COURSE DESCRIPTION FORM	
Course Code and Title	CE352 DESIGN OF TRANSPORTATION STRUCTURES (SE)
Semester	6
Catalog description	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, cross-section 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
Required reading	"A Policy on Geometric Design of Highways and Streets-1994-2011,"American Association of State Highway and Transportation Officials (AASHTO). - "Flexibility in Highway Design," US DOT - FHWA, 1997. -"Highway Design Manual," Connecticut DOT, 1999. -
Recommended reading	Khisty, CJ, Transportation Engineering -- An Introduction, Prentice Hall, 1990. Transportation Engineering and Planning - Papacostas and Prevedouros, Prentice Hall, 1993 "Roadside Design Guide," AASHTO, 1996. -"Intersection Channelization -- Design Guideline," NCHRP Report 279. Transportation Engineering and Planning - Papacostas 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
ECTS	5
Prerequisites and co-requisites	Prerequisite of this course is: **CE351 TRANSPORTATION ENGINEERING** Required attendance to lectures is at least 80% of total term hours.
Compulsory/Elective	Compulsory
Language of instruction	English
Aim of course	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 decision maker
Learning outcomes of the course unit	Knowledge or background to planning, design of a new facility or meeting the requirements of an existing facility having inadequancies, inefficiencies or some handicaps
Mode of delivery	The mode of delivery of this course is face to face.

Course content	1. Transportation Engineering –general
	2. Transportation planning, economics and traffic engineering –general
	3. Elements and facilities of land transportation
	4. Zero line and alignment studies
	5. Transition curves-I
	6. Transition curves-II
	7. Cross-section elements and their design
	8. Midterm
	9. Area, Volume and Mass curve
	10. Balance line and construction costs
	11. Pavement Design (Flexible)
	12. Pavement Design (Rigid)
	13. Design of drainage structures (Surface)
	14. Design of drainage structures (Subsurface)
	15. Midterm / Construction, maintenance, rehabilitation and operation safety and programming

Planned learning activities and teaching methods	3 lecture hours per week (3+0)
	Reading
	Web search and library use
	Preparation of Highway Design Project given
	Midterm exams and required works
	Jury exam (Oral) and required works

Assessment methods and criteria

	Quantity	Percentage (%)
Mid-terms	2	25
Assignment	4	20
Exercises		
Projects	3	25
Practice		
Quiz	1	5
Contribution of In-term Studies to Overall Grade %		75
Contribution of Final Jury Examination to Overall Grade (%)	1	20
Attendance	1	5

Workload

Work activity	Total Week Count	Weekly Duration (in hour)	Total Workload in Semester
Theoretical Study Hours of Course Per Week	14	3	42
Practicing Hours of Course Per Week	14	2	28
Reading	14	1	14
Searching in Internet and Library	14	1	14
Designing and Applying Materials			
Preparing Reports	4	2	8
Preparing Presentation			

	Presentation					
	Mid-Term and Studying for Mid-Term	14	1		14	
	Studying for Oral Final Jury Exam	1	5		5	
	Other					
	Total Workload:				125	
	Total Workload / 25:				5	
	ECTS:				5	

Course's contribution to program	No	Program Learning Outcomes	1	2	3	4	5
	1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied knowledge in these areas in complex engineering problems.					X
	2	Ability to identify, formulate, and solve complex civil engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.					X
	3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.					X
	4	Ability to devise, select, and use modern techniques and tools needed for analyzing and solving complex problems encountered in civil engineering practice; ability to employ information technologies and to use at least one computer programming language effectively.					X
	5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating complex civil engineering problems or discipline specific research questions.					X
	6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams.					X
	7	Ability to work individually.					X
	8	Ability to communicate effectively in Turkish, both orally and in writing; ability to write effective reports and comprehend written reports.					X
	9	Knowledge of English of B1 level according to Common European Framework of Reference.					X
	10	Prepare design and production reports, make effective presentations, and give and receive clear and intelligible instructions.					X
	11	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.					X
	12	Consciousness to behave according to ethical principles and professional and ethical responsibility.					X
	13	Knowledge on standards used in civil engineering practice.					X
	14	Knowledge about business life practices such as project management, risk management, and change management.					X
	15	Awareness in entrepreneurship, innovation; knowledge about sustainable development.					X

	16	Knowledge about the global and social effects of engineering practices on health, environment, and safety, and contemporary issues of the century reflected into the field of engineering.					X
	17	Awareness of the legal consequences of engineering solutions.					X
Name of lecturer(s) and contact information	Dr. Hikmet Bayırtepe, hikmetb@gazi.edu.tr Dr. Mustafa Kürşat Çubuk, ckursat@gazi.edu.tr							