

## **Transportation Engineering**

Introduction to transportation modes – classification of roads - road patterns - planning surveys - saturation system – Highway planning in India – Highway alignment – requirements for an ideal alignment - factors controlling alignment – Highway economics

Highway Geometric design - cross-section elements – camber - sight distance - design of horizontal alignment – super-elevation - transition curves – widening of pavement – setback distance - curve resistance - vertical alignment – grade compensation

Traffic characteristics - Road user and vehicular characteristics - traffic studies and surveys – speed studies, volume studies, parking studies, accident studies – traffic signs and markings - intersections & rotaries

Material requirement for pavements – soil, aggregates, bitumen – properties - material testing and specification – Marshall's mix design – pavement construction and maintenance

Highway pavement design - Design factors - design of flexible pavement: CBR method – stresses in rigid pavements - design of rigid pavements: IRC method – joints in rigid pavements