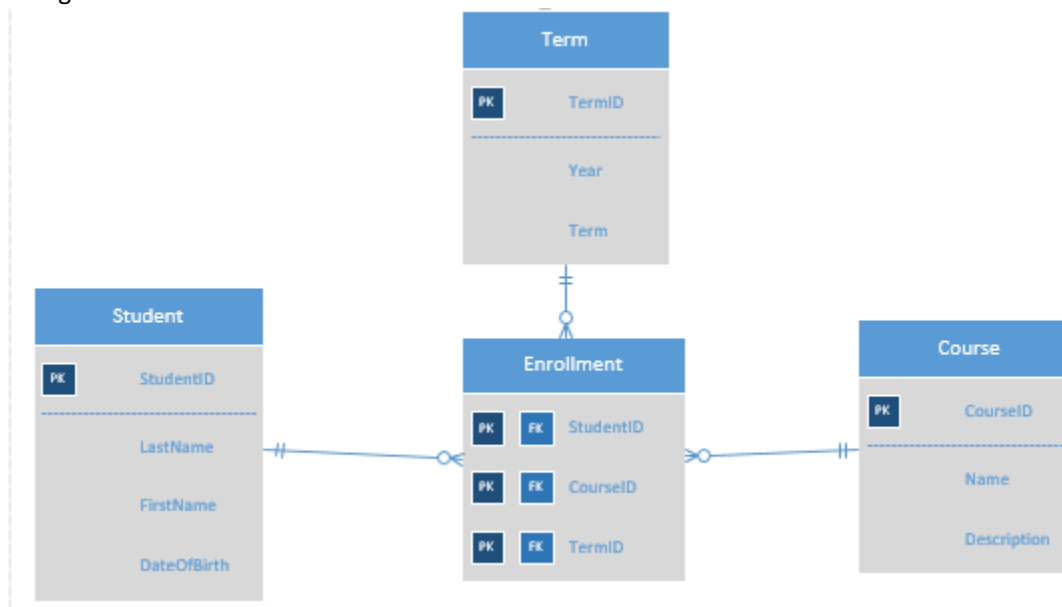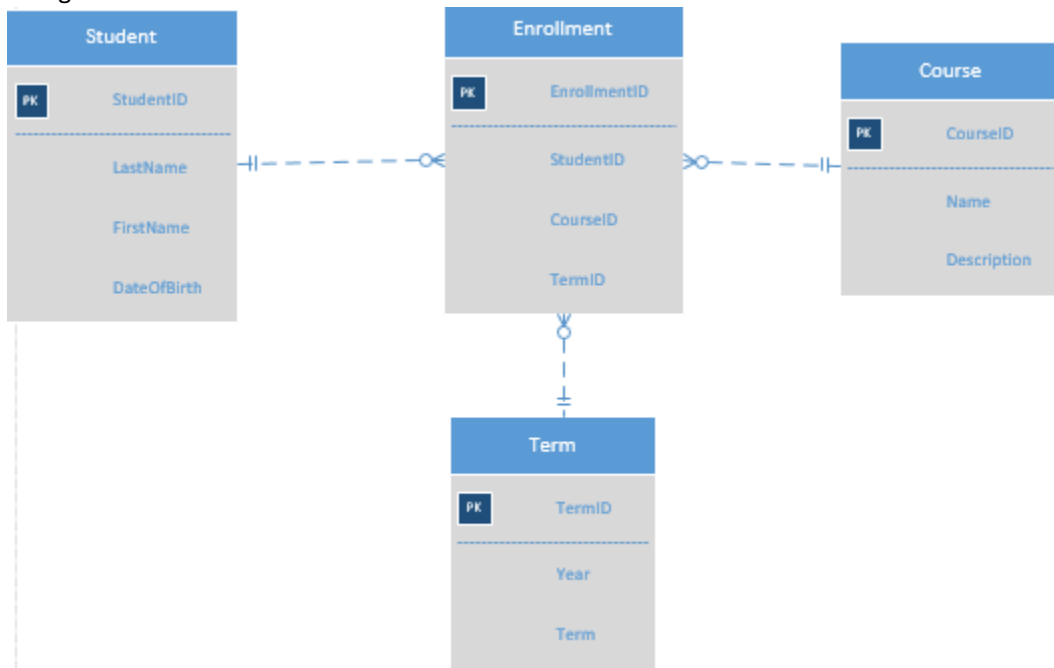Design A:

Design B:

The design A has 3 identifying relationships for the Enrollment entity. It means an enrollment record cannot exist unless there is a matching record in Term, Student and Course. Enrollment has a composite primary key, consisting of StudentID, CourseID and TermID.

In the design B, we use a surrogate key for the Enrollment entity and turn the identifying relationships into non-identifying relationships. What constraints do we need to implement in design B to ensure the data integrity maintained in design A is still enforced in design B? Please explain in details.