

Course Title-Course Code:IM 352 DESIGN OF TRANSPORTATION STRUCTURES								Name of the Programme: Civil Engineering	
Semester	Teaching Methods							Credits	
	Lecture	Recit.	Lab.	Project/Field Study	Homework	Other	Total	Credit	ECTS Credit
1	42	28	-	28	28	-	126	3	5
Language	English								
Compulsory / Elective	Compulsory								
Prerequisites	None								
Course Contents	Introduction. Facilities and functions of Land Transportation. Design elements, Criteria and controls.SSD and PSD, Zero line, simple, combined and reverse curves. Transition distance and superelevation, transition curves, cubic parabola, lemniscate and Euler's spiral, crosssection elements, area, volume, mass curve and balance lines.Types and features of pavements, material properties of the layers of pavement, pavement design using AASHTO,Surface and subsurface drainage structures and their designs								
Course Objectives	Design and application of land transportation facilities, developing, exploring, evaluating of strategies for operation, maintenance and economic life or life cycle, and providing all necessary information for decision making processes and desion maker. Preparation and defense of an application project on a land transportation mode.								
Learning Outcomes and Competences	Knowledge or background to planning, design of a new facility or meeting the requirements of an existing facility having inadequancies, inefficiencies or some handicaps. Every student designs, finishes, submits, presents and defences his/her own project defined formerly and having 1-1.5 km long.								
Textbook and /or References	<p>"A Policy on Geometric Design of Highways and Streets-1994,"American Association of State Highway and Transportation Officials (AASHTO). - "Flexibility in Highway Design," US DOT - FHWA, 1997. - "Highway Design Manual," Connecticut DOT, 1999. - Khisty, CJ, Transportation Engineering -- An Introduction, Prentice Hall, 1990. Transportation Engineering and Planning - Papcostas and Prevedouros, Prentice Hall, 1993 "Roadside Design Guide," AASHTO, 1996. - "Intersection Channelization -- Design Guideline," NCHRP Report 279. Transportation Engineering and Planning - Papcostas and Prevedouros, Prentice Hall, 1993 Sustainability and Cities - Newman and Kenworthy, Island Press, 1999 Geometric Design Projects for Highways - An Introduction - Schoon, J. G., ASCE, 1993. Highway Engineering, Oglesby C.N -Highway Engineering, Wright P.W... Route Survey and Design Meyer F.C -Principles of Highway Engineering and Traffic Analysis, Mannering Fred L. -Introduction to Transportation Eng. and Planning Morlok E.K. Int. to. Transportation Systems, Haefner Lonnie E. -Fundamentals of transportation Eng, Hennes R.G..... -Highway Eng. Handbook, Woods -Traffic Eng. theory and practice, Cantilli E.J..... Principles of Pavement Design Yoder E.J</p>								

<b>Assessment Criteria</b>		<b>If any, mark as (X)</b>	<b>Percent (%)</b>
	Midterm Exams	2	50
	Quizzes	2	10
	Homeworks	-	-
	Projects	1	20
	Term Paper	-	-
	Laboratory Work	-	-
	Other	-	-
	Final Exam	1	20
<b>Instructors</b>	Asst. Prof.Dr. Hikmet BAYIRTEPE		
<b>Week</b>	<b>Subject</b>		
<b>1</b>	Transportation Engineering –general		
<b>2</b>	Transportation planning, economics and traffic engineering –general		
<b>3</b>	Elements and facilities of land transportation		
<b>4</b>	Zero line and alignment studies		
<b>5</b>	Transition curves-I		
<b>6</b>	Transition curves-II		
<b>7</b>	Cross-section elements and their design		
<b>8</b>	Area, Volume and Mass curve		
<b>9</b>	Balance line and construction costs		
<b>10</b>	Pavement Design (Flexible)		
<b>11</b>	Pavement Design (Rigid)		
<b>12</b>	Design of drainage structures (Surface)		
<b>13</b>	Design of drainage structures (Subsurface)		
<b>14</b>	Construction, maintenance, rehabilitation and operation safety and programming		