



**The Hashemite University**  
**Faculty of Engineering**  
**Civil Engineering Program**  
**Course Syllabus**



<b>Course Title:</b>	Pavement Material & Design	<b>Course Number:</b>	110401466
<b>Department:</b>	Civil Engineering	<b>Designation:</b>	Compulsory
<b>Prerequisite(s):</b>	Highway Engineering & Design (110401368)		
<b>Instructor:</b>	Dr. TALEB M. AL-ROUSAN	<b>Instructor's Office:</b>	Eng. 3015
<b>Instructor's e-mail:</b>	taleb@hu.edu.jo		
<b>Office Hours:</b>	[S, T, W. (9:00 – 10:00 am)]		
<b>Time:</b>	<b>Sec. 1</b> S, T, Th 10:00 – 11:00 am	<b>Class Room:</b>	HB 207
	<b>Sec. 2</b> S, T, Th 11:00 – 12:00 pm		HB 208
<b>Course description:</b>	Pavement types, Pavement materials; subgrade stabilization methods; Principles of mix design using SUPERPAVE; Analysis of stresses in flexible and rigid pavement, Design methods of highway flexible and rigid pavements; Design of airport flexible and rigid pavement; Overlay design, Computer applications.		
<b>Textbook(s):</b>	Traffic & Highway Engineering, 5 <sup>th</sup> Edition. Nicholas Garber and Lester Hoel. Cengage Learning, 2015		
<b>Other required material:</b>	Any traffic and highway engineering or pavement analysis and design can be a good reference.		
<b>Program Learning Outcomes (PLOs)</b>	successful completion of this program graduates will be able to:		
	<b>#</b>	<b>Outcome Description</b>	<b>Contribution</b>
	<b>General Engineering Student Outcomes</b>		
	a	an ability to apply knowledge of mathematics, science, and engineering.	
	b	an ability to design and conduct experiments, as well as to analyze and interpret data	
	c	an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability	M
	d	an ability to function on multidisciplinary teams	
	e	an ability to identify, formulate, and solve engineering problems	H
	f	an understanding of professional and ethical responsibility	
	g	an ability to communicate effectively	
	h	the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context	
	i	a recognition of the need for, and an ability to engage in life-long learning	
	j	a knowledge of contemporary issues	
	k	an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice	
	<b>H=High, M= Medium, L=Low</b>		
<b>Course Learning Outcomes (CLOs)::</b>	<p style="text-align: center;">Upon completion of this course, the student will be able to:</p> <ol style="list-style-type: none"> <li>1- Distinguish the properties of materials used in highway pavements [ e].</li> <li>2- Discriminate between different pavement types [ e].</li> <li>3- Design of: flexible pavement layers thickness using AASHTO method [c].</li> <li>4- Design of hot asphalt mixes using Marsha method [c].</li> <li>5- Develop a basic understanding of drainage facilities and highway construction procedures [e].</li> </ol>		



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<b>Topics covered:</b>	<b>Topics</b>			<b>No. of Weeks</b>	<b>Contact hours*</b>
	Highway Materials (bituminous Materials, Aggregates, and soil),			6	18
	Pavement Types,			1	3
	Flexible pavement design (design of Hot Mix Asphalt mixture using Marsha method)			2	6
	Flexible pavement design (design of pavement thicknesses using AASHTO method)			2	6
	Earth work operations,			1	3
	drainage and drainage structures, and Rehabilitation and Highway Maintenance			1	3
	drainage and drainage structures, and Rehabilitation and Highway Maintenance			1	3
	<b>Total</b>			<b>15</b>	<b>45</b>
	*Contact hours include lectures, quizzes and exams				
<b>Class/laboratory schedule:</b>	3 class sessions each week; 50 minutes				
<b>Grading Plan:</b>	First Exam	(30 Points)	Wed 14/3/2018 (12:30 – 14:00 pm)		
	Second Exam	(30 Points)	Wed 18/4/2018 (12:30 – 14:00 pm)		
	Final Exam	(40 Points)	Will be announced by the registrar		
	The grading system that will be used for this class will be as follows		A+(90-100), A (86 -89), A- (82-85), B+ (78-81), B(74-77), B-(70-73), C+ (66-69), C (62-65), C-(58-61), D+ (54-57), D(50-53).		
<b>General Notes</b>	<ul style="list-style-type: none"> <li>The maximum allowed number of absentees from the course is six classes. Exceeding these limits will lead to prevention from attending the final exam.</li> <li>No MAKE-UP EXAMS.</li> <li>Beware of Plagiarism: copying and handing in for credit someone else's work. Any plagiarism case will result in an automatic 'F' for the course</li> </ul>				

Prepared by:

*Dr. Taleb M. Al-Rousan*

Date: 28<sup>th</sup> Jan. 2018