

## Course syllabus

Department of Civil Engineering, Indian Institute of Technology Madras

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### CE3025 – Traffic Engineering

**Credit Distribution:** C:9 L:3 T:0 P:0 E:0 O:6 TH:0

**Course Type:** Theory

**Description:** 1) Thorough understanding of traffic facilities, their objectives, performance measures and data. 2) Proficiency in analysis and design procedures for uninterrupted flow facilities 3) Sound understanding of rationale, principles and procedures in the design and analysis of traffic control devices and interrupted flow facilities 4) Familiarity and basic knowledge of urban transportation planning, Intelligent Transportation Systems and Railway Engineering

**Course Content:** Basic Components and Elements of Traffic System, Traffic Engineering Data Collection, Basic Probability and Statistics related to transportation applications, Data collection methods for volume, speed, travel time, density, and delay, Significance of these measures in analysis and design, Capacity and factors affecting capacity, Capacity analysis and LOS for uninterrupted flow facilities such as freeways, multi-lane highways, and two lane highways - performance analysis and design, Control devices: markings, signs, and signals, Warrants for signals: volume, delay, safety, and pedestrian warrants, Signal timing design and operations, Types and layout of at-grade and grade separated intersections, Parking Facilities; Introduction to urban transportation planning, Four step modeling: trip generation, trip distribution, mode choice, route assignment; Intelligent Transportation Systems; Introduction to Railway Engineering

#### Text Books

- Transportation Engineering and Planning, Papacostas and Prevedouros, 3rd Edition, Prentice Hall, 2001.
- Traffic Engineering and Transport Planning, L.R. Kadiyali, Khanna Publishers.
- Traffic Engineering, McShane, Roess, and Prassas, 2nd Edition, Prentice Hall, 1998.
- Railway Engineering - Agarwal, M. M., Prabha and Co., 2002.

#### Reference Books

- Traffic and Highway Engineering, Garber and Hoel, Brooks/Cole Publishers.

**Prerequisite:** NIL