

College of Engineering

Department of Civil Engineering

جامعة
الملك سعود
King Saud University



CE 439 Pavement Maintenance

Credit and Contact hours	3 / 3 (Lectures), 1 (Tutorials), 0 (Laboratory)										
Required, or Elective	Elective for a BSCE degree										
Course Description	Concept of Pavement Serviceability and Maintenance, Pavement Evaluation, Types of Pavement Maintenance and Rehabilitations, Identification of Flexible Pavement Distresses, Treatment of Pavement Distresses, Maintenance Activities, Maintenance Decisions, Structural and Functional Overlay, Economic Evaluation of Pavement Maintenance Alternatives.										
Prerequisites or Co-requisites	CE 431 (Highway Engineering)										
Course Learning Outcomes	<table border="1"><thead><tr><th>Course Learning Outcomes</th><th>Related Student Outcomes (SO)</th></tr></thead><tbody><tr><td>CLO1. Identify different factors affecting the pavement maintenance: serviceability conditions, method of maintenance and rehabilitations, and flexible pavement distress.</td><td>SO1</td></tr><tr><td>CLO2. Evaluate maintenance activities and maintenance decisions based on the treatment of pavement distresses and economic factors.</td><td>SO4</td></tr><tr><td>CLO3. Estimate the structural and functional overlay.</td><td>SO1</td></tr><tr><td>CLO4. Evaluate different pavement maintenance alternatives considering economic factors.</td><td>SO4</td></tr></tbody></table>	Course Learning Outcomes	Related Student Outcomes (SO)	CLO1. Identify different factors affecting the pavement maintenance: serviceability conditions, method of maintenance and rehabilitations, and flexible pavement distress.	SO1	CLO2. Evaluate maintenance activities and maintenance decisions based on the treatment of pavement distresses and economic factors.	SO4	CLO3. Estimate the structural and functional overlay.	SO1	CLO4. Evaluate different pavement maintenance alternatives considering economic factors.	SO4
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CLO1. Identify different factors affecting the pavement maintenance: serviceability conditions, method of maintenance and rehabilitations, and flexible pavement distress.	SO1										
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CLO4. Evaluate different pavement maintenance alternatives considering economic factors.	SO4										
Student Outcomes related to this Course	<p>SO 1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics, and using modern engineering tools [ABET 1].</p> <p>SO 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.[ABET 4]</p>										

Topics Covered	List of Topics		Related CLOs
	1. Introduction: concept of pavement serviceability.		CLO1
	2. Pavement evaluation.		CLO1
	3. Types of pavement maintenance and rehabilitations.		CLO1
	4. Identification of flexible pavement distresses.		CLO1
	5. Treatment of pavement distresses.		CLO2
	6. Maintenance activities and maintenance decisions.		CLO2
	7. Structural and functional overlay		CLO3
	8. Economic evaluation of pavement maintenance alternatives.		CLO4
Textbook(s) and Other Required Material	<ol style="list-style-type: none"> 1. Asphalt in Pavement Preservation & Maintenance, MS-16, The Asphalt Institute 2. Alternatives in Pavement Maintenance, Rehab & Reconstruction, IS-178, The Asphalt institute. 3. Modern Pavement Management, R. Hass, W.R. Hudson, and J. Zawieski, Krieger Publishing Company, 1994 		
Grading System	Quizzes and/or term papers	10%	
	Two Midterm Exams	50%	
	Final Examination	40%	
Instructors	Dr. Abdulrahman Al-Suhaibani (2A43/2), email; asuhaib@ksu.edu.sa		
Date of Review	September 2020		