8CE6-60.3: Transportation safety and environment

Credit: 3 **Marks: 100(IA: 30, ETE: 70)**

3L+0T+0P **End Term Exam: 3 Hours**

Course Objectives

1. Understanding of scientific management techniques for planning, implementing, and evaluating highway safety programs.
2. To integrate multidisciplinary relationships and strategies to enhance traffic safety initiatives and address traffic safety as a public health issue.
3. Analyze road accident data to identify causes and propose effective control measures.
4. Provide hands-on experience in conducting road safety audits, evaluating pre-crash and post-crash scenarios
5. Assess and mitigate transportation-related pollution, and understand the Environmental Impact Assessment (EIA) requirements and practices for highway projects.

Course Outcomes

Student will be able to

1. To apply scientific management techniques to design and evaluate effective highway safety programs.
2. To collaborate across disciplines to integrate safety into transportation planning processes and address traffic safety as a public health problem.
3. To analyze road accidents, identifying causative factors, and proposing control measures to reduce crash and injury rates.
4. To conduct comprehensive road safety audits, including the identification of conflict points and implementation of traffic calming strategies.
5. To gain the expertise to assess transportation-related pollution, understand vehicular emission standards, and conduct Environmental Impact Assessments for highway projects.

S. No	Contents	Hours
1	Scientific management techniques in planning, implementing, and evaluating highway safety programs, strategies to integrate and amplify safety in transportation planning processes., multidisciplinary relationships necessary to support effective traffic safety initiatives. Traffic Safety as public health problem, Injury indices and costing , emergency care.	9
2	Road accident situation in India, international comparison of road accident. Multidisciplinary approach to planning for traffic safety and injury control, causes of road accidents, control measures, roles of vehicle, roadway traffic, driver, and environment, crash and injury causations; accident analysis, pre crash and post crash models, conflict points.	9
3	Safety auditing: road safety audit, stages of auditing, methods involved; case studies. Mixed traffic flow, traffic calming measures, strategies adopted in various countries, case studies.	8

4	Transportation related pollution: road transport related air pollution, sources of air pollution, effects of weather conditions, vehicular emission parameters, urban and non urban traffic noise sources, noise pollution, noise barriers, pollution standards measurement and analysis of vehicular emission, imitative measures.	9
5	EIA: EIA requirements of highways projects, procedure, MoEF, UK guidelines; EIA practices in India. pollution inventory in urban areas, environment and safety standards.	8

REFERENCE BOOKS

1. Kadiyali, L.R. (2008). Traffic Engineering and Transport planning, Khanna Publishers, ISBN No. :81-8409-220-X.
2. Kadiyali, L.R. (2006). Highway engineering, Khanna Publishers, ISBN No: 81-8409-165-3.Nicholas J. Garber and Lester A. Hoel (2010). Principles of Traffic and Highway Engineering ,CengageLearning,ISBN-13:989-81-315-1246-3.
3. C.S.Papacostas (2002), Transportation Engineering and Planning, PHI, ISBN-81-203- 2154-5.
4. S. K. Sharma (2012). Highway engineering, S CHAND, ISBN 81-219-0131-6.