

COURSE CATALOG

Course Code: CE 354				Course Name: Pavement Engineering			
Semester	T + P + L	Credits	ECTS	Language of Instruction	Course Type	Instruction Methods	Prerequisite(s)
6-7-8	3 + 0 + 0	3	6	English	Departmental Elective (D2)	Lecture	None
Course Objectives			To introduce students a fundamental knowledge of various types of pavement designs and pavement engineering.				
Topics Covered			Introduction. Description of pavements. Soils. Drainage. Properties of traffics and traffic composition. Asphalt pavements: standards, aggregates, mixing and construction, major distress mechanisms and material characterization. Concrete pavements: standards, aggregates, mixing and construction, major distress mechanisms and material characterization. Airport pavements. Maintenance of pavements.				
Learning Outcomes of the Course			<p>The students who pass this course should:</p> <p>1- gain a basic knowledge of pavement engineering and develop analytical and mathematical skills to identify the pavement engineering problems [1, 2, 3, 12]</p> <p>2- be able to analyze, assess and manipulate field data obtained by insitu observations for use in pavement design [4, 5]</p> <p>3- develop skills for computer usage of packages such as word, excel, matlab [4,5]</p> <p>4- understand the practical applications of engineering concepts used in pavement design [7, 12, 13, 14]</p> <p>5- gain a basic knowledge about various case studies of pavement designs [7, 8, 9, 11, 12, 13,14]</p> <p>6- develop skills of conveying technical material through oral presentations and written papers/reports [6, 15, 16]</p> <p><i>[Note that the numbers in brackets refer to the bullet numbers in the program outcomes list.]</i></p>				
ISCED Category of the Course			52 Engineering				
Textbook			R. B. Mallick and T. El-Korchi. <i>Pavement Engineering: Principles and Practice</i> . CRC Press, 2013.				
Recommended Sources			A. T. Papagiannakis and E. A. Masad. <i>Pavement Design and Materials</i> . Wiley&Sons, 2008.				

WEEKLY SCHEDULE

Week	Theoretical Topic	Applied / Laboratory Topics
1	Introduction. Description of pavements.	
2	Soils.	
3	Drainage.	
4	Properties of traffic and traffic composition.	
5	Asphalt pavements: Standards.	
6	Asphalt pavements: Aggregates.	
7	Asphalt pavements: Mixing and construction. Midterm 1.	
8	Asphalt pavements: Major distress mechanisms and material characterization.	
9	Concrete pavements: Standards.	
10	Concrete pavements: Aggregates.	
11	Concrete pavements: Mixing and construction.	
12	Concrete pavements: Major distress mechanisms and material characterization. Midterm 2.	
13	Airport pavements.	
14	Maintenance of pavements.	

COURSE ASSESSMENT POLICY

	Activities	Number	Contribution (%)
Studies throughout the term	Quizes	-	-
	Term Homework/ Project	-	-
	Reports	-	-

	Graduation Thesis/ Project	-	-
	Seminar	-	-
	Homeworks	5	30
	Presentations	-	-
	Midterm Exams	2	35
	Project	-	-
	Laboratory	-	-
	Other (field work)	-	-
FINAL EXAM		1	35
Total			100

CONTRIBUTION OF THE COURSE TO CIVIL ENGINEERING PROGRAM OUTCOMES

	Program Outcomes	1	2	3
1	The ability to apply knowledge of mathematics, science, and engineering			X
2	The ability to identify, formulate, and solve engineering problems			X
3	The ability to design a system or component to meet desired needs with realistic constraints such as economic, environmental, social, ethical, health and safety, manufacturability and sustainability		X	
4	The ability to analyze and interpret data		X	
5	The ability to design and conduct experiments and apply experimental results to improve processes		X	
6	The ability to convey technical material through oral presentations and written papers/reports			X
7	The ability to function within multidisciplinary teams		X	
8	The understanding of professional and ethical responsibilities		X	
9	The understanding of the impact of engineering on society		X	
10	The understanding of the necessity to engage in life-long learning	X		
11	The understanding of management and leadership principles and techniques		X	
12	The appreciation of the role of research in civil engineering problems		X	
13	A knowledge of contemporary issues in civil engineering		X	
14	The ability to use modern engineering techniques, skills, and tools			X
15	The ability to understand and explain basic concepts in management, business, and leadership		X	
16	A commitment to quality, punctuality and continuous improvement		X	

Contribution Level: 1 low, 2 medium, 3 high

ECTS-WORKLOAD TABLE

ACTIVITIES	Number	Duration (Hour)	Workload(Hour)
Lecture Time	14	3	42
Final Exam (Including Preparation Time)	1	25	25
Quizzes	-	-	-
Term Homework / Project	-	-	-
Reports	-	-	-
Graduation Thesis/Project	-	-	-
Seminar	-	-	-
Study Time Outside the Class	14	2	28
Homeworks	5	5	25
Presentations	-	-	-
Midterm Exams (Including Preparation Time)	2	15	30
Project	-	-	-
Laboratory	-	-	-
Total Workload			150
ECTS Credits of the Course (Total Workload / 25)			6

Last update on 09.01.2014	Coordinator / PREPARED BY Cihan BAYINDIR	APPROVED BY Esin İnan
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