

COURSE CATALOG

Course Code: CE 358				Course Name: Railway 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 properties of railway transportation. Concepts, history. Determination of rolling stock properties. Geometric design. Designing a preliminary railway project. Calculation of horizontal and vertical alignment. Understanding the components track maintenance. Calculation of a capacity of a line.				
Topics Covered			A course designed to familiarize student with the terminology, history, evolution, and design of railways. Train dynamics. Geometric standards of track. Gradients, curves, transition curves, location of track, superstructure elements and materials. Layout of track.				
Learning Outcomes of the Course			<p>After the completion of this course, students should gain:</p> <ol style="list-style-type: none"> 1. An understanding of railway terminology. [1,2,3] 2. An understanding of the design requirements for railway. [2,3,9] 3. An understanding of the construction and inspection requirements of railways. [2,3] 4. An understanding of safety, traffic analyses and vehicle abilities in the design of railways. [2,3] 5. An understanding of the relationship between surveying, and railway design and layout. [2,15] <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			1-Textbook prepared by instructor.				
Recommended Sources			1- V.A. Profillidis, Railway Management and Engineering, Ashgate Publishing Ltd., 2006 2- C.F. Bonnett, Practical Railway Engineering, Imperial College Press, 2005 3-C. Esveld, Modern Railway Track, MRT Production, 2001 4- G. Evren . Demiryolu, Birsen Yayınları, 2002				

WEEKLY SCHEDULE

Week	Theoretical Topic	Applied / Laboratory Topics
1	Introduction to railway engineering	
2	Geometric standards of railways	
3	Railway superstructure	
4	Railway vehicles	
5	Train dynamics	
6	Railway project	
7	Railway project	
8	Railway project	
9	Gradients, vertical curves.	
10	Horizontal curves.	
11	Horizontal curves.	
12	Derailment.	
13	Track defect and maintenance.	
14	Number of train on a line.	

COURSE ASSESSMENT POLICY

	Activities	Number	Contribution (%)
Studies throughout the term	Quizzes	-	-
	Term Homework/ Project	-	-
	Reports	-	-
	Graduation Thesis/ Project	-	-
	Seminar	-	-
	Homework	-	-
	Presentations	-	-
	Midterm Exams	2	36
	Project	1	24
	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	24	24
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	15	30
Project	1	15	15
Laboratory	-	-	-
Total Workload			125
ECTS Credits of the Course (Total Workload / 25)			5

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