



Wayne County Community College District

COURSE SYLLABUS

CIS 120 Introduction to Database Concepts

CREDIT HOURS: 3.00

CONTACT HOURS: 45.00

COURSE DESCRIPTION:

This course is designed to introduce the student to the concepts of database design. The student will learn the fundamentals of SQL (Structure Query Language) using the most popular database management systems available today. The student will learn to create, query, update and change tables in database using SQL commands, as well as create reports, use forms, and embed SQL commands in another programming.

PREREQUISITE: *CIS 110, CIS 112*

EXPECTED COMPETENCIES:

Upon successful completion of this course, students will be able to:

- Understand the concepts and terminology associated with relational databases
- Create and run SQL commands
- Create tables using SQL
- Identify and use data types to define the columns in SQL tables
- Understand and use nulls
- Add rows to tables
- Retrieve data from a database using SQL commands
- Use compound conditions
- Use computed columns
- Use the SQL Like operator
- Use the SQL IN operator
- Sort data using the ORDER BY command
- Sort data using multiple keys and in ascending and descending order
- Use SQL functions
- Use nested sub queries
- Group data using the GROUP BY command
- Select individual groups using the HAVING clause
- Retrieve columns with null values
- Retrieve data from more than one table by joining tables
- Use the IN and EXISTS operators to query multiple tables
- Use a sub query within a sub query
- Use an alias
- Join a table to itself
- Perform set operations (union, intersection, and difference)
- Use the ALL and ANY operators in a query
- Use the COMMIT and ROLLBACK commands to make permanent data updates or to cancel updates
- Change data using the UPDATE command
- Add new data using the INSERT command
- Delete data using the DELETE command



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- Create a new table from an existing table
- Use nulls in UPDATE commands
- Alter the rows in an existing table
- Grant and revoke database privileges to users
- Create, use, and drop an index
- Understand the purpose, advantages, and disadvantages of using an index
- Understand and obtain information from the system catalog
- Use integrity constraints to control data entry
- Use concatenation in a query
- Create a view for a report
- Create a query for a report
- Change column headings and formats in a report
- Retrieve single rows using embedded SQL
- Update a table using embedded INSERT, UPDATE, and DELETE commands
- Provide a general introduction to the field of database management
- Understand basic database terminology
- Provide a brief history of database management
- Describe the hierarchical and network data model
- Describe the relational model
- Introduce the SQL language
- Discuss the use of simple and compound conditions in SQL
- Examine the way tables can be joined in SQL
- Discuss the union operator in SQL
- Discuss views: what they are, how they are described, and how they are used
- Discuss the use of indexes for improving performance
- Examine the security features of a DBMS
- Discuss the general process and goals of database design
- Discuss the need for database administration (DBA)
- Explain the role of DBA in formulating and implementing database policies
- Discuss the role of DBA with regard to the data dictionary, user training, and the selection and support of a DBMS
- Discuss the role of DBA in the database design process
- Describe distributed database management systems
- Discuss client/server systems
- Define data warehouses and explain their uses
- Discuss the general concepts of object-oriented database management systems

ASSESSMENT METHODS:

Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:

90%-100% = A
80%-89.9% = B
70%-79.9% = C
60%-69.9% = D
<60% = E