

Branch Name:	Transportation Engineering
Program Code:	ET211
Course Name:	Road Safety Audit
Course Code:	2ET2110105T
Pre-requisite Course:	Traffic Engineering, Pavement construction

Course Objective:

1. To help in identifying the reasons for road accidents and scientific Investigation.
2. To provide knowledge on road safety audit and its methodology.
3. To inculcate decision making and behavioral skills necessary to survive in the road environment.
4. To understand roles and responsibilities in ensuring road safety.

Credit	Teaching Scheme Hours per week				Evaluation Scheme (Marks)								Total (Marks)
					Theory (Marks)				Practical (Marks)				
	L	T	P	Total	SEE		CCA		SEE		CCA		
					Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	
5	3	2	-	5	24	60	16	40	-	-	-	-	100

Subject Contents				
Sr. No	Topic	Total Hours	Weight (%)	
1	Introduction: Road traffic accidents scenario in India, Characteristics of accidents, accidents vs. crash, land use and road environment for safety, Multidisciplinary approach to planning for traffic safety and injury control; pre crash and post crash models; roles of vehicle, roadway traffic, driver, and environment, crash and injury causations; accident analysis, conflict points at intersections, pedestrian safety, road safety improvement strategies.	12	30	
2	Road safety audit and analysis: Stages, aim and objectives, principles, process, roles and responsibility, Specific parameters, design standards, various stages of road safety audit, RSA for rural roads, Checklists, Structuring of report. Steps in treatment of crash locations, diagnosing crash problem and solutions, accident report form, storing of data, using and interpreting crash data, identifying and prioritizing hazardous locations, condition and collision diagrams; Vulnerable road users: crashes related to pedestrian and bicyclists, their safety, provision for disabled; Crash reconstruction: understanding basic physics, calculation of speed for various skid, friction, drag, and acceleration scenarios.	12	30	
3	Engineering measures: Speed humps, speed bumps, speed tables, speed cushions; Community awareness and education (Speed limits); Enforcement- Non-physical measures- physical measures	8	18	
4	Energy related aspects of different transport technologies: Traffic calming measures, road transport related air pollution, sources of air pollution, effects of weather conditions, vehicular emission parameters, pollution standards, measurement and analysis of vehicular emission; imitative measures, urban and non urban traffic noise sources, noise pollution, technology vision-2020	10	22	

Reference Books:

1. Evans S.K., Traffic Engineering Handbook, Institute of Traffic Engineers, USA
2. Wohl M., Martin B.V., Traffic system analysis of Engineers & Planners, McGraw Hill, New York.
3. Babkov V.F., Road conditions & Traffic Safety, MIR Publishers, Moscow, 1975
4. Kadiyali L.R., Traffic Engineering & Transport Planning, Khanna Publishers, 2003
5. Little A.D., The state of art of Traffic Safety, Paraeger Publishers, New York, 1970
6. Relevant IRC codes,
7. Indian Roads Congress, Highway Safety Code, IRC: SP-44:1996
8. Indian Roads Congress, Road Safety Audit Manual, IRC:SP-88-2010
9. 10. Limpert, Rudolf. Motor Vehicle Accident Reconstruction and Cause Analysis, 5th Edition, Lexus Publishing, Charlottesville, VA.
11. American Association of State Highway and Transportation Officials (AASHTO),
12. Highway Safety Manual, 1st Edition, AASHTO

Course Learning Outcomes:

After learning the course the students should be able:

1. Gain information and knowledge about people responsible for accidents and their duties.
2. Understand the importance of multidisciplinary approach to planning for traffic safety and rehabilitation.
3. Knowledge of different aspects of road safety audit and its methodology.

Course Learning Outcomes (CLO):

After successful completion of the course the students shall be able to:

CLO	Description	Bloom's Taxonomy Level
CLO1	Gain information and knowledge about people responsible for accidents and their duties	L-1, L-2
CLO2	Understand the importance of multidisciplinary approach to planning for traffic safety and rehabilitation	L-1, L-2
CLO3	Knowledge of different aspects of road safety audit and its methodology	L-1, L-2, L-3

L1- Remember, L2- Understand, L3- Apply, L4- Analyze, L5- Evaluate, L6- Create

Mapping of CLOs with Pos & PSOs

	Program Outcomes (POs)												Program Specific Outcomes (PSOs)		
Course Learning Outcomes	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2	PSO3
CLO1	M	M	M		L		M		H			M	M	M	
CLO2	M	M	M	M			L				L	M	M	M	M
CLO3	M	M	M	M	M			M		L			M	M	M

H: High, M: Medium, L: Low