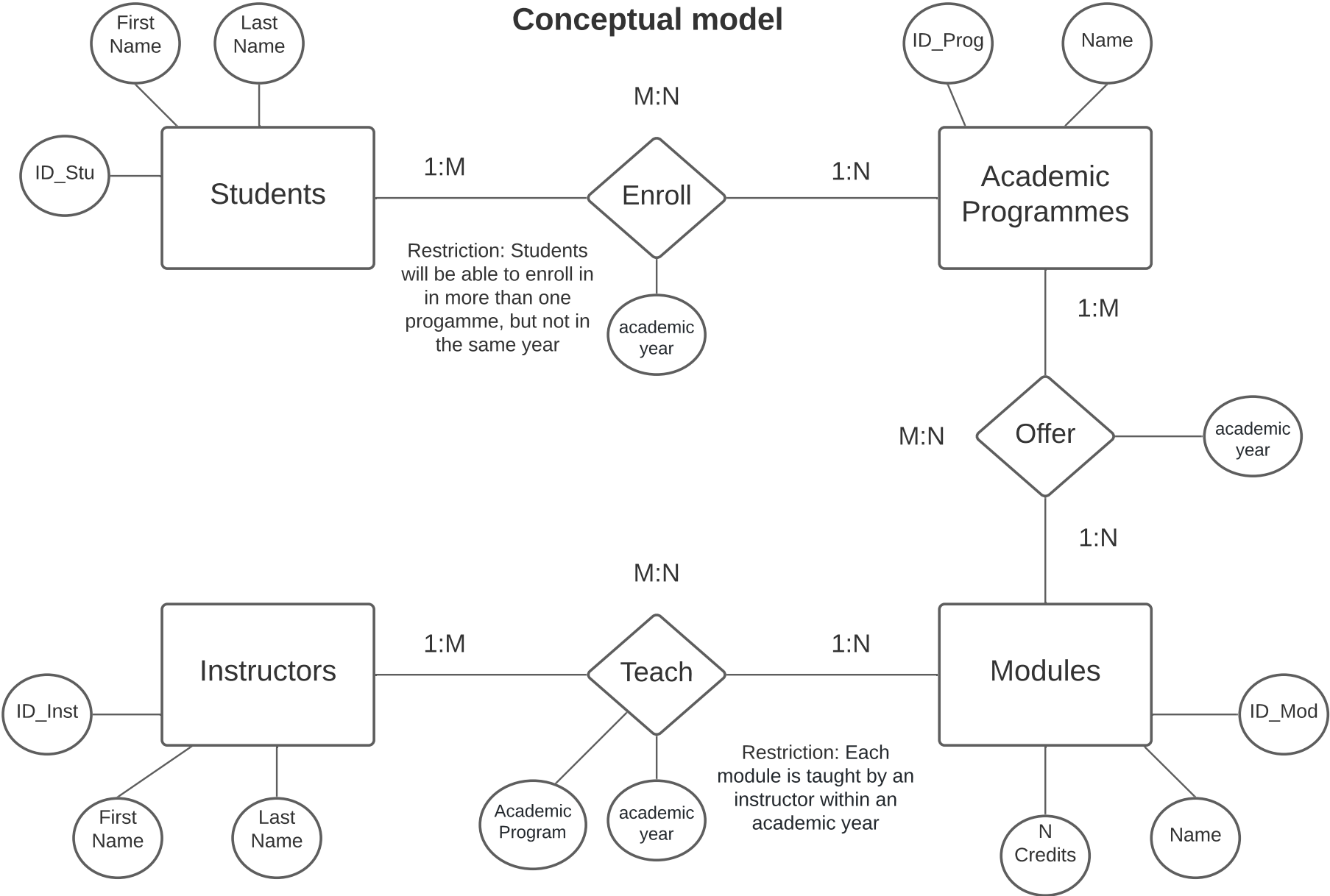
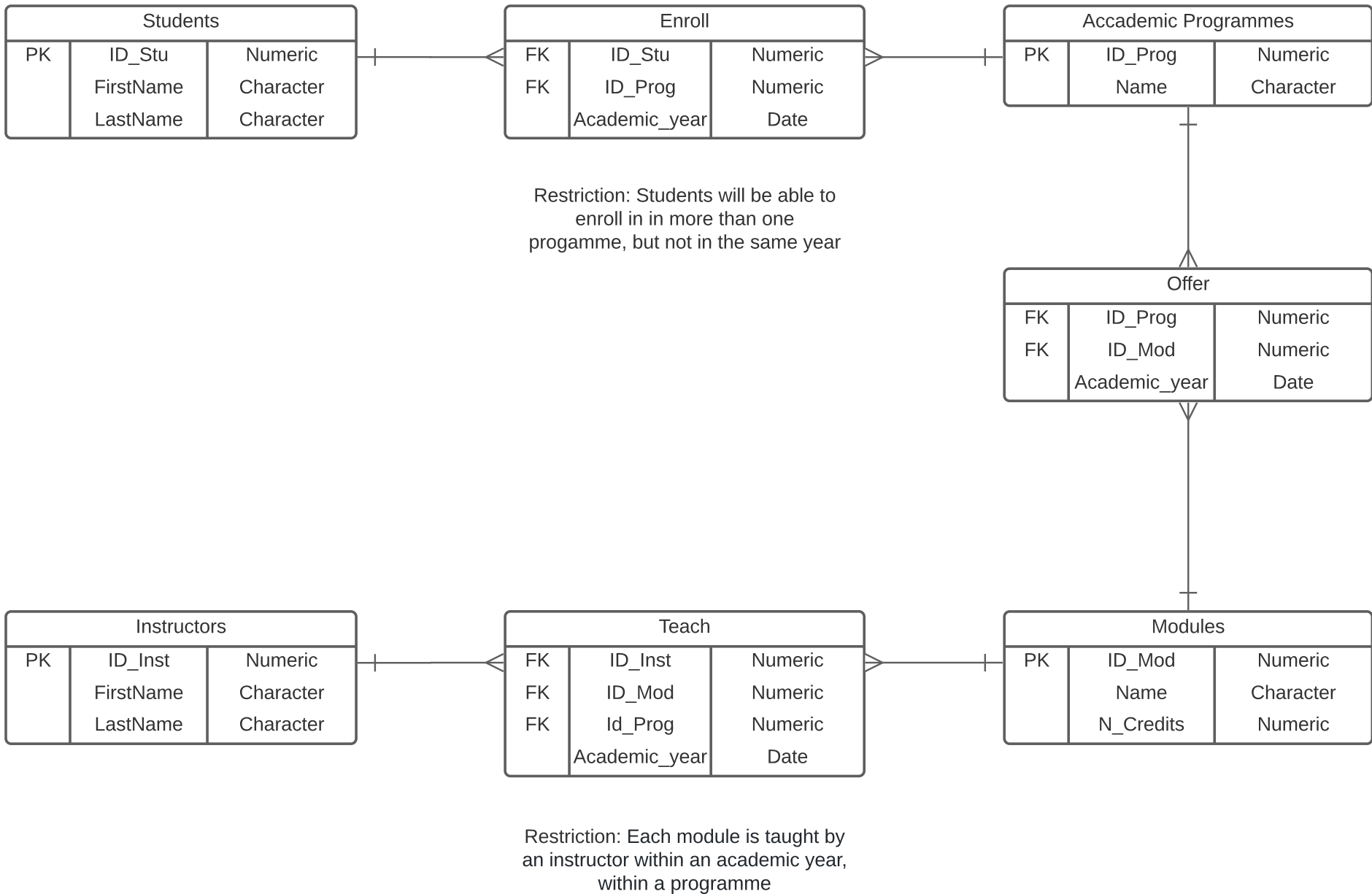


