Course Name:
Transportation Demand

Course Number:
20571

Credit:
3

Course Content (outline):
1. Introduction
   - Concepts of Transportation Demand
   - History of Transportation Demand
   - Overview of Transportation Economics - Consumer Theory
2. Transportation Planning
   - Transportation Planning Process and the Importance of Demand in the Process
   - Urban Travel Patterns
   - Applications of Models in Travel Demand Forecasting
   - Traditional Travel Demand Forecasting Methods
3. Trip Generation: First Step
   - Distribution, Models, and Variables
   - Methods of Model Parameter Estimation
   - Quantitative Demand Analysis
   - Analysis of Aggregation, Disaggregation, and Access
4. Trip Distribution: Second Step
   - Growth Factors: Uniform, Averaged, Fratar
   - Gravity Model and Various Methods of Calibration
   - Intervening Opportunities Model Versus Gravity Models
   - Origin-Destination Trip Table
   - Choice Theory in Travel Demand Forecasting
   - Utility Theory
   - Destination Choice Models
5. Travel Mode (Modal Split): Third Step
   - Initial Models
   - Econometric Models: Mode Choice
   - Mode Choice Models
6. Traffic Assignment (Route Choice)
   - Wardrop’s Principles
   - Probabilistic Traffic Assignment Methods
   - Network Assignment Method
   - Iterative Solution Methods
   - Route Choice Models
7. How Do Four-Step Models Work
   - Simultaneous and Sequential Models
   - Model Responses to Policies
   - Statistical Needs
8. Intercity Travel Demand
9. Air Transportation Demand
10. Freight Demand
11. Advanced Methods in Transportation Demand

References:
6. Articles presented or distributed in the classroom.