**17CE31E4** – **TRAFFIC ENGINEERING AND MANAGEMENT**

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| **Course Category**  | Core Elective | **Credits**  | 3 |
| **Course Type**  | Theory | **Lecture - Tutorial - Practical**  | 3 - 0 - 0 |
| **Prerequisite**  | Transportation Planning | **Sessional Evaluation**  | 40 |
| **Semester End Exam Evaluation**  | 60 |
| **Total Marks**  | 100 |

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| **Course Objectives** | 1. To discuss the need and methods of traffic forecast.
2. To explain the basic concepts and design of rotary intersection.
3. To illustrate the relationship between traffic and environment.
4. To discuss the road safety concepts in transportation planning.
5. To explain traffic management methods.
6. To discuss road markings and traffic control aids.
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| **Course Outcomes** | CO1 | Apply methods of traffic forecast in transport planning. |
| CO2 | Calculate capacity of rotary intersection. |
| CO3 | Understand the different types environmental degradation due to vehicular traffic |
| CO4 | Apply the road safety concepts in different stages of highway planning.  |
| CO5 | Understand different regulations and methods for effective traffic management. |
| CO6 | Understand different types of road markings and concepts of street furniture  |
| **Course****Content** | **UNIT – I****TRAFFIC FORECAST:** Function of traffic engineering – Need for traffic forecast– Limitations of traffic forecasting – Types of traffic – Different methods of traffic forecasting – Forecast based on past trends cud extrapolation – Forecasts and mathematical models – Period of forecasting.**UNIT – II****ROTARY INTERSECTIONS:** Design hourly volume, passenger car unit (PCU) – Factors affecting PCU values – Highway capacity – Factors affecting capacity – Level of service and types – Rotary intersection – Advantages and disadvantages. Guidelines for selecting a rotary type of intersection – Rotary design elements – Capacity of rotary intersection problems.**UNIT –III****TRAFFIC AND ENVIRONMENT:** Effects of traffic on environment, noise pollution, air pollution, vibration, visual intrusion and degrading the aesthetics.**UNIT –IV****ACCIDENT STUDIES:** Causes of road accidents – Highway design and road safety – Road safety in various stages of highway system – Road safety incorporated at planning stage – Collection of accident data – Standard accident representing forms.**UNIT – V****TRAFFIC MANAGEMENT**: Traffic management measures – Restrictions of turning movements – One way streets – Tidal flow operation– Closing side streets – Exclusive bus lanes.**TRAFFIC REGULATIONS:** Basic principles of regulation, regulation of speed, vehicles, driver, mixed traffic, parking regulations and enforcement of regulations.**UNIT – VI****ROAD MARKINGS:** Introduction – Classification of road markings – Line markings – Centre line, transverse markings, arrow markings, facility markings, directional markings, object markings – Road studs. **MISCELLANEOUS:** Traffic control aids and street furniture – Speed breakers – Rumble strips – Guard rails.**TRAFFIC FLOW:** Traffic stream parameters – Space headway and time head way – Line occupancy – Density – Lane capacity – Types of traffic capacity. |
| **Textbooks****and****References** | **TEXT BOOKS:**1. Traffic Engineering and Transport Planning by L.R. Kadiyali
2. Transportation Engineering, Vol I and VoII by Vazirani and Chandola.
3. Transportation Engineering Vol I Venkatramaiah. C

**REFERENCE BOOKS:**1. Transportation Engineering and planning by C.S. papacostas, P. D. Prevedouros.
2. A course in Highway Engineering by S.P. Bindra.
3. Introduction to Traffic Engineering by R Srinivasa kumar.
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