

## Faculty of Applied Sciences



### LINF2172 Database design

[30h+30h exercises] 5 credits

This course is taught in the 2nd semester

**Teacher(s):** Manuel Kolp, Alain Pirotte (coord.), Marco Saerens  
**Language:** French  
**Level:** Second cycle

#### Aims

- To be able to implement the various steps involved in building a complex database (conceptual modeling, physical storage, optimization, re-engineering)
- To understand and be able to adjust the implementation of functions offered by database-management systems

#### Main themes

- Database lifecycle
- Logical design, relational normalization
- Object-based models
- Other functions: active databases, temporal databases, database integration
- Physical representation: file organization, access structures
- Performance optimization: query-evaluation strategies, evaluation of relational operations, database tuning

#### Content and teaching methods

see "Main themes"

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

- Prerequisite: INGI2271 Systèmes de gestion de bases de données
- References
  - (1) T. Connolly and C. Begg, "Database Systems: a Practical Approach to Design, Implementation, and Management", Addison-Wesley, 5th Edition, 2005
  - (2) R. Elmasri, S. Navathe, "Fundamentals of Database Systems", 4th Edition, Benjamin/Cummings, 2004
  - (3) H. Garcia-Molina, J. Ullman, J. Widom, "Database Systems: the Complete Book", Prentice Hall, 2002

#### Programmes in which this activity is taught

**BIR2** Bio-ingénieur  
**INFO2** Ingénieur civil informaticien  
**LINF2** Licence en informatique

**Other credits in programs**

<b>FSA3DS/IN</b>	Diplôme d'études spécialisées en sciences appliquées (informatique)	(5 credits)	
<b>IAG23M</b>	Troisième année de Maîtrise en sciences de gestion (orientation "méthodes quantitatives de gestion")	(5 credits)	Mandatory
<b>INFO21</b>	Première année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits)	
<b>INFO22</b>	Deuxième année du programme conduisant au grade d'ingénieur civil informaticien	(5 credits)	Mandatory
<b>INGE23</b>	Troisième Ingénieur de gestion	(5 credits)	Mandatory
<b>LINF21/GS</b>	Première licence en informatique (informatique de gestion)	(5 credits)	
<b>LINF22/GN</b>	Deuxième licence en informatique (informatique générale)	(5 credits)	Mandatory
<b>LINF22/GS</b>	Deuxième licence en informatique (informatique de gestion)	(5 credits)	Mandatory