

COMPETENCES**AFTER COMPLETING THIS COURSE, STUDENTS WILL BE ABLE TO:**

C1: Manage applications installing and configuring the software in quality conditions to meet the needs of the organization.

C2: Implement and manage databases by installing and managing software in conditions of quality, according to the characteristics of the organization.

C3: Ensure the system and data according to the needs of use and safe established to prevent failures and external attacks.

C4: Manage and / or maintenance of resources in their area (programming and verifying compliance), depending on the workload and maintenance plan.

COMPETENCES DISTRIBUTION

COMPETENCE	ESSENTIAL 60% TIME 50% MARK	IDEAL 40% TIME 50% MARK
C1.1: Recognize the elements of databases, analyzing their functions and implement databases management systems.	X	
C2.1: Design logics models standardized, interpreting entity / relationship models.	X	
C2.2: Perform physical design of databases, using wizard graphic tools and data definition language.		X
C2.3: Consult the use of information wizards, graphic tools and data manipulation language.		X
C3.1: Implement tasks of information assurance, analyzing and applying safeguard and transfer mechanisms.	X	
C4.1: Modify information stored using wizards, graphic tools and the data manipulation language.	X	

CONTENTS

Storage systems information:

- Logical storage system. Concept, characteristics and classification.
- Traditional files, concept and types (planes, indexed, direct access, etc.).
- Databases. Concepts, uses and types according to the data model and the location of the information.
- Database management systems. Concept, structure, components, functions and types.
- DBMS advantages compared to traditional file systems.

Logical design of databases:

- Data model. Concept and types. The process of designing a database.
- The E / R model. Concept, types, elements and representation. Diagrams E / R.
- The relational model. Concept, elements and representation. Relational diagrams.
- Transform of the E / R model to the relational model. Transformation of diagrams.
- Normalization.
- Design review, denormalization and other decisions not derived from the design process, identification, justification and documentation.

Physical design of databases:

- The physical design process, concept and transition from the logical design. physical storage structures.
- Graphical tools provided by the management system for the implementation of the database.
- SQL. Fundamental concepts.
- The data definition language.
- Creation, modification and deletion of databases.
- Creation, modification and deletion of tables.
- Type of data.
- Implementation of restrictions.
- Design verification, initial loading and testing.
- Data dictionary, definition and documentation.

Querying:

- The data manipulation language for querying. The SELECT sentence.
- Simple queries, summary queries and grouping queries.
- Subqueries.
- Union of queries.
- Internal and external compositions.
- Wizards and graphical tools provided by the transmission system for consultations.
- Advantages and disadvantages of the various valid options to perform a given query.

Modification of stored information:

- Data editing.
- Sentences to modify the contents of the database, INSERT, DELETE and UPDATE.
- Graphical tools provided by the managing system for editing information.
- Transaction. Concept, transaction processing sentences.
- Simultaneous access to data, locking concept and ways execution.
- Construction of scripts.
- Script. Concept and types
- Realization of operations with stored data.
- Importing and exporting data.
- The information assurance. Control structures and grouping structures, data types, identifiers, variables and operators.

Management of data security:

- Information security, review of fundamental concepts for databases.
- Backups, making and restoration. Sentences, graphics and utilities provided by the management systems for implementation tools.
- Interpretation of the information provided by the error messages and log files, failover.
- Importing and exporting data. Concept, judgments, graphics and utilities provided by the management systems for implementation tools.
- Data transfer between management systems. Concept, strategies, statements, graphics tools and utilities provided by the management systems for implementation.