



Faculté des sciences appliquées

FSA

LINF1251 Introduction à l'algorithmique et la programmation : 2ème partie

[30h+30h exercices] 7 credits

This course is taught in the 1st semester

Teacher(s): Baudouin Le Charlier, Marc Lobelle, Peter Van Roy (coord.)
Language: french
Level: 1st cycle course

Aims

- Introduction to complex data structures and data abstraction.
- Introduction to object-oriented programming.
- Introduction to recursion

Main themes

- (1) Basic concepts
 - Recursion
 - Linked structures and pointers
 - data encapsulation
 - Genericity
 - Inherence
- (2) Methods for systematic program construction
 - Reasoning by structural induction
 - Complexity analysis
 - Application to systematic construction of algorithms: tree manipulation, graphs, etc.
- (3) Programming languages
 - Using the concepts in a object-oriented language such as Java
 - Implementation, in such a language, of the resulting programs

Content and teaching methods

The content is structured around basic themes such as:

- Basic concepts: recursion, linked structures and pointers, data encapsulation, genericity, inherence.
- Methods for systematic program construction: reasoning by structural induction, complexity analysis, application to systematic construction of algorithms: tree manipulation, graphs, etc.
- Programming languages: using the concepts in a object-oriented language such as Java, implementation in such language of the resulting programs

Other information (prerequisite, evaluation (assessment methods), course materials recommended readings, ...)

Pre-requisites : LINF 1150 - Introduction à l'algorithmique et à la programmation : 1ère partie

Assessment : Tests et examens écrits individuels.

Material: course notes

Other credits in programs

ECGE12/IN	Deuxième candidature en sciences économiques et de gestion (Informatique)	(7 credits)	Mandatory
LINF1EP	Année de formation préparatoire à la licence en informatique	(7 credits)	Mandatory
MATH12	Deuxième candidature en sciences mathématiques	(5 credits)	