Conceptual model



# Logical model



## **Entities**

Entities represent objects or things of interest: Students, Academic Programmes, Modules, Instructors

## **Attributes**

Attributes are facts, aspects, properties, or details about an entity

- Students have: ID, First Name, Last Name
- Academic Programmes have: ID, Name
- Modules have: ID, Name, N Credits
- Instructors have: ID, First Name, Last Name

## **Relationships**

Relationships are an association between two or more entities

- Enroll: Each Student takes several Academic Programmes (not in the same year)  
I add to this relationship the attribute academic\_year
- Offer: Each Academic Programm offers several Modules  
I add to this relationship the attribute academic\_year
- Teach: Each Instructor teaches several Modules (Each module is taught by an instructor within an academic year, within a programme)  
I add to this relationship the attribute academic\_year and the academic programm

## **Cardinality Ratios**

Each entity in a relationship can participate in zero, one, or more than one instances of that relationship

- Enroll (M:N):
  - o Each student can enroll in several academics programmes (1:M) (not in the same year)
  - o Multiple students can enroll in one program (1:N)
- Offer (M:N)
  - o Each academic program offers several modules (1:M)
  - o Each module can be offered by various programs (1:N)
- Teach (M:N)
  - o Each instructor teaches several modules (1:M)
  - o One module can be taught by multiple teachers (1:N) (Each module is taught by an instructor within an academic year, within a programme)