Informatique

ECTS credits
4 credits

In brief

Course langage: French

Presentation

Learning objectives

This course is an introduction to algorithms (trees, graphs, texts), complexity, indexing and databases, which are essential tools for a general engineer.
The aim is in particular to bring the students to be able to analyse / model a given problem, to imagine an algorithm allowing to solve it, to question its efficiency, and to implement it concretely by making relevant choices of programming and by using adapted data structures.

Description of the programme

This teaching unit covers:
The notion of complexity (worst case, average, minimum)
Graph-like data and associated algorithms (traversal, shortest path, coloring...)
Tree-like data and associated algorithms (search...)
Text data and associated algorithms (search, comparison...)
Dynamic programming
Data storage and indexing
Relational algebra
SQL-type databases
Basics of programming
Introduction to object-oriented programming
The teaching is divided between lectures, tutorials focused on algorithmic notions and practical work for the implementation with the python language.

Generic central skills and knowledge targeted in the discipline

- Know how to mobilise and use fundamental algorithmic approaches
- Master algorithms for classical problems and know how to program them
- Know how to use appropriate data structures
- Master the fundamental elements of the syntax of the Python programming language

How knowledge is tested

- Mini-tests at the beginning of the course (50%)
- Proctored homework (50%)

Bibliography

https://wiki.centrale-marseille.fr/informatique/

Teaching team

T. Artières , F. Brucker, E. Daucé, C. Jazzar, P. Préa, R. Sicre

Total des heures		**72h**
CM	Master class	14h
TD	Directed work	20h
TP	Practical work	20h
AA		18h

Useful info

Name responsible for EU

Lead Instructor

Thierry Artieres

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