Spring 2020

# TRAN 752-852: Traffic Control

Janice Daniel

TRAN 752
**TRAFFIC CONTROL**

Section: 852 Spring 2020


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Traffic laws and ordinances; regulatory measures; traffic control devices; markings, signs and signals; timing of isolated signals; timing and coordination of arterial signal systems; operational controls; flow, speed, parking; principles of transportation system management/ administration; highway lighting; and state-of-the-art surveillance and detection devices and techniques. Hands-on experience with TRAF/NETSIM and FREESIM. Same as CE 752.

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| **Learning Objectives:** | The objective of this course is gain and understanding of traffic control laws and devices. To be able to analyze the operation of traffic signals and to describe the operation of these signals in a technical report. |
| **Text:** | Roger P. Roess, Elena S. Prassas and William R. McShane, *Traffic Engineering*, Prentice-Hall Inc, 5th Edition 2019. |
| **Reference Text:** | *Highway Capacity Manual 6th Edition: A Guide for Multimodal Mobility Analysis*. Transportation Research Board, National Research Council, Washington, D.C., 2016.<br><br>U.S. Federal Highway Administration. Manual of Uniform Traffic Control Devices for Streets and Highways, Washington, D.C., 2009. http://mutcd.fhwa.dot.gov/pdfs/2009r1r2/pdf_index.htm |
| **Instructor Responsiveness:** | Emails will generally be responded to within 24-business hours Monday - Friday. |
| **Canvas Tech Support:** | If you are unable to log in or experience a problem please contact the NJIT Helpdesk - (973) 596-2900. |
| **Grading:** | HW* 10%<br>Projects 20%<br>Tests (2) 45%<br>Final Project 25% |
| **Academic Integrity** | "Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: http://www5.njit.edu/policies/sites/policies/files/academic-integrity-code.pdf.<br><br>Please note that it is my professional obligation and responsibility to report any |

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| | academic misconduct to the Dean of Students Office. **Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university.** If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu |
| **Homework:** | Homework will not be thoroughly graded, but you will still need to turn in your homework. Credit will be provided based on your final answers given. No credit will be provided once solutions have been posted.<br><br>For homework assignments you should submit two items: (1) electronic copy of the completed homework (Word, pdf, excel); and (2) An excel spreadsheet I will provide to you with every homework assignment where you will input your final answers for your homework. You will not be able to include all of your answers in the excel spreadsheet, but I will use both parts of the submission in grading your homework. |
| **Electronic Submissions:** | You should identify how you will submit assignments electronically. You can submit all types of attachments (pdf, doc, xls). For some assignments which includes calculations, it may be easier to scan your written work into a pdf and submit that document, rather than type out the equations. Having access to a scanner or a printer with a feature to create pdfs may be helpful. I did not include attachments that are photos of your assignment as a method of submitting assignments as it is typically difficult for me to read these types of attachments. If you choose to submit excel spreadsheets, please note that I will not be able to look at your formula or how the calculation was determined. Therefore, you should show all the steps to get to your final calculation. |
| **Important Dates:** | Test #1 Tuesday, March 3rd (6:00 – 7:30 pm)<br>Test #2 Thursday, April 21st (6:00 – 7:30 pm)<br>Final Project Thursday, May 5th |
| **Exam Policy** | All exams are a 90 minutes administered through Canvas. Tests consists of various types of questions including some fill-in questions, some multiple choice questions, some calculation questions. The questions and some input variables will be randomly determined so each test will have some differences. **The exam will be administered through ProctorU (see below for further details).**<br><br>To save time, it is not necessary that you show your calculations during the test. You should, instead, provide your final answer during the test time and submit any calculations used to reach the final answer after the completion of the test. The calculations are used to provide partial credit and to ensure that you did the work to complete the exam. No credit is provided for questions where the answer provided in the calculations differ from answers provided during the test. No credit is provided if you do not show your calculations. It is better to show your work from the test, where partial credit can be provided, than to recreate an answer. |

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| | Please save your answers as you go through the test. You can revise saved answers. The exam will close precisely 90 minutes after you begin, so please keep track of the time so you can submit your answers before time runs out. If you believe you are missing information to complete the question, please make an assumption and state your assumptions in the hand calculations.<br><br>To avoid technical difficulties with the online test, the computer help desk suggests using Firefox or Google chrome for your internet browser while using Canvas. Also your wireless connection can impact the ability to download figures or move from through the test questions without pausing. You may consider using a wired connection while taking the test. Please contact the university help desk if you would need clarification about connection problems. (973-596-2900). |
| **Exam Proctoring Requirement** | NJIT policy requires that all midterm and final exams must be proctored, regardless of delivery mode, in order to increase academic integrity. In this course you are required to use ProctorU to ensure academic integrity for exams. More information can be found at the following link: https://ist.njit.edu/sites/ist.njit.edu/files/STUDENT%20-%20How%20it%20Works%20-%20Test-Taker.pdf |

| **Week of** | **Topic** | **Reading** |
|---|---|---|
| 1/20 | Communicating with Drivers: Traffic Control Devices | Chapter 4, Chapter 16 |
| 1/27 | Fundamentals of Intersection Design and Layout | Chapter 15 |
| 2/3 | Principles of Intersection Signalization | Chapter 18 |
| 2/10 | Fundamentals of Signal Timing and Design: Pre-timed Signals | Chapter 19 |
| 2/17 | Capacity and Level of Service Analysis: Signalized Intersections – The HCM Method (HCM 2000 Methodology) | Chapter 22 |
| 2/24 | Traffic Simulation/Synchro | |
| **3/ 2** | **Test No. 1 – Tuesday, March 3rd (6:00 – 7:30 pm)** | - |
| 3/9 | Urban Streets and Arterials: Complete Streets and Levels of Service/Signal Coordination and Arterials and Networks | Chapter 21 |
| 3/16 | **SPRING RECESS☺- NO CLASS** | |
| 3/23 | Capacity and Level of Service Analysis: Signalized Intersections – The HCM Method (HCM 6th Edition Methodoldogy) – Revised Saturation Flow Rate Model, Incremental Queue Accumulation | Chapter 22<br>- |
| 3/30 | Fundamentals of Signal Timing and Design: Actuated Signals | Chapter 20 |
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| 4/6 | Unsignalized Intersections | Chapter 25 |
| 4/13 | Roundabouts | Chapter 25 |
| **4/20** | **Test No. 2 – Tuesday, April 21st (6:00 – 7:30 pm)** | - |
| 4/27 | Interchanges | Chapter 26 |
| **5/4** | **Final Project Due – Tuesday, May 5th** | |