Compilation Course
(replacing Principe de Prog.)

Flavien BREUVART

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This year

Course :

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via the webpage : https://lipn.univ-paris13.fr/∼breuvart/compilation/
(or via Moodle : https://moodlelms.univ-paris13.fr)

Teachers in charge of TD and TP

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Presentation of Compilation course

Courses with (very) rich content :

- General knowledge + Theory + Practics
- Informal presentation via examples
- (Formal version on demand)

Borring exercises:

- Applying actual algorithm to understand them
- Heavy use of drawings (automaton, machine...) and calculus
- (Hardly any proof or creative material)
- We will try to introduce real and "fun" issues in CS

Presentation of Compilation course

Long en central project as backbone :

- A (nearly) complete javascript compile,
- Writen in the language of your choice,
- Already available and to be delivered at the end of the semester.
- Very rich, but also very long (you are not expected to finish)
- You have to use GIT versioning and branches.

TPs autour du projet :

- Tous les TPs sauf un font partie du projet,
- Il faut travailler dessus entre les TPs (sinon vous allez perdre l'intérêt du TP...),
- Examen sur papier pouvant faire référence aux TPs
- Plus de TP en L3 pour avancer le projet en présentiel

3 "Parts" in the lecture

Structure of compilers

- What is a compiler/interpréteur,
- General knowledge on compilers,
- Phases of compilations,
- ...

Chapter 1. Frontend Algorithms

- Automata, regexps, determinisation
- Homemade notion of Shift-Action automata
- Generating a lexer from regexps
- Genérating a parser from a grammar

Chapter 2. Virtual Machine

- Discovering a "homemade" assembly language
- Structure of a virtual machines
- Generating asembly code from an AST
- Javascript semantics