**Class 4: EER**

Name: ID: Date:

**Guidelines:** open notes, discussions are allowed.

1. Mark database entities, attributes and relations in the given requirements.

The university is organized into colleges (COLLEGE), and each college has a unique name (CName), a main office (COffice) and phone (CPhone), and a particular faculty member who is the dean of the college. Each college administers several academic departments (DEPARTMENT). Each department has a unique name (DName), a unique code number (DCode), a main office (DOffice) and phone (DPhone), and a particular faculty member who chairs the department. We keep track of the start date (CStartDate) when that faculty member began chairing the department.

A department offers several courses (COURSE), each of which has a unique course name (CoName), a unique code number (CCode), a course level (Level: this can be coded as 1 for freshman level, 2 for sophomore, 3 for junior, 4 for senior, 5 for graduate level), a course credit hour (Credits), and a course description (CDesc).

The database also keeps track of instructors (INSTRUCTOR); and each instructor has a unique identifier (Id), name (IName), office (IOffice), phone (IPhone), and rank (Rank); in addition, each instructor works for one primary academic department.

The database will keep student data (STUDENT) and stores each student’s name (SName, composed of first name (FName), middle name (MName), last name (LName)), student id (Sid, unique for every student), address (Addr), phone (Phone), major code (Major), and date of birth (DoB). A student is assigned to one primary academic department. It is required to keep track of the student’s grades in each section the student has completed. The database will also keep track of lab hours for engineering department students and internship hours for business department students.

Courses are offered as sections (SECTION). Each section is related to a single course, and a single instructor and has a unique section identifier (SecId). A section also has a section number (SecNo), semester (Sem), year (Year), classroom (CRoom: this is coded as a combination of building code (Bldg) and room number (RoomNo) within the building), and days/times (DaysTime: for example, ‘MWF 9 am-9.50 am’ or ‘TR 3.30 pm-5.20 pm’). The database keeps track of the students in each section, and the grade is recorded when available (this is a many-to-many relationship between students and sections).**Draw EER diagram:**

List the entities, attributes and attribute types:

|  |  |  |
| --- | --- | --- |
| **Entity Types** | **Attributes (Type:** Key, Composite, multivalued**)** | **Explanation** |
|  |  |  |

**Complete the diagram with entities and attributes:**

List relationships:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Relationship name** | **Relation between** | **Cardinality ratio and**  **Explanation** | | **Participation and**  **Explanation** | |
|  |  |  |  |  |  |

**Complete the diagram with entities, relations and relation attributes:**