a professional manner meeting the deadline.

UNIVERSITY POLICIES AND ADDITIONAL INFORMATION

Please see your course canvas page.

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