

1. CEE 4660 (5660) – Transportation Planning
2. Course credit hours: 3
Contact hours per week: 3
Credit category: Engineering Topics (Significant Design)
3. Course coordinator: Daniel A. Badoe
4. Textbook: The Transportation Planning Process Briefing Book: Key Issues for Transportation Decisionmakers, Officials, and Staff, Federal Highway Administration, 2018

Supplemental materials:

- a. Transportation Engineering and Planning, 3rd edition by Papacostas, C. S. and P.D. Prevedouros, 2001
- b. Urban Transportation Planning 2nd edition. Meyer M.D. and E.J. Miller, 2001

5. Course information:

2020 Catalog description	System planning and evaluation. Characteristics, impacts, and costs. User patterns. Alternative analysis.
Prerequisite(s)	CEE 3610
Course type	Selected Elective

6. Course instructional outcomes:

Course Outcome No.	Course Outcome (CO)	ABET Student Outcome
CO1	Know the evolution of urban transportation planning in the USA in response to economic, energy, environmental, social, and demographic changes, and the legislations that currently guide the transportation planning process	1
CO2	Know the transportation planning process, the entity required to conduct regional transportation planning in the USA, and what planning-products this entity is required to produce by law	1
CO3	Know how to design and conduct Origin-Destination surveys and Household Travel Behavior Surveys for the collection of transportation planning data and, to compute sample size based on statistics	1
CO4	Application of trend analysis and price elasticities of travel demand to forecast the traffic volumes expected to use transportation facilities	2
CO5	Application of the methods of linear regression analysis, cross-classification analysis, and the ITE Trip Generation Report to predict the volume of traffic generated by the land use activities in a traffic zone	2

CO6	Application of singly constrained gravity models, and the biproportional updating model (Fratrar) to forecast the spatial distribution of travel	2
CO7	Application of the multinomial logit probability model to forecast traffic volumes by mode in a region	2
CO8	Application of the user-equilibrium principle to assign traffic to the routes of a highway network	2
CO9	Predict the noise levels from vehicular traffic on transportation facilities using the FHWA model.	1, 2
CO10	Know how to evaluate transportation alternatives	2

ABET criterion 3 Student Outcomes addressed by this course:

SO No.	Student Outcome (SO)
3.1	An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
3.2	An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

7. Course topics:

1. History of Transport Planning, Planning Legislation, and Transport Planning Process (10%)
2. Forecasting Travel Volumes (35%)
3. System Performance and Impacts (35%)
4. Design of Origin-Destination Surveys and Household Travel Behavior Surveys; Sample Size Determination (10%)
5. Transport System Evaluation: Process, Issues, & Methods (10%)

Program criteria (curriculum) addressed by this course:

1. Apply probability and statistics to address uncertainty
2. Analyze and solve problems in at least four technical areas appropriate to civil engineering

8. Additional topics, assignments, or requirements for dual-level (4000/5000) course:

1. Additional problems are assigned in homework, tests, and final exam; and
2. To write a term paper on an assigned transportation planning topic and to give an oral presentation on the topic (using PowerPoint slides) to the class.

9. Date: 02/05/2020