UCL Université catholique de Louvain

LINMA2111

2012-2013

Discrete mathematics II : Algorithms and complexity

5.0 credits	30.0 h + 22.5 h	2q

Teacher(s) :	Blondel Vincent ;
Language :	Anglais
Place of the course	Louvain-la-Neuve
Main themes :	The course is an introduction to algorithms and their complexity from a non-numerical point of view. The principal topic is the mathematical analysis of the existence of algorithms and their complexity on the classical problems of the field.
Aims :	Study of algorithms for a variety of combinatorial problems from several points of view, including existence, algorithm design, data structures, performance analysis and complexity status. *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".*
Content :	Introduction to the basic algorithms for sorting and the efficient implementation of different data structures including an analysis of worst case and average case complexity. Treatment of important algorithm classes including greedy and dynamic programming algorithms. Aspects of complexity theory including NP-completeness, complexity classes and decidability.
Other infos :	Introduction to Algorithms, T.H. Cormen, C.E. Leierson and R.L. Rivest, MIT Press 1986. Algorithmics: Theory and Practice, G. Brassard and P. Bratley, Prentice Hall 1988.
Cycle and year of study :	> Master [120] in Computer Science and Engineering > Master [120] in Computer Science > Master [120] in Mathematical Engineering > Master [120] in Electrical Engineering > Master [120] in Electro-mechanical Engineering
Faculty or entity in charge:	MAP