CE267 Jan. 3:0

Transportation Statistics and Micro-Simulation

Instructor

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Teaching Assistant

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Department: Civil Engineering

Course Time: 3:00 - 4:00 PM

Lecture venue: Civil Engineering Department

Detailed Course Page: There is no course web page

Announcements

NA

Brief description of the course

The course is ideal for students who are doing M-Tech or Ph.D. in Transportation Engineering. Measuring and understanding transportation system requires collection of data and its rigorous analysis, which requires a good understanding of probability and statistics, different kinds of distributions used in transportation analysis etc. Further many transportation improvements requires impact assessment and before-and-after analysis using statistical test and/or micro-simulation

Prerequisites

None

Syllabus

Role of statistics in transportation engineering; graphical methods for displaying transportation data; numerical summary measures; random variables in transportation; common probability distributions in transportation; use of sampling and hypothesis testing in transportation; use of ANOVA; regression models for transportation; Bayesian approaches to transportation data analysis; traffic micro-simulation models, analysing micro-simulation outputs, performance measures.

Course outcomes

The students will learn to use various data science approaches for understanding and analyzing transportation data, measuring reliability of transportation system, doing impact studies, before-and-after improvement studies, assessing the performance of transportation system etc.

Grading policy

50% for sessionals and 50% for end-sem exam (written exam)

Assignments

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Resources

C. H. Spiegelman, E. S. Park, and L.R. Rilett, Transportation Statistics and Microsimulation, CRC Press, 2011.

J. R. Benjamin and C. A. Cornell, Probability, Statistics, and Decisions for Civil Engineers, McGraw-Hill Book Company, 1970.