Initiation into computer science

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Challenges

- Heterogeneity of students
- Theory and skill
- Heterogeneity in culture of computer science
- Technological change
- Uses and abuses of Internet
What does student need to learn?

- Programming
- Programming language
- Problem solving
- Problem formalization
- Discrete mathematics
- Use of tools (editor, compiler/interpreter, computer)
First year courses

- Introduction to Informatics
- Programming Fundamentals I (Scheme)
- Discrete structures
- Software Atelier I (command line tools)
- Software Atelier II (Graphical tools)
- Programming Fundamentals 2 (Java)
First two semesters

Fall
- Informatics
- Programming Fundamentals I
- Discrete Structures
- Software Atelier I

Spring
- Programming Fundamentals II
- Calculus
- Software Atelier II
PF 1 and PF2

PF1: Fundamental concepts of problem solving: problem analysis, decomposition and composition; ... recursion, data abstraction, and iterative refinement. ... basic programming constructs (loops, definitions), data structures (lists, trees, graphs, etc.) and algorithms.

PF2: While the course covers imperative programming concepts such as variables and iteration, the main focus is on object-oriented thinking, design, and programming.
Conclusions

- The subject is fun, but it is not easy
- The craft is as important as the mathematics
- Practical skills are harder to teach than math
- It is not an isolated subject, it is a way of thinking