Major Elective – 2
(Group – 1)
Regional and Mass Transportation Systems Planning

Course Objectives:

1. To enhance the idea of transportation planning at the regional level.
2. To impart the techniques of developing models for the regional transportation planning.
3. To make the students conversant with Urban Mass Transit Planning and Freight Transportation Planning procedure.

Course Contents:

1. Demographic and Employment Forecasting Models: Demographic models - linear, exponential and logistic models; cohort survival models - birth, aging and migration models; employment forecasting models - economic base mechanism; input and output models - dynamic models of population and employment, multiregional extensions.
2. Transport Modelling: Need & role of transport models, issues, transport models in practice, simplified transport demand models.
3. Regional Transportation Development - Delineation of Planning Regions: Concept of region and space – types of regions, rural road network development approach, regional freight transportation- issues & approach, demand assessment, various models.
4. Urban Mass Transit Planning & Modelling: Transit classification, transit network design, classification of routes, prediction of transit usage, evaluation of network, scheduling principles & methodology, urban freight transportation: freight demand, spatial distribution of goods, truck terminal planning,

Tutorials:

1. Problems based on population and employment forecasting by different methods.
2. Problems based on cohort analysis.
3. Problems based on regional and rural road network development concept.
4. Problems based on urban mass transit routing and scheduling procedure.
5. Problems based on freight demand and goods transportation.
6. Planning and design of truck terminal.

Field visit:

1. Visit to the urban mass transit system depot, terminal and management office.
2. Visit to the truck terminal area.

Review the existing urban mass transit system and freight transportation system. The suggestions for the improvements should be presented with group discussion.

References:

1. Hutchinson, B.G., *Principles of Urban Transportation System Planning*, Mc-Graw Hill 1974.

2. Oppenheim, N., *Applied Models in Urban and Regional Analysis*, Prentice-Hall, NJ.
3. Khisty C J., Lall B.Kent, *Transportation Engineering – An Introduction*, Prentice-Hall, NJ, 2005
4. Chand Mahesh, Puri U. K., *Regional in India*, Allied Publishers, New Delhi, 1983.
5. Glassion John, *Introduction to regional planning*, Hutchinson and MIT Press, Cambridge, 1996.
6. Ortuzar J. D., Willumsen L.G., *Modeling Transport*, John Wiley & Sons, 1994
7. Vukan R. Vuchic, *Urban Transit : Operations, Planning and Economics*, Wiley Sons Publishers.