



CE272 Jan 3:0

Traffic Network Equilibrium

Instructor

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Department: Civil Engineering

Course Time: Tue, Thu, 3:30-5:00 PM

Lecture venue: STLH

Detailed Course Page:

Announcements

Brief description of the course

This course will introduce the concept of equilibria in traffic networks (commonly referred to as the traffic assignment problem) which allows transportation planners to predict congestion or the volume of traffic on different roadway links and routes. These type of predictions are vital for short- and long-range transportation planning as they help make higher-level decisions related to the construction of new roads, selection of one-way streets, signal plan modifications, and toll collection. We will focus our attention on large-scale city networks as opposed to an intersection/junction or a corridor.

Prerequisites

None

Syllabus

Traffic assignment; User equilibria; System optima; Link, path, and origin based algorithms, Bi-criterion assignment and multi-class equilibrium, Sensitivity analysis

Course outcomes

Students will learn to formulate multi-agent systems using a game theoretic approach and will devise

algorithms and implement them to find the equilibrium solutions to these problems

Grading policy

Written assignments (30%), programming assignments (20%), mid-semester exam (20%), and end-semester exam (30%).

Assignments

Resources