

MODULE DESCRIPTOR

Module Title

Database Management

Reference	CB2008	Version	2
Created	February 2024	SCQF Level	SCQF 8
Approved	July 2018	SCQF Points	15
Amended	April 2024	ECTS Points	7.5

Aims of Module

This module aims to provide students with the ability to describe the fundamental principles of database design and manipulation using the relational model. The students will practice implementing database applications in a relational database management system (RDBMS) and comparing diverse database architecture models, including relational, graph, and NoSQL paradigms.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Show an understanding of different data types and structures
- 2 Plan and undertake the design of relational and non-relational databases
- 3 Infer the most appropriate database platform for a given data management task
- 4 Practice the design, implementation and querying of a database

Indicative Module Content

Introduction to database programming. Conceptual modelling: an introduction to simple entity-relationship modelling. The relational database model: tables, relationships, keys, joins and normalisation; creating tables using SQL. Database queries: an introduction to SQL queries, including the use of sub-queries. DBMS principles and structure. Relational, graph, and NoSQL databases and use cases. Deciding and applying selection criteria. Practical exercises in database development. The module engages students with UNESCO's Education for Sustainable Development Normative competence to understand and question database management principles and practices. Students will also develop Systems Thinking competence, enabling them to design and develop appropriate database management systems to address business data needs and requirements.

Module Delivery

The module is delivered via workshops, industry speakers, case studies, lab tutorials and online exercises.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	36	N/A
Non-Contact Hours	114	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	Individual Portfolio Assessment comprising of a database and a reflective report				

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

The calculation of the overall grade for this module is based on 100% weighting of C1. An overall minimum grade D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
A	The student needs to achieve an A in C1.
B	The student needs to achieve a B in C1.
C	The student needs to achieve a C in C1.
D	The student needs to achieve a D in C1.
E	The student needs to achieve an E in C1.
F	The student needs to achieve an F in C1.
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 BIERER, D. 2020. Learn MongoDB 4.x. Packt Publishing
- 2 FAUTH, D. and HOBERMAN, S. 2023. Neo4J data modeling. Sedona, AZ: Technics Publications
- 3 GRIPPA, V and KUZNICHEV, S. 2021. Learning MySQL : get a handle on your data 2nd edition. Beijing: O'Reilly.
- 4 HARRINGTON, J. L. (2016) *Relational database design and implementation*. Fourth edition. Amsterdam; Boston: Morgan Kaufmann/Elsevier
- 5 KEMPER, C. (2015). Beginning Neo4j. New York: Springer
- 6 LAKE, P. and CROWTHER, P. (2013). *Concise Guide to Databases*. London: Springer
- 7 PLUGGE, E., MEMBREY, P. and HAWKINS, T. (2013). *The definitive guide to MongoDB*. Second edition. New York: Apress
- 8 ROCHKIND, M. (2013). *Expert PHP and MySQL*. New York: Springer