

COURSE CATALOG

Course Code: CE 351				Course Name: Introduction to Transportation Engineering			
Semester	T + P + L	Credits	ECTS	Language of Instruction	Course Type	Instruction Methods	Prerequisite(s)
5	3 + 0 + 0	3	5	English	Required (D1)	Lecture	-
Course Objectives				Understanding of transportation systems components and vehicle-road properties of transportation systems. Determination of geometric standards according to transportation demand. Understanding of vehicle dynamics. Calculation of vertical and horizontal design. Designing a project by using three views: Plan, profile and cross section.			
Topics Covered				The importance and limitations of transportation. Road development plans road development organizations. Feasibility studies, preparation of preliminary and detailed project reports. Elements of traffic engineering: Fundamentals of traffic studies, concepts of capacity and level of service. Travel demand forecasting for highways. Geometric standards of highways. Highway horizontal design: Controls for selection of alignment, superelevation. Vertical design of highway. Interaction of horizontal and vertical alignments. Cross-sectional elements. Types intersections.			
Learning Outcomes of the Course				<p>After the completion of this course, students should gain:</p> <p>1- An understanding of transport engineering terminology. [1,2,3]</p> <p>2- An understanding of the design and planning. [13,14]</p> <p>3- An understanding of the construction and inspection requirements the transportation engineering. [12,13,14]</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				Textbook prepared by the instructor.			
Recommended Sources				<p>1- Banks H.J. Introduction to Transportation Engineering, Mac Graw-Hill Higher Education, 2002</p> <p>2- M. Kutz, Handbook of Transportation Engineering, McGraw Hill, 2003.</p> <p>3- N.J. Garber, L.A. Hoel, Traffic & Highway Engineering, CL- Engineering, 2008.</p> <p>4-Karayolları Genel Müdürlüğü, Karayolu Tasarım El Kitabı , 2005</p>			

WEEKLY SCHEDULE

Week	Theoretical Topic	Applied / Laboratory Topics
1	Introduction to Transportation Engineering	
2	Railway-highway engineering	
3	Vehicle dynamics	
4	Geometric standards	
5	Determination of road type and standards	
6	Route design	
7	Route design	
8	Horizontal curves	
9	Horizontal curves	
10	Drawing profile	
11	Vertical curves	
12	Vertical curves	
13	Cross Sections	
14	Junctions	

COURSE ASSESSMENT POLICY

	Activities	Number	Contribution (%)
Studies throughout the term	Quizzes	-	-
	Term Homework/ Project	-	-
	Reports	-	-
	Graduation Thesis/ Project	-	-
	Seminar	-	-
	Homework	-	-
	Presentations	-	-
	Midterm Exams	2	30
	Project	2	30
	Laboratory	-	-
	Other (field work)	-	-
FINAL EXAM		1	40
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	1	14
Homework	-	-	-
Presentations	-	-	-
Midterm Exams (Including Preparation Time)	2	12	24
Project	2	10	20
Laboratory	-	-	-
Total Workload			125
ECTS Credits of the Course (Total Workload / 25)			5

Last update on 22.01.2014	Coordinator / PREPARED BY Devrim AKÇA & Esin İNAN	APPROVED BY Esin İnan
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