

Course Syllabi

1. TICS-00035 DATABASES I: DESIGN AND PRINCIPLES

2. 192 credits hours.

3. Bibliography

- Database System Concepts, Silberschatz A., Korth H., Sudarshan S., 2020
- An introduction to Database Systems, Date, C. J., 2004

4. Specific Course Information

- This subject trains students in the design of standardized and efficient relational databases. It also introduces students in the management of these databases using SQL.
- Corequisites:
 - TICS-00050 PROGRAMMING LANGUAGES
- Prerequisites:
 - TICS-00033 SOFTWARE ANALYSIS AND DESIGN

5. Learning Objectives of the Course

- Design, implement, and manage properly standardized databases.
 - Abstract problems from different domains in a relational database design.
 - Represent the design of a database using an Entity Relationship diagram.
 - Apply the different normal ways to obtain a database without redundancy and that allows efficient management of information.
 - Master the SQL language to express queries that allow managing and interacting with a database.
 - Inter act efficiently with databases through client applications.
 - Know the basic functioning and master the different functionalities of a relational database manager.
- Learning Outcomes
 - Express queries to databases using relational algebra.
 - Design databases by applying standardization concepts.
 - It identifies and explains the different phases involved in the design of a relational database.
 - Express queries to databases using relational algebra.
 - It identifies and explains the differences between a file-based system and a database management system (sgbd).
 - Manages and interacts with a relational database using sql.
 - Manages and interacts with a relational database using sql.
 - Manages and interacts with databases through client applications.
 - Analyzes and designs relational databases using the entity-relationship model.
 - Design databases by applying standardization concepts.
 - Analyzes and designs relational databases using the entity-relationship model.

6. Course Topics

- Overview of the related databases
- The relative model
- Database design using the entity-relationship model
- Structured query language (sql) - data definition language (ddl)
- Structured query language (sql) - data handling language (dml)

- Relational algebra
- Sql-dml - consultations