## Initial mapping

ISBN (id, number, itemNo)  
Primary Key id  
Alternate Key number  
Foreign Key itemNo references Book(itemNo)  
ON UPDATE CASCADE, ON DELETE CASCADE

1 **Address**(addressId, unit, streetNumber, streetName, suburb, state, postcode, country)

**Primary Key** addressId

2 **Campus**(campusId, name, addressId)

**Primary Key** campusId

**Foreign Key** addressId **references** Address(addressId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

3 **Facility**(facilityId, name, campusId)

**Primary Key** facilityId

**Foreign Key** campusId **references** Campus(campusId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

**Person**(personId, firstName, lastName, contactNumber, qualification, highestCurrentEducation, isStudent, isStaff, addressId)

**Primary Key** personId

**Foreign Key** addressId **references** Address(addressId)

ON UPDATE NO ACTION, ON DELETE SET NULL

7 **Room**(roomNumber, capacity, type, facilityId)

**Primary Key** roomNumber, facilityId

**Foreign Key** facilityId **references** Facility(facilityId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

8 **DepartmentAssignment**(personId, departmentId, startDate, endDate, role)

**Primary Key** personId, departmentId, startId

**Foreign Key** departmentId **references** Department(departmentId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

**Foreign Key** personId **references** Staff(personId)

ON UPDATE CASCADE, ON DELETE CASCADE

9 **ProgramConvenor**(personId, academicProgrammeId, startDate, endDate)

**Primary Key** personId, academicProgrammeId, startDate

**Foreign Key** personId **references** Staff(personId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

10 **TimeSlot**(timeSlotId, day, startTime, endTime, roomId, personId, courseId, timePeriodId, campusId)

**Primary Key** timeSlotId

**Foreign Key** roomId **references** Room(roomId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

**Foreign Key** personId **references** Staff(personId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

**Foreign Key** courseId **references** CourseOffering(courseId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

**Foreign Key** timePeriodId **references** CourseOffering(timePeriodId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

**Foreign Key** campusId **references** CourseOffering(campusId)

ON UPDATE NO ACTION, ON DELETE NO ACTION

11 **Department**(departmentId, name, description, contactNumber)

**Primary Key** departmentId

**Alternate Key** name

12 **AcademicProgramme**(academicProgrammeId, name, programTotalCredits, level, certificationAcheived)

**Primary Key** academicProgrammeId

**Alternate Key** name

13 **CourseAcademicProgrammeAssignment**(courseId, academicProgrammeId , startDate, endDate, type)

**Primary Key** courseId, academicProgrammeId, startDate

**Foreign Key** courseId **references** Course(courseId)

ON UPDATE NO ACTION, ON DELETE CASCADE

**Foreign Key** academicProgrammeId **references** AcademicProgramme(academicProgrammeId)

ON UPDATE NO ACTION, ON DELETE CASCADE

14 **Course**(courseId, name, numberOfcredits, description)

**Primary Key** courseId

**Alternate Key** name

15 **MajorMinor**(code, name, description, totalCredits, conditions)

**Primary Key** code

MajorMinorConditions(code, condition)

**Primary Key code, condition**

16 **StudentEnrolment**(academicProgrammeId, personId, timePeriodId, enrolmentDate, completionDate)

**Primary Key** academicProgramId, personId, timePeriodId

**Foreign Key** timePeriodId **references** TimePeriod(timePeriodId)

ON UPDATE NO ACTION, ON DELETE CASCADE

**Foreign Key** personId **references** Student(personId)

ON UPDATE NO ACTION, ON DELETE CASCADE

**Foreign Key** academicProgrammeId **references** AcademicProgramme(academicProgrammeId)

ON UPDATE NO ACTION, ON DELETE CASCADE

17 **StudentRegistersInCourse**(personId, courseId, timePeriodId, finalMark, finalGrade)

**Primary Key** personId, courseId, timePeriodId

18 **CourseOffering**(courseId, timePeriodId, campusId, courseCoordinator)

**Primary Key** courseId, timePeriodId, campusId

**Foreign Key** courseId **references** Course(courseId)

ON UPDATE NO ACTION, ON DELETE CASCADE

**Foreign Key** campusId **references** Campus(campusId)

ON UPDATE NO ACTION, ON DELETE CASCADE

**Foreign Key** timePeriodId **references** TimePeriod(timePeriodId)

ON UPDATE NO ACTION, ON DELETE CASCADE

**Foreign Key** courseCoordinator **references** Staff(personId)

ON UPDATE NO ACTION, ON DELETE CASCADE

19 **TimePeriod**(timePeriodId, year, type, semester/trimesterNumber)

**Primary Key** timePeriodId

## Normalisation

INF

MajorMinor wasn’t in 1NF because the conditions attribute could be multivalued. To make this atomic a separate table is created with the MajorMinor code and a specific condition as primary key.

2NF

Every relation is in 2NF because every non-candidate is fully functionally dependent on any candidate key.

3NF

The table is in 3NF because there are no non-candidate keys that are transitively dependent on candidate keys.