UCL Université catholique de Louvain

LINGI2132

2012-2013

Languages and translators

5.0 credits	30.0 h + 30.0 h	2q

Teacher(s) :	Schaus Pierre ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	-- Rigorous Methods okprogram design (eg INGI1122) -- High-level programming language, algorithmics and data structures (eg SINF1121) -- Logic and discrete structures (eg INGI1101)
Main themes :	-- Methods to analyze context-free languages, upstream and downstream methods -- Generators of lexical analyzers and parsers -- Statistical semantics and attributed grammars -- Methods to translate a source code in a target code, and generation of target code
Aims :	Students completing successfully this course will be able to -- explain in a practical way the structure of compilers dealing with algorithmic languages -- design and implement a compiler for a practical language which solves a interesting problem -- show the interest of compiling techniques in problem resolving Students will have developed skills and operational methodology. In particular, they have developed their ability to -- treat rigorously a problem, justifying and validating each step of a project to be able to rely on it to implement the following one *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	-- writen exam -- project
Teaching methods :	-- Lectures -- Pratical sessions -- Project (design and implementation of a compiler)
Content :	-- Introduction -- Formal Languages -- Chomsky's Formal Grammars -- Languages and Regular Expressions, Automata finite set of states -- Lexical Analysis -- Top-down Parsing: general method -- Top-down Parsing based on grammars LL (1) -- Bottom-up Parsing and relations of priorities
Bibliography :	Course material available online (course website) Recommended readings -- N. Wirth , "Compiler Construction" , Addison-Wesley , 1996, 0-201-40353-6. -- Robin Hunter, "The design and construction of compilers" , Wiley, 1981. -- A. V. Aho, R. Sethi, and J. D. Ullman, "Compilers: Principles, Techniques, and Tools" , Addison-Wesley , 1986. -- A. V. Aho, R. Sethi, and J. D. Ullman, "Compilateurs: principes, techniques et outils" , InterEditions, 1989. -- R. Wilhelm and D. Maurer, "Compiler Design" , Addison-Wesley , 1995.
Cycle and year of study :	> Master [120] in Biomedical Engineering > Master [120] in Computer Science and Engineering > Master [120] in Computer Science > Master [60] in Computer Science
Faculty or entity in charge:	INFO