Welcome to CVL746: Public Transportation Systems

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Outline

Course information

Prerequisites

Course logistics

Student learning expectations

Books

Course information

- Meeting time: Slot D (TWF 9-10 A.M.) (Please come to the class on-time!)
- My office: 322, Block-IV
- Office hours: TBD
- Email: pkk@iitd.ac.in. Include "CVL746" in the subject line.

What is this course about?

Introduction to transit planning and operations, which includes

- Transit Oriented Development (TOD)
- Quality of service and capacity analysis
- Transit data
- Transit assignment
- Network design
- Scheduling
- New developments

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- Calculus
- Computer programming
- Linear algebra
- Basics of transportation planning

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Grading

1. In-class exercises (20%)
2. Homework assignments (25%)
3. Minor exam (25%)
4. Major exam[1] (25%)

[1] Major exam will be cumulative

In-class exercises

- I'll ask you to work on some in-class exercises.
- You are encouraged to discuss these with your peers.
- Please submit your exercise sheet right after the class ends.

Homework assignments

- Submit them through Moodle.
- Late submission of assignment will be allowed up to two days after the deadline. For each day, there will be a penalty of 25% deduction in points.
- You may discuss it with your peers but you should submit your solutions individually.
- I take copying and plagiarism very seriously. So please don't do it! Please refer to the syllabus and honor code available in Courses of Study for more details.

Attendance

- You need to attend at least 75% of classes
- Otherwise you will be awarded one grade less than the actual grade

Auditing the course

To get an NP grade

- You need to attend at least 75% of classes
- You need to earn at least 30% (aggregated) of total marks.

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- Understanding transit oriented development
- Performing quality of service and capacity analysis
- Understanding various ways of collecting passenger behavior data
- Modeling transit network
- Understanding transit assignment models
- Using optimization solvers to solve various transit planning problems
- Learning about the recent advances in transit service

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Reference books

There is no required textbook for this course. The following are the references:

- Ceder, Avishai. Public transit planning and operation: Modeling, practice and behavior. CRC press, 2016.
- Vuchic, Vukan R. Urban transit: operations, planning, and economics. John Wiley & Sons, 2017. [Free PDF]
- Gkiotsalitis, Konstantinos. Public transport optimization. Springer, 2022.
- Daganzo, Carlos F., and Yanfeng Ouyang. Public transportation systems: Principles of system design, operations planning and real-time control. 2019.

Thank you!