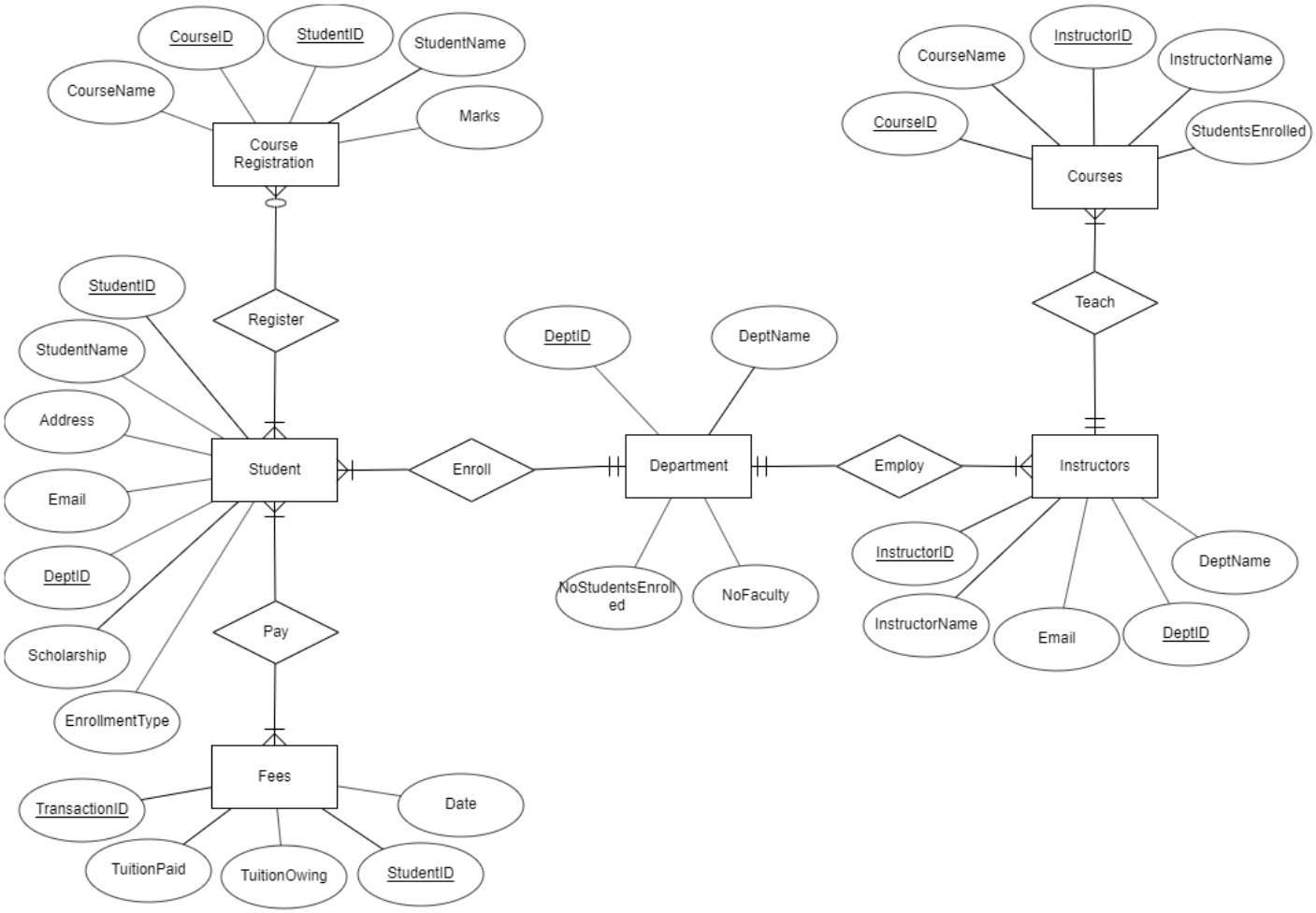
ER Diagram

Below is the Entity Relationship diagram for a student record management database. There are 5 entities in the database Student, Department, Instructors, Courses, Course Registration and Fees.



Student - The student entity will store all the personal information of students that are enrolled in the College or university. It consists of attributes such as StudentID, StudentName, Address, Email, DeptID, Scholarship and EnrollmentType. Each student is provided with a StudentID which is unique, similarly each department in which the student is enrolled in has a unique DeptID.

Some of the relationships that the student entity has with other entities are students are enrolled in a department, students register for courses and students pay fees. The ordinality and cardinality is indicated in the ER diagram. We can see that is mandatory for a student to enroll in a department and at most they can be enrolled in only one department. On the other hand, it is optional for student to be registered for courses and

they can register for many at once. Students must pay their fees to be part of the university, they can pay their fees in installment hence there may be many transaction for a single student.

Course Registration – This entity will posses the information of the students that are enrolled in courses and their marks scored. The attributes present are CourseID, CourseName, StudentID, StudentName and Marks. The Course Registraton entity has a relationship with the Students that has ordinality 1 and cardinality many meaning that at least one student must be registered for courses and at most many student can be registered.

Fees – This entity will posses attributes such as the TransactionID, TuitionPaid, TuitionOwing, StudentID and Date. It will track the fee payments made by the students. It has ordinality 1 and cardinality many, since fees must be paid by the student and they are paid by many students.

Department – The department entity will have department information such as the DeptID for each department. Each department must have students and will have many students. Similarly each department must have instructors and will have many instructors. Students are enrolled in a department and instructors are employed by a department.

Instructors – Like the student entity, the instructor will contain all the personal information of the instructors such as InstructorID, InstructorName, DeptID and email. Each and every instructor can be employed by only one department. Instructors must teach at least one course and at most many courses.

Courses – This entity will provide a list of all the courses offered. Some of the attributes that are associated with this entity are CourseID, CourseName, InstructorID, InstructorName, StudentsEnrolled. For this model I have considered that a course is taught by only one instructor hence the cardinality is 1, but it may be possible that a course is taught by more that one instructor. Like for example, a course can have one instructor that will give lectures and one that will conduct labs.