

Database Design Assignment: College Database

Objective: To understand **Entity–Relationship (ER) modeling** and convert it into **relational tables and SQL queries**.

Short Notes (Read Carefully)

1. Department

A **Department** is an academic unit in a college (e.g., CSE, ECE).

Each department is uniquely identified by a **Department ID**.

Other details include **Department Name** and **Office Location**.

➡ One department can have many students, faculty members, and courses.

2. Course

A **Course** is a subject offered by a department.

Each course has a **Course ID**, **Course Name**, and **Credits**.

➡ A course belongs to one department and is taught by one faculty member.

➡ Many students can enroll in the same course.

3. Student

A **Student** is enrolled in the college and belongs to one department.

Each student is uniquely identified by a **Student ID**.

Other attributes include **Name**, **Date of Birth**, **Gender**, and **Contact Number**.

➡ A student can enroll in multiple courses.

4. Faculty

A **Faculty** member teaches courses in a department.

Each faculty member has a **Faculty ID**, **Name**, **Designation**, and **Email**.

➡ A faculty member works in one department but can teach multiple courses.

5. Enrollment

Enrollment represents the relationship between **Student** and **Course**.

This is a **many-to-many relationship**.

➡ Additional information such as **Semester** and **Grade** is stored for each enrollment.

➡ Enrollment must be represented as a **separate entity/table**.

Tasks

Part A: ER Diagram

Identify all **entities**, **attributes**, and **relationships**.

1. Draw an **ER diagram** representing the College Database.
2. Clearly show:
 - Primary keys
 - Relationships
 - Cardinality (1–1, 1–M, M–N)

♦ **Important:**

Use any ER diagram software to create the diagram, such as:

- draw.io (diagrams.net)

📌 **Hand-drawn ER diagrams are not allowed.**

Part B: Relational Tables

1. Convert the ER diagram into **relational tables**.
 2. For each table, specify:
 - Table name
 - Attributes
 - Primary Key
 - Foreign Key(s)
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Part C: SQL Implementation

1. Write **SQL CREATE TABLE statements** for all tables.
 2. Use appropriate:
 - Data types
 - Primary key constraints
 - Foreign key constraints
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Submission Instructions

- Submit the **ER diagram file/image**
 - Submit the **SQL file** containing all **CREATE TABLE** queries
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