2SC7591 – Flow management in industrial gas delivery

Instructors: Guillaume LAMÉ, Loïc Pineau
Department: DOMINANTE - VIVANT, SANTÉ, ENVIRONNEMENT, DOMINANTE - GRANDS SYSTÈMES EN INTERACTION
Language of instruction: FRANCAIS
Campus: CAMPUS DE PARIS - SACLAY
Workload (HEE): 80
On-site hours (HPE): 48,00

Description

Students will apply the tools provided in the associated course on an industrial case study proposed by a partner. In particular, they will be able to implement discrete event simulation on a long and in-depth case study.

Quarter number

ST7

Prerequisites (in terms of CS courses)

None

Syllabus

In parallel with the associated ST7 course, students will progressively apply the techniques taught in the course on a real complex industrial problem. Course reminders will be provided as needed.

Class components (lecture, labs, etc.)

Industrial case study.

Grading

Group project.

Course support, bibliography

Contents from the ST7 course.
Data from the industrial case study.

Resources

Industrial case study, with data and information on the context and the industrial challenge, supervised by a tutor.

Discrete-event simulation software Simul8, and the extension OptQuest for simulation-optimisation.

Simul8 only exists for Windows. Students using Mac OS will need to install a virtual machine, which may slow down the simulation software and compromise its general usability.

Learning outcomes covered on the course

Implementation of discrete event simulation. Conceptual modelling, implementation into a computer simulation model, model validation, experimentation.
This course will address the following competencies:

- C1 Analysing, designing and realising complex systems with scientific, technological, human and economic components
    - C1.2 Using and developping relevant models, choosing the righjt modelling scale and simplifying hypotheses to address the problem
    - C1.3 Resolving the problem through approximating, simulating and experimenting
- C2 Developing specific knowledge of a scientific or industrial domain et a professional domain
    - C2.1 Exploring a scientific or engineering domain or discipline
- C3 Acting, innovating in a scientific and technological environment
    - C3.6 Evaluating the effectiveness, feasibility and robustness of proposed solutions
- C7 Being convincing.
    - C7.1 Being clear on objectives and expected results. Being rigorous on the hypotheses and the method. Structuring ideas and arguments. Highlighting value creation.
- C8 Leading a project, a team.
    - C8.1 Working as a team/collaboratively.
    - C8.4 Working in project mode, using project management techniques as required by the situation.

Description of the skills acquired at the end of the course

Implementation of discrete event simulation on a real case-study.