

4/4 B.Tech. SEVENTH SEMESTER

CE7T4C

TRAFFIC ENGINEERING

Credits: 3

Lecture: 3 periods/week

Internal assessment: 30 marks

Tutorial: 1 period /week

Semester end examination: 70 marks

Pre Requisites: Transportation Engineering I

Learning objectives:

- To study in detail fundamental concepts of basic characteristics of traffic.
- To know about the highway capacity, parking studies, traffic signs, markings
- To study road safety audit and management system

Course outcomes:

At the end of course the student will be able to:

1. Assess, evaluate and justify methods of traffic management and control
2. Understand traffic capacity and regulations
3. Evaluate traffic impacts of parking and control
4. Study the traffic impact on environment and signs
5. Asses the road marking and safety

UNIT I

TRAFFIC CHARACTERISTICS

Basic characteristics of Traffic- Volume, Speed and Density- Relationship among Traffic parameters.

TRAFFIC MEASUREMENT

Traffic Volume Studies-Objectives- Types of Volume Studies –Concept of PCU- Data Collection and Presentation – Speed Studies – Types of Speeds- Objectives of Speed Studies- Methods of Conducting speed studies- Data collection and Presentation- Statistical Methods for Analysis of Speed Data.

UNIT II

HIGHWAY CAPACITY

Definition of Capacity – Importance of capacity – Factors affecting Capacity- Concept of Level of Service- Different Levels of Service- Concept of Service Volume- Peak Hour Factor.

TRAFFIC REGULATION

Traffic laws, Regulation of speed , Regulation of vehicles , Regulation concerning driver , Regulation concerning traffic.

UNIT III

PARKING STUDIES

Types of parking facilities – On street and Off Street Parking Facilities- Parking Studies- Parking Inventory Study – Parking Survey by Patrolling Method- Analysis of Parking Data and parking characteristics-Multi Story Car Parking Facility-Design standards.

TRAFFIC CONTROL

Traffic Problems in Urban areas- Importance of Traffic Control and regulation.

UNIT-IV

TRAFFIC & ENVIRONMENT

Detrimental effect of traffic on environment – Air Pollution – Pollutants due to Traffic – Measures to reduce Air Pollution due to Traffic- Noise Pollution – Measures to reduce Noise Pollution.

TRAFFIC SIGNS

Types of Traffic Signs- cautionary, Regulatory and Informative Signs- Specifications

UNIT-V

ROAD MARKINGS

Pavement markings- Types of Markings – Lane markings and Object markings- Standards and Specifications for Road Markings.

HIGHWAY SAFETY

Problem of Highway Safety – Types of Road accidents- Causes – Engineering Measures to reduce Accidents- Enforcement Measures – Educational Measures- Road Safety Audit- Principles of Road Safety Audit.

Learning resources:

Text books:

1. Traffic Engineering and Transportation planning, (2nd edition) by Kadiyali, L.K., Khanna publishers, 1983.
2. Highway Engineering and Traffic Analysis, (3rd edition) by Mannering and Kilareski, John Wiley Publications, 2007.

Reference books:

1. Transportation Engineering by Khisty, C. J., Prentice Hall 1986.
2. Principles of Transportation Engineering by Partha Chakroborthy, Animesh Das. Prentice Hall, India, 2004.
3. Fundamentals of Transportation Engineering by Papacostas, C.S., Prentice Hall, India, 1987.

e-learning resources:

<http://nptel.ac.in/courses.php>

<http://jntuk-coeerd.in/>