

## Lab Book 4

### Entity Relationship Modelling

**Note:** To complete this lab book, multiple iterations of your ER diagram will need to be included at different stages of the design process. A single completed ERD is not sufficient.

Any diagrams must be created using [www.draw.io](http://www.draw.io) and the Chen notation must be used. The diagrams must be included in this word document for submission. When you have your diagram drawn using draw.io, this can be downloaded as a png image to include in this Word document via:

File > Download As > Portable Network Graphic (.png)

It is expected that the diagrams will include Entities, Relationships, Cardinality and Optionality as in the sample below. To draw these diagrams, the “Rectangle”, “Rhombus”, “Line”, “Link” and “Simple Text” elements in the General section of [www.draw.io](http://www.draw.io) are all that is needed.

### Description

A database is needed to organise the School’s timetable. A lecturer, identified by his or her number, name and room number, is responsible for organising a number of modules across a range of programmes. Each module has a unique code and a name and each module can involve a number of lecturers who deliver part of it. A module is composed of a series of lectures and because of economic constraints and common sense; sometimes lectures on a given topic can be part of more than one module. A lecture has a time, room and date. One lecturer delivers each lecture and a lecturer may deliver more than one lecture. Students, identified by student number and name, can attend lectures and a student must be registered for a number of modules. We also need to store the date on which the student first registered for that module. Finally, each programme has a tutor who organises extra classes where necessary for a number of students and each student has only one tutor.

Q1. Provide a completed ER diagram for the above description of a database need.

[Question 1 to 9 from last week's lab will need to be completed on paper in order to provide a completed diagram below drawn using draw.io; you need not show each step individually]

[INSERT ANY ASSUMPTIONS MADE HERE]

[INSERT FINAL DIAGRAM HERE]

Q2. Supply suitable CREATE TABLE statements to implement the diagram you created in Q1. Care should be taken to include the necessary foreign key constraints to record the various relationship types in your above diagram.

For each table you create, both the SQL statement(s) and a screenshot of the table creation should be supplied (showing any foreign key constraints).

[INSERT SQL STATEMENTS AND SCREENSHOTS HERE]