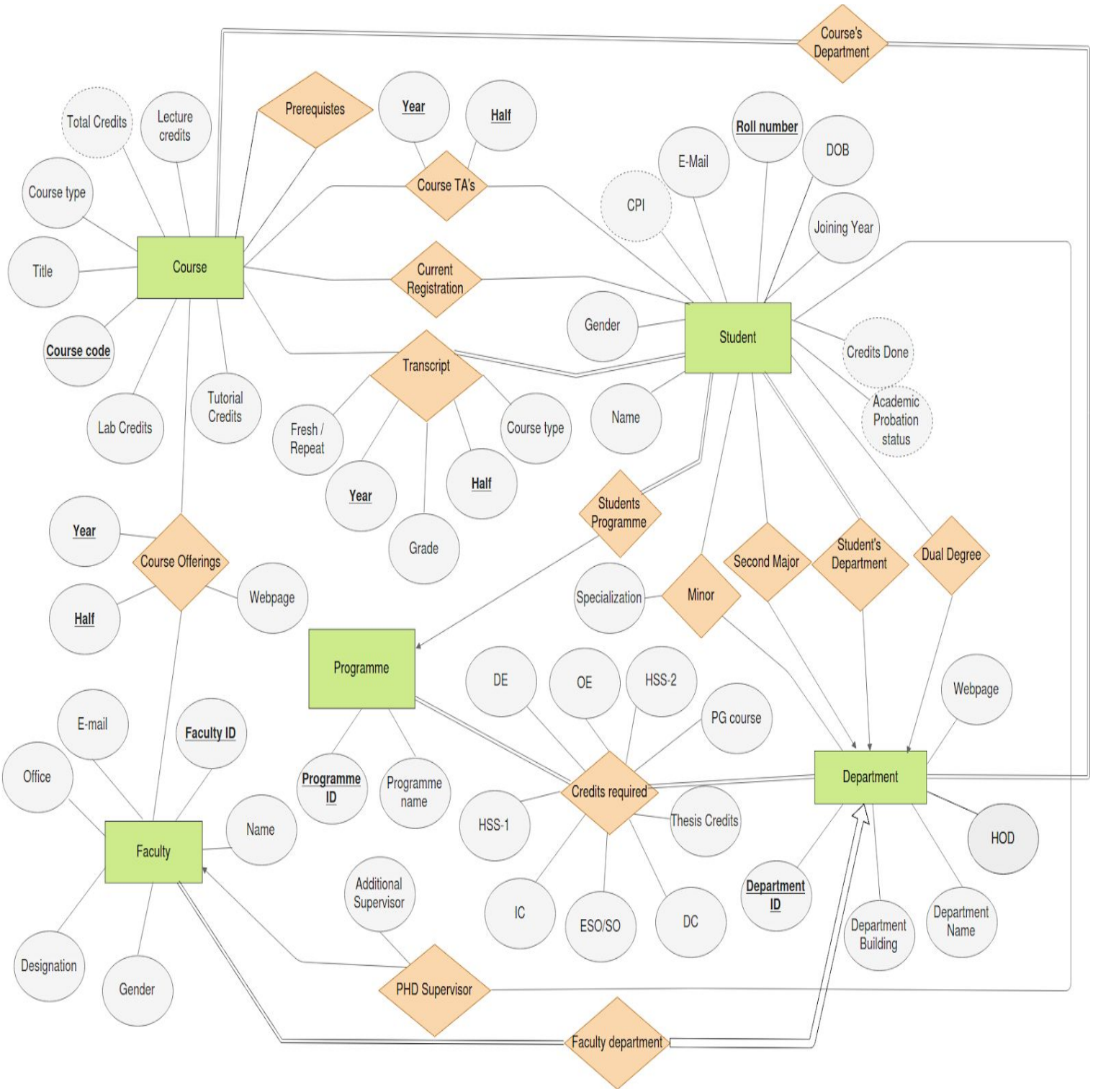
Assignment-1

Part-1) ER diagram of Academic system of IIT Kanpur. This ER model has 5 entities, 14 relationships.



Some information about the model-

1)In this ER model the entities are Faculty, Students,Course,Department and Programme type.
2)Programme type is B. Tech,M.Tech.,PHD..etc. The relation between Programme type and department is the template of the programme for a particular department which mentions the credits required of each type of courses to complete the programme.
3)Current registration is the list of courses a student has taken in the current semester. Transcript is record and performance of student in all his courses.
4)Course type is DE,OE,DC..etc, a department can offer a course as some type and a student may take as some other type, so it has been mentioned both as an attribute of a course and as part of transcript of a student.
5)A student has been given a parent department for a programme. The relations of dual degree, dual major and minor are partial relations which a student can take.
6) A PHD student requires a supervisor so a student has a relation with the faculty entity.
7) Each faculty and department are also given unique ID's by which they can be identified.

Constraints-

CPI- [0,10]
Grade-{A-F,S,X}
Faculty Id,Department ID,Programme ID,Roll Number,Course Code are unique
All web pages should be valid addresses.
Academic Probation Status-{Academic Probation,Academic Warning,Normal}
All credits values must be positive integers.
All date values must be in correct format.
Rest all values must have alphabetical stings.

Assumptions-

We assume that a student knows which courses he/she has to do for completing a minor, or some basket department electives.
We also assume that current registration relation will be emptied after every semester and transferred to the transcript relation. We also don't have the schedule of the courses in the table and assume that that the student knows the schedule of the courses(schedule means the time slot and the location at which the lecture will be held).
In the ER model the inapplicable fields will be filled with NULL/Invalid values.
We assume that supervisor is only for PHD students(NOT for M.Tech. ...etc students) and can be at most two.

Part-2)

Relational Model and schema-

The primary keys in the schema will be underlined. The foreign keys will be in italics.

1)**Course** (Course code,title,course type, total credits, Lecture credits, Tutorial credits ,Lab credits)
2)**Faculty** (Faculty id, name, designation,gender,office, E-mail)
3)**Department** (department ID, department name, department building.HOD,Webpage)
4)**Programme** (programme ID, programme name)
5)**Student** (Roll number, name, gender, CPI, E-mail, Academic probation status, credits done, DOB, joining year)
6)**Course Offerings**(*Course Code,Faculty ID,*Year,Half,Webpage)
7)**Current registration**(*roll number, course code*)
8)**Prerequisites** (*Course code, prerequisite course code*)
9)**Credits required**(*Programme ID, Department ID*, IC, DC ,DE ,OE ,ESO/SO ,HSS-1, HSS-2, thesis ,PG course)
10)**Second Major**(*roll number, department id*)
11)**Dual degree**(*roll number, department id*)
12)**Minors** (*roll number, department id*, Specialization)
13)**Student's Department**(*Roll number,department ID*)
14)**PHD Supervisor**(*Roll number, Faculty ID*,Additional supervisor)
15)**Faculty Department** (*Faculty ID, department id*)
16)**Course TA**(*course code, roll number*,year,half)
17)**Course's Department**(*Course code,department ID*)
18)**Student's Programme**(*programme ID,roll number*)
19)**Transcript**(*Course code,Roll number*,Year,Half,Grade,Course type,Fresh/Repeat)