MANAGEMENT ENGINEERING (LM54)

(Lecce - Università degli Studi)

Teaching DATA MANAGEMENT

GenCod A003148

Owner professor ANTONELLA LONGO

Teaching in italian DATA MANAGEMENT

Teaching DATA MANAGEMENT

SSD code ING-INF/05

Reference course MANAGEMENT ENGINEERING

Course type Laurea Magistrale

Credits 9.0

Teaching hours Front activity hours: 81.0

For enrolled in 2022/2023

Taught in 2022/2023

Course year 1

Language ENGLISH

Curriculum Percorso comune

Location Lecce

Semester First Semester

Exam type Oral

Assessment Final grade

Course timetable https://easyroom.unisalento.it/Orario

BRIEF COURSE DESCRIPTION

This is a course in information systems and data modelling; it is aimed at providing principles and tools to model data in information systems. It is a necessary prerequisite for more advanced courses in the management of digital technologies in enterprises and in the study of business intelligence. Students acquire a better understanding of relational and analytical database system structures and learn structured query language. These skills prepare them to, design and develop relational and multidimensional databases, fundamental elements of Enterprise Information Systems.

REQUIREMENTS

No previous skills are required. The use of computer and the tools of office automation are

COURSE AIMS

Knowledge and understanding. Students must have a solid background related to the basics of data management and information systems:

- They must have the basis to think analytically, creativelly and critically and being able to create abstraction and problem solving skills to cope with complex systems
- They must have a basic knowledge of design and implementation of data management systems
- They must have the tools to design transactional and analytical databases applied to different contexts
- They must have the skills to argument data in different scenario, the tools for managing them, together with its impact.

Applying knowledge and understanding. After the course the student should be able to:

- Describe the model and frameworks of an Information System; illustrate the main components of an information system from the technical and application perspective and the impact of information systems on business.
- Distinguish conceptual, logical and physical models in data management.
- Model Online Transaction processing systems from a data perspective, distinguishing among ER models, relational models and physical models
- Model Online Analytical processing systems form a data perspective, distinguishing among DFM, Snowflakes and physical models, being able to describe the relationships among them and the processes

Making judgements. Students are guided to critically approach the topics treated during the class, to compare different solutions to a problem, to identify and propose the most effective or efficient solution in an automous way.

Communication. Students must learn to communicate wiith heterougenoeus audiences, explaining their position, in logical, coherent and effecitve way. During the course students will be provided with domain specific vocabulary and the proper scientific knowledge and methods to expose and argument in precise and formal way the main topics related to data management and information system

Learning skills. Students must acquire the critical ability to autonomously relate to the typical problems of data and information management and, in general, cultural issues related to information systems and their management. They should be able to develop an approach to independently structure knowledge and methods learnt with a view to possible continuation of studies at higher (doctoral) level or in the broader perspective of cultural and professional self-improvement of lifelong learning. Therefore, students should be able to switch their learning approach according to different learning sources and the objectives they must achieve in terms of results and audience

TEACHING METHODOLOGY

The course aims to provide students with tools and knowledge for data management in business organizations. The course consists of frontal lessons and classroom hands on exercises. The frontal lessons are aimed at improving students' knowledge and understanding through the presentation of theories, models and methods; students are invited to participate in the lesson with autonomy of judgement, by asking questions and presenting examples. The exercises are aimed at using tools which supports the models and approaches presented

ASSESSMENT TYPE	The exam is an interview made up of both practical and descriptive aspects The practical part aims at evaluating to what extent the student has: 1) the ability to design data models according to the methodologies presented during the call, 2) reasoning about his/her choices and the capacity to integrate different concepts and tools. The descriptive part follows the practical part and is aimed to verify to what extent the student has gained knowledge and understanding of selected topics and he is able to communicate them.
FULL SYLLABUS	***Introduction to Computer and Information Systems (21 hours)*** ▪ Computer, digital media, automatic information processing. Computer networks. Enterprise information systems and information architectues. ***Online Transaction Processing (30 Hours)*** ▪ The aim of this module is to teach students to design database models and to implement tables, queries, forms, reports and web pages. The focus will be on why and how to use databases in some significant business scenarios. SQL and other programming languages will be presented to understand the basics of modern Web Applications and Service Oriented Architectures. ***Online Analytical Processing (30 Hours)*** ▪ The aim of this module is to present models, methodologies and tools to understand Business Intelligence. Specific attention will be put on multidimensional analysis and on how to design and implement datawarehouses.
REFERENCE TEXT BOOKS	1. "Fundamentals of Database Systems", 6th Edition, Elmasri, Navathe, Addison-Wesley 2. "Datawarehouse Design - Modern Principles and Methodologies", Matteo Golfarelli, Stefano Rizzi, McGrawHill 3. "Information Systems" Paige Baltzan, 4th edition, Mc Graw Hill Education 4. Teaching materials provided at the course