Content

Course Code	Course Name	Semester	Theory	Practice	Lab	Credit	ECTS
INF438	Advanced Databases	7	3	0	0	3	4

Prerequisites	INF324
Admission Requirements	INF324

Language of Instruction	
Course Type	Elective
Course Level	Bachelor Degree
Objective	This course is designed for students with good basis in programming, as well as good knowledge of relational data model, relational algebra and a broad knowledge of the relational DBMS. The objective of this course is to situate and understand the tools of access to relevant information and develop an analytical framework and keys to comprehend the company's needs in a project of Data Warehousing
Content	Week 1. Introduction, basic concepts Week 2. Database's languages and advanced models Week 3. Data types and middle-ware architecture Week 4. Introduction to business intelligence Week 5. Principles and architectures of data warehouses Week 6. Data warehouse modeling Week 7. Basic concepts and application of an ETL tool Week 8. Mid-term Week 9. OLAP cubes concepts Week 10. Querying the OLAP cubes Week 11. Reporting tools Week 12. Introduction to Data Mining Week 13. Basic Association algorithms of DM Week 14. Basic Clustering algorithms of DM
References	• J. Pool et al., "Common Warehouse Metamodel", OMG Press, 2002 • G. Gardarin, "Bases de données : objet et relationnel", Eyrolles, 1999 • G. Gardarin, "Internet intranet et bases de données, dataweb, datamedia, datawarehouse, datamining", Eyrolles, 1999 • M. Jarke et al., "Fundamentals of Data Warehouses", Springer, 1999 • Ramez Elmasri, Shamkant B. Navathe, "Fundamentals of Database Systems", Addison-Wesley, 2000 • M. Franco, "Le Data Warehouse, le Data Mining", Eyrolles, 1997 • S. Chaudhuri, U. Dayal, "An overview of data warehousing and OLAP technology", Sigmod Record 26(1), 1997, 65 7

Theory Topics

Week	Weekly Contents
1	Introduction & Basic Concepts
1	Introduction & Basic Concepts,Introduction & Basic Concepts,Middleware architectures
2	Data Types and Properties,Fundamentals of Business Intelligence,Database's languages and advanced models
2	Database's languages and advanced models
3	Data warehouse architecture and principles ,Data warehouse modeling,Data types and middle-ware architecture
3	Data types and middle-ware architecture
4	ETL applications, basic concepts and tools ,Midterm,Introduction to business intelligence
4	Introduction to business intelligence
5	OLAP cubes,Querying OLAP cubes, Principles and architectures of data warehouses
5	Principles and architectures of data warehouses
6	Reporting on OLAP cubes / AdHoc Reporting,Introduction to Data Mining,Data warehouse modeling
6	Data warehouse modeling
7	Data Mining basic algorithms and their applications,Data mining applications on OLAP cubes,Basic concepts and application of an ETL tool
7	Basic concepts and application of an ETL tool