Quantitative Methods and Data Systems (CEGE0105)

Description

Urban railway and transport systems are generating and relying on big data, and whether you become a planner, analyst or engineer, it is inevitable to understand and handle data. The module aims to provide to students basic statistical and data-science skills to understand, handle and analyse transport-related data with large quantities.

The module focuses on skills of quantitative analysis and data systems in urban transport contexts, in particular railways.

Outlines:

It covers the following topics

- Introduction; Survey methods; Sampling and estimation
- Probability and distribution
- Regression Models
- Optimisation
- Data systems
- Data mining, Retrieval
- Data visualisation
- Machine learning

Learning outcomes

By the end of the course, the student should be able to:

- Identify the requirements for data in order to perform the analysis he/she intends
- Perform basic statistical analysis to test hypotheses around data.
- Handle and organise data with large quantity for the analysis he/she intends
- Develop simple models or algorithms for data

While students do not need to have advanced mathematical skills and knowledge, they would need to...
have interests in numerical analysis.