UCL Faculté des sciences appliquées

FSA

INGI2122 Méthodes de conception de programmes

[30h+30h exercises] 5 credits

This course is taught in the 1st semester

Teacher(s): Yves Deville, Baudouin Le Charlier (coord.)
Language: french
Level: 2nd cycle course

Aims

- To imagine and realize a correct and efficient algorithm to solve a given problem
- To understand, choice and apply various methods to design programs in order to realize and demonstrate the exactness of complex algorithms

Main themes

- Methods to design and prove programs : invariant methods, wp calculus, induction on structures.
- Program transformations and techniques used to improve the efficiency
- Program schemes and problem classes: global research schemes (backward path, selection and evaluation, binary research), local research schemes (voracious strategy; gradient research, simulated annealing), structural reduction schemes (split to reign, dynamic programming, relaxation, constraints).

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

- Prerequisite
(1) LINF2121 Algorithmique et structures de données P. Dupont
- Reference
(1) Liskov, B.., "Program Development in Java: Abstraction, Specification, and Object-Oriented Design." , Addison-Wesley, 2001.
(2) Goodrich M.T. & Tamassia R, "Data Structure and Algorithms in Java." , Second Edition, John Wiley & Sons, 1997.
- Organization
Active learning through problem solving in small groups

Other credits in programs

ECGE3DS/IG	Diplôme d'études spécialisées en économie et gestion (informatique de gestion - Master in Information Systems)	(3 credits)	
INFO21	Première année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits)	Mandatory
INFO22	Deuxième année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits)	
LINF21	Première licence en informatique	(5 credits)	
LINF21/GN	Première licence en informatique (informatique générale)	(5 credits)	Mandatory
LINF21/GS	Première licence en informatique (informatique de gestion)	(5 credits)	Mandatory