

# Entity Relationship Diagram

## **Entity:**

1. A thing in the real world with an independent existence
2. Can be an object with physical existence( (House, Person,Teacher, Student)
3. Can also be Conceptual existence (Subject,job).

## **Q.1 College Management System**

**Conditions:** This system consists of important college aspects including Departments, Subjects, Instructors(Teachers), Students.

**There are some conditions or data kept in mind while making this ER Diagram which are as follows:**

1. Many Departments can offer any number of Subjects.
2. Many instructor can work in a department
3. An instructor can work only in one department
4. For each department there is a head instructor
5. Each Instructor can take any number of Subjects
6. A Subject can only be taken by only one instructor.
7. A student can enroll for any number of curses
8. Each Subject can have any number of students.

**Entities:**

1. Department
2. Subjects
3. Instructor
4. Student

**Attributes and Key Attributes:**

1. Department: Dept\_name, location
2. Subject: Subject\_Id, Subject\_name, Duration
3. Instructor: Inst\_ID, First\_name, Last\_name, Phone\_no, Salary
4. Student: Stud\_ID, First\_name, Last\_name, Subject\_enrolled

**Relationships:**

1. **One Department** offers **many Subjects**  
**One to Many (1:M)**
2. **One Department** has **Many Instructors**  
**One to Many (1:M)**
3. **One Department** has **One Head**  
**One to One(1:1)**
4. **One Subject** can be enrolled by **Many Students**  
**One student** can enroll **Many Subjects**  
**One to Many(1:M)**
5. **One Subject** has **One Instructor**  
**One Instructor** teaches **Many Subjects**

## ER Diagram:

