

## CE 307: Transportation Engineering –II (3-0-0: 3)

**Course objectives:** To give an overview of the various types of pavement and its design; to understand the process of collecting information necessary for successful design of flexible and rigid pavements, including traffic data, material properties and other environmental factors; To know about various urban transportation systems and Intelligent Transportation Systems

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### **Traffic Engineering**

Introduction to Traffic Engineering, Fundamental parameters of traffic flow, Requirements, collection and analysis traffic data, Theory of uninterrupted and interrupted traffic flow, Traffic stream characteristics, Traffic flow models, Capacity and Level-of-service analysis, Traffic flow at signalized and un-signalized intersections and Design of traffic facilities.

### **Transportation planning**

Introduction to Transportation planning; Travel demand forecasting: Four step planning process and data collection.

### **Airport Engineering**

Airport related terminology, Airport configuration, geometric design of runway, Air travel demand forecasting.

### **Harbour Engineering**

Harbor related terminology, traffic forecasting and hinterland, harbor layout

### **Text Books:**

1. *Chakraborty, P and Das , D “Principles of Transportation Engineering”*
2. *Papacostas, C.S and Prevedouros, P.D.,”Transportation Engineering & Planning”*

### **.References:**

1. *McShane, W.R and Roess, R.P, “Traffic Engineering”, Prentice-Hall, Inc..Newjersey 1990*
3. *Relevant IRC Codes, Indian Roads Congress, Delhi*
4. *Khisty, C.J. and Lall, B.K., “Introduction to Transportation Engineering”, Prentice-Hall India*
5. *“Geometric Design of Streets and Highways”, AASHTO Book*
6. *Harold, N. A., “Highway Materials, Soil and Concrete”, Prentice Hall*

**Expected outcomes:** Upon successful completion of this course, it is expected that students will be able to: Propose a feasible solution to fundamental highway engineering analysis/design problems; Apply condition monitoring and maintenance of road pavements; Develop technical skills for road pavement construction; Design both flexible and rigid pavements; Develop the understanding of various BIS, IRC and ISO standards and to design the highways in conformity with these codes.

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