

B. Tech. - IV Semester VII

Subject Name : Road Safety System

Subject Code: BTCL14711

Type of course: PEC - V

Prerequisite : -

Rationale : Study different aspects of road safety audit and its methodology.

Teaching and Examination Scheme:

TEACHING SCHEME				Theory Marks			Practical Marks		Total
L	T	P	C	TEE	CA1	CA2	TEP	CA3	
3	0	0	3	60	25	15	-	-	100

CA1: Continuous Assessment (assignments/projects/open book tests/closed book tests) **CA2:** Sincerity in attending classes/class tests/ timely submissions of assignments/self-learning attitude/solving advanced problems **TEE:** Term End Examination **TEP:** Term End Practical Exam (Performance and viva on practical skills learned in course) **CA3:** Regular submission of Lab work/Quality of work submitted/Active participation in lab sessions/viva on practical skills learned in course

Content:

Sr. No.	Topics	Teaching Hrs.	Module Weightage
1.	Description of Problems Causes of accidents – Human factors – Vehicles – Road and its condition – Urban Environmental Studies	8	20%
2.	Accident Analysis Techniques Collision Diagram – Preparation, Spatial Analysis of Accidents – Methods and GIS in Accident, Analysis - Black Spot, Black Route and Area Identification	10	20%
3.	Before and After Studies Accident Prediction Models – Development – Empirical Bayees Approach – Before and After Evaluation – Case Studies	9	20%
4.	Safety Audit Need for Safety Audit – Concept and Elements of Safety Audit – Safety Audit for existing roads –Legal requirements – Provisions of Motor Vehicle Act and role of NGO's in prevention of accidents.	9	20%
5.	Accident Studies and Investigation Accident data – Identification of Accident Prone Location – Prioritization – Investigation – Problems and Remedies	9	20%

Suggested Specification table with Marks (Theory):

% Distribution of Marks					
R Level	U Level	A Level	N Level	E Level	C Level
10	25	15	10	20	20

Legends: R: Remembrance, U: Understanding; A: Application, N: Analyze, E: Evaluate C: Create and above Levels (**Revised Bloom's Taxonomy**)

Note: This specification table shall be treated as a general guideline for students and teachers. The actual distribution of marks in the question paper may vary slightly from above table.

Reference Text Books:

Sr. No.	Title of book /article	Author(s)	Publisher and details like ISBN	Year of publication	Publication Edition
1	"Highway Engineering"	Khanna S.K. and Justo C.E.G	Nem Chand and Brothers, Roorkee (isbn: 978-8185240770)	2001	10 th
2	Road Safety and Traffic Rules	S.S RANDHAWA	S Vikas And Company (ASIN : B06X8YF7ZC)	2016	1 st
3	"Accident Investigation and Prevention Manual for Highway Engineers in India"	Ministry of Surface Transport	Government of India	2001	1 st
4	Essentials of Road Safety	Ashwini Bagga, Nisha Bagga	Himanshu Publications (ISBN: 978-8179065198)	2015	1 st
5	Traffic Safety	George Yannis, Simon Cohen	John Wiley & Sons	2016	1 st
6	Road Safety Management: Issues and Perspectives	Prabha Shastri Ranade	SBS Publishers & Distributors	2009	1 st

Course Outcome:

Sr. No.	CO Statement After learning this subject, students will be able to	Marks % weightage
CO-1	Explore the principles and practice of road safety. (R, U cognitive level)	20%
CO-2	Identify the reasons for road accidents and scientific Investigation. (R, U, A cognitive level)	20%
CO-3	Describe safety audit and its methodology. (R, U, A, N cognitive level)	20%
CO-4	Examine the accident analysis techniques. (R, U, A, N cognitive level)	20%
CO-5	Explore the accident studies and investigation. (R, U, A, N, E cognitive level)	20%

Mapping with POs:

	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7	PO 8	PO 9	PO 10	PO 11	PO 12	PSO 1	PSO 2	PSO 3
CO-1	1	2	2	2	1	3	2	3	3	2	2	2	1	2	2
CO-2	2	2	2	2	2	1	2	3	1	2	2	3	2	2	3
CO-3	2	2	2	1	2	3	1	1	2	2	2	3	3	2	2
CO-4	1	2	1	2	1	2	2	2	3	3	2	2	2	2	2
CO-5	2	2	2	2	2	2	2	2	2	1	1	2	1	1	2
Rationale*	8	10	9	9	8	14	9	11	11	10	9	12	9	9	11

Rationale*: The knowledge of the road safety system and accident analysis technique satisfying majority of programme outcomes and at the end of programme, the specific objectives are also satisfied.

List of Open Source/learning website:

- <http://www.irc.nic.in/>
 - Road safety norms and standards
- <https://law.resource.org/pub/in/bis/irc/irc.gov.in.sp.088.2019.pdf>
 - Manual on road safety audit
- <https://egazette.nic.in/WriteReadData/2019/210413.pdf>
 - The Motor Vehicles (Amendment) Act, 2019

List of Open Source Software:

- IBM – SPSS
- Bentley software (Transportation)
- TRANSYT,
- CUBE, ARC GIS, Emme/2,
- TransCAD and Geomedia