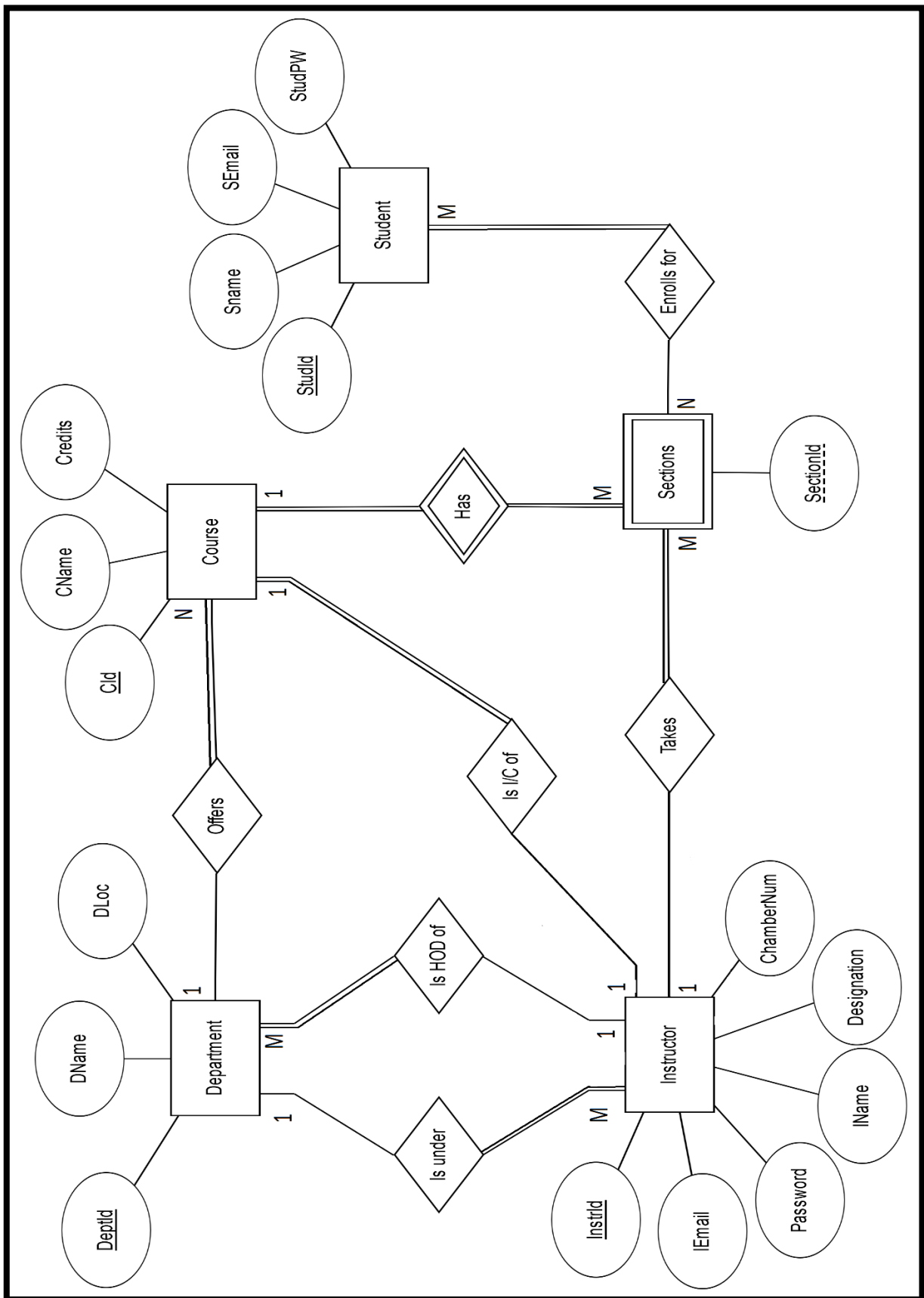


# Course Management System

# ER Diagram:



# ER Diagram to Relational Model:

## 1. DEPARTMENT:

DeptId (Primary Key)

Dname

DLoc

HOD (Foreign Key referencing INSTRUCTOR)

## 2. INSTRUCTOR:

InstrId (Primary Key)

IEmail (Unique Key)

Password

IName

Designation

ChamberNum

DNum (Foreign Key referencing  
DEPARTMENT)

## 3. COURSE:

CId (Primary Key)

Cname (Candidate Key)

Credits

InstrIC (Foreign Key referencing INSTRUCTOR)

## 4. SECTION:

SectionId (Partial Key)

Courseld (Foreign Key referencing to COURSE)

InstrId (Foreign Key referencing to  
INSTRUCTOR)  
Primary Key = {SectionId, CourseId}

5. STUDENT:

StudId (Primary Key)  
SName  
SEmail (Unique Key)  
StudPW

6. STUDENTCOURSE:

StudId (Foreign Key referencing to STUDENT)  
CourseId (Foreign Key referencing to COURSE)  
SectionId (Foreign Key referencing to  
SECTIONS)  
Primary Key = {StudId, CourseId, SectionId}

# Functional Dependencies:

## 1. DEPARTMENT:

DeptId  $\rightarrow$  DName, Dloc, HOD

## 2. INSTRUCTOR:

InstrId  $\rightarrow$  IName, IEmail, Designation

InstrId  $\rightarrow$  ChamberNum, DNum, Password

## 3. COURSE:

Cid  $\rightarrow$  Cname, Credits, InstrIC

Cname  $\rightarrow$  Credits, InstrIC

## 4. SECTIONS:

SectionId, CourseId  $\rightarrow$  InstrId

## 5. STUDENT:

StudId  $\rightarrow$  SName, SEmail, StudPW

## 6. STUDENTCOURSE:

Null

# Normalization:

## 1. DEPARTMENT:

No Partial Dependencies → 2NF

No Transitive dependencies → 3NF

Already in BCNF

## 2. INSTRUCTOR:

No Partial Dependencies → 2NF

No Transitive dependencies → 3NF

Already in BCNF

## 3. COURSE:

No Partial Dependencies → 2NF

No Transitive dependencies → 3NF

Already in BCNF

## 4. SECTIONS:

No Partial Dependencies → 2NF

No Transitive dependencies → 3NF

Already in BCNF

## 5. STUDENT:

No Partial Dependencies → 2NF

No Transitive dependencies → 3NF

Already in BCNF

## 6. STUDENTCOURSE:

Null