

# Business Rules and ER Model

## Business Rules and E-R Model for Student Management System

### Entities and Attributes

#### 1. Student

- StudentID (Primary Key, INT)
- Name (FirstName, LastName) (VARCHAR(100))
- Email (VARCHAR(100))
- Phone (VARCHAR(15))
- DateOfBirth (DATE)
- Address (TEXT)

#### 2. Course

- CourseID (Primary Key, INT)
- CourseName (VARCHAR(100))
- Credits (INT)
- DepartmentID (Foreign Key, INT)

#### 3. Enrollment (Associative Entity between Student and Course)

- EnrollmentID (Primary Key, INT)
- StudentID (Foreign Key, INT)
- CourseID (Foreign Key, INT)
- EnrollmentDate (DATE)
- Grade (VARCHAR(2))

#### 4. Instructor

- InstructorID (Primary Key, INT)
- Name (VARCHAR(100))
- Email (VARCHAR(100))
- Phone (VARCHAR(15))
- DepartmentID (Foreign Key, INT)

#### 5. Department

- DepartmentID (Primary Key, INT)
- DepartmentName (VARCHAR(100))

- HeadOfDepartment (VARCHAR(100))

## Business Rules

### 1. Student - Enrollment Relationship

- A Student can enroll in multiple Courses.
- A Course can have multiple enrolled Students.

### 2. Course - Instructor Relationship

- A Course is taught by one Instructor.
- An Instructor can teach multiple Courses.

### 3. Course - Department Relationship

- A Course belongs to one Department.
- A Department can have multiple Courses.

### 4. Instructor - Department Relationship

- An Instructor belongs to one Department.
- A Department can have multiple Instructors.