Course Name:

Transportation Systems Analysis

Credit:

3

Course Content (outline):

1. Introduction
2. Shortest Path Problem and Solution Methods
3. Traffic Assignment Problem and Solution Methods
4. Transportation Network Equilibrium Problem
5. Basic Concepts in Minimization Problems
6. Solutions for Optimization Problems
7. Solutions for User Equilibrium Problem with Fixed Demand
8. Network Equilibrium with Elastic Demand
9. Joint Mode Choice and Traffic Assignment Model
10. Joint Trip Distributions and Traffic Assignment Models
11. Estimating O/D Demand from Link Flows
12. Transit Assignment: Optimal Strategy Method
13. Stochastic Network Loading Models
14. Stochastic User Equilibrium Flow Problems
15. Network Aggregation Methods
16. Network Design Models

References:

Yosef Sheffi, Urban Transportation Networks: Equilibrium Analysis with Mathematical Programming Methods Prentice - Hall, Inc., NJ, 1985.

Class hand-outs on topics not covered by the above text, e.g., Transit Assignment Models.