Course Description
This course covers transportation software and its applications in understanding the impacts of traffic demand on the transportation system. Simulation software will be used to test the impacts of various signal timings and progressions on an arterial and a network. The course will be project based and will use the SYNCHRO simulation program and the AIMSUN simulation program.

Prerequisites: CE-Uy 1002 or CE-Uy 1502 or permission of Civil Engineering Program Advisor.

Course Objectives:
1. Ability to use transportation Software
2. Understanding how changes to a transportation system affects the system
3. Understanding basic signal timing principles
4. Ability to use software on real-world projects

Instructor:
Professor E. Prassas
eprssas@nyu.edu
Office hours by appointment

Texts: No textbook is needed for the course. Reading materials will be distributed

Course Grading:
Four projects, each 25% of grade
Class 1  Lecture: Introduction to Transportation Engineering, Signal Timing using HCS

**PROJECT 1: Modeling a corridor in SYNCHRO (Due class 4)**

Class 2  Lecture: HCS continued  
In Room 217 (computer lab)  
Understanding inputs in SYNCHRO

Class 3  Lecture: Understanding Simulation  
Simulate traffic operations (End of Project 1)

**PROJECT 2: Optimize signals of the corridor in SYNCHRO (Due class 7)**

Class 4  Lecture What is coordination, offset and time-space diagrams  
Analyzing Coordination, offset, and time-space diagrams in SYNCHRO

Class 5  Lecture: MOEs  
Optimize signals; understand outputs

Class 6  Lecture: What should be in a technical Report  
Analysis and technical report

**PROJECT 3: Model and analyze a corridor in AIMSUN (due class 11)**

Class 7  Lecture: Microscopic Simulation  
Introduction to micro-simulation modeling

Class 8  Model a network

Class 9  Signal controls and other inputs

Class 10  Calibration strategies and output

**PROJECT 4: Mitigate and Improve Operations in AIMSUN**

Class 11  Mitigation Strategies

Class 12  Propose and Analyze new design

Class 13  Analyze output and technical report

Class 14  Project 4 Due