

ITB411 DATA MODELLING

Assignment 1

Conceptual & Logical Data Modelling

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# **Introduction**

This report aims to outline the logical data model for Endeavour Polytechnic's Student Information Management System. This entity relationship diagram (ERD) was developed using Barker's notation. A number of assumptions were made during the design of the database, which are listed in the document. ERDish statements are also included in the documents to make the relationships clearer and more precise.

# **Entity-Relationship Diagram**

**Diagram

Description automatically generatedERDish Statements**

1. Each **course** must contain one or more **competency units**
2. Each **competency unit** must be used in one and only one **course**
3. Each **competency unit** must consist of one or more **student grades**
4. Each **student grade** must belong to one and only one **competency unit**
5. Each **course** must consist of one or more **students**
6. Each **student** must be enrolled on one and only one **course**
7. Each **student** must be assigned one or more **student grades**
8. Each **student grade** must be assigned to one and only one **student**
9. Each **department** must be responsible for one or more **courses**
10. Each **course** must belong to one and only one **department**
11. Each **lecturer** must work in one and only one **department**
12. Each **department** may hire one or more **lecturers**
13. Each **Adjunct lecturer** must be mapped to one or more **skill mapping**
14. Each **skill mapping** belongs to one and only one **Adjunct lecturer**
15. Each **skill** is assigned to one or more **skill mapping**
16. Each **skill mapping** contains one and only one **skill**
17. Each **full-time lecturer** manages one and only one **department**
18. Each **full-time lecturer** manages one and only one **course**
19. Each **course** is managed by one and only one **full-time lecturer**
20. Each **department** is managed by one and only one **full-time lecturer**
21. Each **lecturer** must be given one or more **tutoring schedules**
22. Each **tutoring schedule** must be assigned to one and only one **lecturer**
23. Each **competency unit** must be a part of one or more **tutoring schedules**
24. Each **tutoring schedule** belongs to one and only one **competency unit**
25. Each **competency unit** must be graded using one or more **assessment schemes**
26. Each **assessment scheme** must be assigned to one and only one **competency unit**

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# **Assumptions**

1. The student is assigned the admission number only after he/she is enrolled in the course.
2. The student's name is split into first name, middle name, and last name for more efficient searching and sorting.
3. The start and end dates of the course are stored under the Student entity, so if the student fails the competency unit only their end date is updated.
4. Since both the competency unit code and the competency unit title are unique, they are used as a composite key, with the competency unit code as the primary key and the competency unit title as the secondary key.
5. Since there is a many-to-many relationship (m:m) between Lecturer and competency an intersection entity called tutoring schedule was created containing the unique identifier called the tutoring schedule id, and 3 attributes called Date along with the start and end times for the competency units on that day.