

College of Engineering

Department of Civil Engineering

جامعة  
الملك سعود  
King Saud University



## CE 538 Pavement Evaluation and Maintenance

<b>Credit and Contact hours</b>	3/ 3 (Lectures), 0 (Tutorials), 0 (Laboratory)												
<b>Required, or Elective</b>	Required for a MSCE degree												
<b>Course Description</b>	Development of skills in pavement evaluation and maintenance: pavement performance; distresses identification; visual inspection; roughness measurements; skid resistance; structural evaluation; levels and methods of maintenance; and economic analysis of pavement maintenance strategies.												
<b>Prerequisites or Co-requisites</b>	None												
<b>Course Learning Outcomes</b>	<p>Students completing this course successfully will be able to</p> <table border="1"><thead><tr><th>Course Learning Outcomes</th><th>Related Program Outcomes</th></tr></thead><tbody><tr><td><b>CLO1:</b> Recognize and identify the concept of pavement inspection and evaluation..</td><td><b>K1</b></td></tr><tr><td><b>CLO2:</b> Recognize the concept of pavement serviceability and pavement performance.</td><td><b>K1</b></td></tr><tr><td><b>CLO3:</b> Determine maintenance needs and maintenance strategies in real-life conditions.</td><td><b>S1</b></td></tr><tr><td><b>CLO4:</b> Conduct economic analysis of pavement maintenance and rehabilitation strategies in real-life conditions using computer programs.</td><td><b>S1</b></td></tr><tr><td><b>CLO5:</b> Evaluate existing pavement conditions (pavement distresses, pavement roughness, skid resistance and structural capacity) and its performance, as well as its effectiveness in practice.</td><td><b>C2</b></td></tr></tbody></table>	Course Learning Outcomes	Related Program Outcomes	<b>CLO1:</b> Recognize and identify the concept of pavement inspection and evaluation..	<b>K1</b>	<b>CLO2:</b> Recognize the concept of pavement serviceability and pavement performance.	<b>K1</b>	<b>CLO3:</b> Determine maintenance needs and maintenance strategies in real-life conditions.	<b>S1</b>	<b>CLO4:</b> Conduct economic analysis of pavement maintenance and rehabilitation strategies in real-life conditions using computer programs.	<b>S1</b>	<b>CLO5:</b> Evaluate existing pavement conditions (pavement distresses, pavement roughness, skid resistance and structural capacity) and its performance, as well as its effectiveness in practice.	<b>C2</b>
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<b>Student Outcomes related to this Course</b>	<b>K1.</b> Recognize advanced engineering knowledge, concepts and techniques to identify, interpret and analyze complex and real-life engineering problems.												

	<p><b>S1.</b> Provide solution for complex and real-life engineering problems through critical thinking and using modern engineering tools and identify its impact on social and ethical issues.</p> <p><b>C2.</b> Design novel advanced Civil Engineering systems and evaluate its performance and effectiveness for engineering practice and its impact on society.</p>	
<b>Topics Covered</b>	<b>List of Topics</b>	
	1. Concept of pavement evaluation and distresses identification and measurements	<b>Related CLOs</b> CLO1
	2. Pavement inspection, roughness measurements, skid resistance; structural evaluation.	CLO2
	3. Levels and types of maintenance needs.	CLO3
	4. Application of maintenance activities	CLO3
	5. Economic analysis of maintenance strategies.	CLO4
	6. Use of computer programs to analyze and select maintenance strategies.	CLO5
<b>Textbook(s) and Other Required Material</b>	<ul style="list-style-type: none"> <li>• “Modern Pavement Management”, Haas, Hudson and Zaniewski.</li> </ul>	
<b>Grading System</b>	Assignments	20%
	Project Work	20%
	Midterm Exam	20%
	Final Exam	40%
<b>Instructors</b>	Dr. Abdullah Al-Mansour (2A66), e-mail: amansour@ksu.edu.sa	
<b>Date of Review</b>	February, 2021	