

Tennessee Technological University
Department of Civil & Environmental Engineering
CEE 7420 Urban Public Transportation

2017 Catalog Data:	CEE 7420 Public transportation modes and characteristics, planning of public transportation networks, mathematical modeling of the demand for public transportation, and measurement of system performance
Required Textbook:	Urban Mass Transportation Planning by Black, A., 1995
Faculty Coordinator:	Dr. Daniel Badoe, Professor of Civil and Environmental Engineering
Participating Faculty:	Dr. Steven Click, Associate Professor of Civil and Environmental Engineering
Prerequisites:	CEE6470 or Consent of Instructor
Goal:	To develop the technical capabilities required for the planning and design of public transportation services in metropolitan regions

Course learning objectives:

This course is designed to provide students with an understanding of urban public transportation modes and services, their planning and operations, design of transit service characteristics, and the issues associated with urban mass transportation. A significant portion of the course is devoted to the modeling of demand for travel by urban transit.

Major Topics Covered:

1. Probability Concepts Applied to Transit Planning
2. Population Distribution Models
3. Microeconomic Theory Applied to Travel Demand
4. Urban Transport problems
5. Conventional Transit modes
6. Planning Transit Networks
7. Operations and Management
8. Transit surveys
9. Estimation of System Costs
10. Policies of the Future

Student Learning Outcomes:

1. Be able to apply probability theory in the design of demand responsive transportation services
2. Apply population distribution models to forecast the spatial distribution of future regional populations for the computation of population densities
3. Understand the operating characteristics of alternative public transportation modes
4. Understand the role of urban public transportation in addressing several societal issues
5. Understand how public transportation is financed
6. Be able to determine the maximum load section on a transit route
7. Be able to design the service characteristics of a single transit route given a design load
8. Be able to determine the optimal headway for transit service on a route
9. Be able to determine the timetable for transit service on a route
10. Be able to determine the optimal spacing of bus stops/stations along a transit route
11. Written literature review papers on selected topics in urban public transportation planning
12. Oral presentations of the literature reviews undertaken of relevant topics in urban public transportation planning