

Urban Transportation System Evaluation

Code CE 867	Credit Hours 3-0
-----------------------	----------------------------

Course Description

The urban transportation system evaluation recognizes the high stakes involved in transportation decision making. The core of transportation decision making is the evaluation of transportation projects and programs in the context of available funding. For this reason, the principles and procedures of project evaluation and programming are of interest to transportation engineers and planners, policymakers and legislators, transportation agency administrators, facility managers and service providers, environmental groups, and the general public. Governments, around the world, invested several billions and trillions of dollars in transportation facilities in order to enhance transportation system mobility, security, and safety. The aim is to generate economic development without compromising adverse effects on environment and noise.

Text Book:

1. Transportation Decision Making – Principles of Project Evaluation and Programming by Sinha and Labi, John Wiley and Sons, 2007
2. Class notes, presentations, and any additional material provided.

Reference Book:

1. Essays in Transportation Economics and Policy: A Handbook in Honor of John R. Meyer, Gomez-Ibanez, J., William B. T., and Winston C., 1999.
2. Fundamentals of Transportation Systems Analysis, Volume 1: Basic
3. Concept, Manheim, M, 1979.
4. Urban Transportation Planning, Meyer M., Michael D. and Miller E. J., 2001.

Prerequisites

Nil

ASSESSMENT SYSTEM FOR THEORY

Quizzes	10-15%
Assignments	5-10%
Mid Terms	25%
ESE	40-50%
Term Project	10%

Teaching Plan

Week No	Topics	Learning Outcomes
1-2	Introductory Concepts in Transportation Decision Making.	Overview of transportation systems and their importance Decision-making processes in transportation planning Key stakeholders and their roles in transportation decision making Introduction to transportation system evaluation

3-4	Performance Measures in Transportation System Evaluation	<p>Defining performance measures and their importance</p> <p>Types of performance measures (e.g., efficiency, effectiveness, equity)</p> <p>Methods for measuring performance in urban transportation</p>
5-6	Estimating Transportation Demand	<p>Understanding transportation demand and its determinants</p> <p>Techniques for estimating transportation demand (e.g., surveys, models)</p> <p>Travel demand forecasting methods</p> <p>Applications of demand estimation in urban transportation planning</p>
7-8	Transportation Costs	<p>Overview of transportation costs: fixed, variable, and marginal costs</p> <p>Methods for calculating transportation costs</p> <p>Impact of transportation costs on system evaluation</p>
9	MID SEMESTER EXAM	
10	Travel Time Impacts	<p>Understanding travel time and its components</p> <p>Methods for measuring and analyzing travel time</p> <p>Travel time reliability and its importance in system evaluation</p> <p>Strategies for reducing travel time in urban transportation systems</p>
11	Safety Impacts	<p>Importance of safety in urban transportation evaluation</p> <p>Methods for assessing safety impacts (e.g., crash data analysis)</p> <p>Safety performance measures and indicators</p> <p>Strategies for improving safety in urban transportation systems</p>
12-13	Impacts of Vehicle Operating Costs	<p>Components of vehicle operating costs (VOC)</p> <p>Methods for estimating VOC</p> <p>Impact of VOC on transportation system evaluation</p> <p>Strategies for reducing VOC in urban transportation systems</p>
14-16	Economic Efficiency Impacts	<p>Understanding economic efficiency in transportation</p> <p>Methods for evaluating economic</p> <p>Application of economic efficiency analysis in urban transportation projects</p>

17	Term Project and Presentations	Development of a comprehensive urban transportation system evaluation project Application of course concepts to a real-world scenario Group presentations and peer review
18	END SEMESTER EXAM	