Course: CE 45000 – Urban Transportation Planning

Type of Course: Elective for Civil Engineering Program

Catalog Description: This class is an introduction to transportation planning in urban areas. The course will cover the history of urban transportation planning, transportation data sources and surveys, fundamentals of travel demand and network modeling, financial issues, transportation planning and environmental issues, local and federal regulations and policies, and contemporary issues.

Credits: 3

Contact Hours: 3

Prerequisite Courses: CE 34500

Corequisite Courses: None

Prerequisites by Topics: Transportation Engineering


Course Objectives: Student will understand and apply basic concepts and methods of urban transportation planning in the US. Student will learn methods of designing, conducting and administering surveys to provide the data required for transportation planning. In addition students will understand and be able to apply travel demand molding, project development and financing, regulations and policies, environmental related issues, land use and contemporary issues in transportation planning.

Course Outcomes: Students who successfully complete this course will be able to:
1. Design, conduct and administer surveys to provide the data required for transportation planning. [1, 2, 6]
2. Learn and understand zonal demand generation and attraction regression models. [1, 2, 6, 7]
3. Learn and understand demand distribution models (gravity models). [1, 2, 6, 7]
4. Learn and understand modal split models for mode choice analysis. [1, 2, 6, 7]
5. Develop and calibrate trip generation rates for specific types of land use developments. [2, 6, 7]
6. Estimate the traffic impact of new developments using the four-stage sequential models. [2, 6, 7]
7. Understand transportation project planning and development. [1]
8. Understand and apply the process of financing to transportation projects [1, 2, 7]
9. Learn the federal legislation and planning regulations pertaining to transportation planning issues [1]
10. Be familiar with the impact of transportation on the environment with focus on air quality conformity. [1]
11. Impact of the transportation project on the land use. [1, 2, 6, 7]
12. Understated selected emerging contemporary transportation issues and their impact on the society. [1].
13. Make final decisions among planning alternatives that best integrate multiple objectives such as technical feasibility and cost minimization. [1, 2, 6]
14. Communicate effectively via class technical discussions and presentations. [3, 4]
15. Design transportation related project in a team of two or three students and submits a final report and conduct a presentation. [1 to 7]

Lecture Topics
1. Data collection and use of survey information
2. Travel demand forecasting models of trip generation, trip distribution, mode choice, and trip assignment.
3. Project development.
5. Federal legislation and planning regulations.
6. Environmental concerns and air quality conformity.
7. Land use and transportation interaction.
8. Emerging issues and information technologies for transportation planning.

Computer Usage
Medium
Laboratory Experience  None
Design Experience  Low
Coordinator  Promothes Saha, Ph.D.
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