

# Jaypee Institute of Information Technology

## Database Systems & Web

15B11CI312

### Tutorial –4 (EER Diagram)

1. The relational database schema below is a part of a JIIT University database schema, where each student has at most one Faculty mentor and each course has at most one class representative and at most 2 faculty co-coordinators. All the employees of the JIIT have categorized into 3 categories i.e. Academic Staff, Admin staff and Supporting Staff. The academic staff includes faculties, Lab technicians, LRC staff. The Admin staff includes Registrar, Accounts, and HR department. There exist some other staffs like Peons, security guard and other who are in supporting staff. A sample schema is given below for student, course and enroll. Rest other schemas will be taken by assumption.

```
CREATE TABLE Student (  
  StudentId StudIdDomain PRIMARY KEY,  
  Name CharDomain NOT NULL,  
  NoOfPts PointDomain NOT NULL,  
  Tutor StudIdDomain REFERENCES Student(StudentId)  
);  
CREATE TABLE Course (  
  CourseId CharDomain PRIMARY KEY,  
  CourName CharDomain,  
  ClassRep StudIdDomain REFERENCES Student(StudentId)  
);  
CREATE TABLE Enrolled (  
  StudentId StudentIdDomain NOT NULL REFERENCES Student,  
  CourseId CharDomain NOT NULL REFERENCES Course,  
  InTermPts PointDomain NOT NULL,  
  PRIMARY KEY (StudentID, CourseId)  
);
```

Use EER notation as introduced in lectures. If you use a different notation, define it clearly in your answer.

- a) Map the part of the University relational database schema as defined above, to the entity relationship data model by drawing an EER diagram. State any assumption you made.
- b) Draw an EER diagram of the conceptual schema for another part of a

University database, described as follows:

- Academic staff, general staff and students are the only persons at the university.
- Each person is either an academic staff, or a general staff, or a student.
- A person is uniquely identified by a `PerId` (person's ID), and has a `Name`, and an `Address`. An `Address` is composed of `HouseNo`, `Street`, and `City`.
- A characteristic property of a student is that she/he has at least one `Major` and one `NoOfPts` (number of points) for each major.
- An academic staff has a `Position` and an `AcQual` (academic qualification).
- A general staff has a `GenPos` (general position).
- An academic staff teaches at most one course, whereas a student takes at least one course.
- A course is uniquely identified by a `CourId` (course ID), and has a `CourName` (course name).
- Each course is taught by at least one academic staff, and can be taken by many students, but there may be courses that are not taken by any students.
- Each course can use more than one textbook, but there may be courses with no textbook.
- A textbook is uniquely identified by the course which uses the book, and by an `OrdNo`. The attribute `OrdNo` is the ordinal number of the book in the list of the textbooks of a particular course. A book also has a `Title`.