



## CE 425 – Urban Transportation Planning

**Code and Name:** CE 425 – Urban Transportation Planning

**Credit Hours:** 3 (Lecture: 3, Tutorial: 1)

**Textbook:**

- Urban Transportation Planning by Michael Meyer and Eric J. Miller, 2<sup>nd</sup> Edition, 2001

**Other References:**

- *Course handouts: distributed on a regular basis to provide more information on the topic.*

**Course Description:**

Principles of planning, evaluation, selection, adoption, financing, and implementation of alternative urban transportation systems; formulation of community goals and objectives, inventory of existing conditions; transportation modelling: trip generation, trip distribution, modal choice, assignment; transport related land-use models

**Pre-requisites:** CE421 Transportation Facility Design

**Co-requisites:** None

**Course Learning Outcomes:**

With relation to ABET Student Outcomes (From Fall 2019-SOs: 1-7)

1. Provide the students with the theory and practice of planning and modelling of urban and state-wide transportation systems (4).
2. Familiarize students with the 4 step travel demand modelling process (4)
3. Apply and use of models in the overall planning process (1)
4. Develop and evaluate of transportation planning options (6)

**Topics to be covered:**

- Definition of urban transportation planning, multimodal perspective, changing society and its impacts on urban transportation planning.
- Conceptual models of decision making, elements of decision making, characteristics and development of decision-oriented planning process.
- Characteristics of urban travel, trip purpose, temporal and spatial distribution of trip making, modal distribution of trip making and safety
- Transportation planning database, classification schemes and sampling methods for data collection, data on highway and transit network performance and condition.
- Demand analysis in transportation planning, analysis of demand, simplified demand estimation.
- Urban transportation modelling system, trip generation, trip distribution.
- Modal split, assignment, time of day models, activity based models.
- Basic concepts and role of activity analysis, land-use models, assessment of transportation impacts
- Role of supply analysis in transport planning, network models, impact models, cost models
- Evaluation of transportation projects, characteristics of benefit and cost measurement, comparative assessment methods, examples of evaluation in transportation planning
- Characteristics of programming process, setting priorities for project selection, financial analysis

**Grading Policy:**

The grading for the course is: 60% coursework and 40% Final Exam. The course work consists of two Midterm Exams, where each midterm exam is worth 20%. It also includes quizzes, and homework for the remaining 20% that is modified by the course instructor.

