# UNIVERSITY OF NORTHAMPTON

# MODULE SPECIFICATION

This document forms the definitive overview as to the nature and scope of this module and is used in the University’s quality assurance processes. The information in this document cannot be changed without approval (except for the Indicative Content).

[A glossary of key terms is available.](https://www.northampton.ac.uk/ilt/current-projects/defining-contact-time/types-of-student-contact-time/)

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| **FACULTY** | Faculty of Art, Science & Technology |
| **SUBJECT AREA** | Technology |
| **SUBJECT FIELD** | Computing |
| **MODULE TITLE** | Modern Databases |

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| **MODULE CODE** | CSY3059 |
| **LEVEL** | 6 |
| **CREDIT VALUE** | 20 |
| **MODULE LEADER** | Dr James Xue |

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| **DELIVERY MODE(S)** | Standard |
| **DELIVERY LOCATION(S)** | UON |

**PRE-REQUISITES:**

None

**CO-REQUISITES:**

None

**RESTRICTIONS:**

None

**SUPPLEMENTARY REGULATIONS**:

This module has supplementary regulations No

**MODULE OVERVIEW:**

The purpose of this module isto study advanced/latest database topics. The module focuses primarily on NoSQL databases (e.g., graph and document databases), from designing and creating to querying the databases.

**INDICATIVE CONTENT:**

* NoSQL (modern) databases – comparison of various NoSQL database models and their application scenarios.
* Graph databases (e.g., Neo4j)
* Cypher Query Language
* Document databases (e.g., MongoDB)
* Column databases (e.g., Cassandra)
* Security in database systems
* Distributed data storage, query and processing
* Transaction management, concurrency control and failure recovery
* Data warehousing
* Database connectivity using APIs

**LEARNING OUTCOMES:**

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| **Module Learning Outcome** |
| **On successful completion of the module with limited guidance, students will be able to:** |
| **Subject-Specific Knowledge, Understanding & Application** |
| 1. Explain major changes in database structure, database system requirements and database technology from earlier relational database systems. |
| 1. Select and explain several different NoSQL databases (e.g., graph databases, document databases), various data models and their fundamental differences to earlier database systems (e.g., RDBMS); justify and apply appropriate models for a number of application scenarios. |
| 1. Critically apply relevant skills of DBMS techniques for analysing given task, designing and creating an appropriate database model, writing and executing high-level queries. |
| 1. Extend knowledge of other aspects modern database systems such as database transaction management, query processing, security, etc. |

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| **Changemaker & Employability Skills** |
| 1. Reflect on and critique own work and identify areas for further improvement. |
| 1. Document work in such a way as to enable understanding and engagement by academic, specialist and non-specialist audiences for complex concepts, purposes, topics, situations |

**TYPICAL LEARNING, TEACHING AND ASSESSMENT HOURS (for the module as delivered on-site at the University of Northampton):**

[View this table on how learning, teaching and assessment hours map to the KIS Categories.](https://www.northampton.ac.uk/ilt/current-projects/defining-contact-time/kis-guidance/)

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| **Learning and teaching information for this module when delivered off-site by UN partners is available from the partner institution’s NILE site (or equivalent). Any variation in study hours must be approved by the University of Northampton before students are enrolled, ensuring that study hours provision is always appropriate to support student achievement of the module learning outcomes.** |

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| **Learning, Teaching and Assessment activities** | **Study hours** |
| **Contact hours: (total)**  Comprising face-to-face and online contact hours as follows: | **60** |
| * **Face-to-face (total) -** this may include the following: * Face to face interactive small group session (generic space in groups of approx. 30 e.g. seminars/workshops/tutorials) * Specialist space (e.g. laboratories, studio space) | 48 |
| * **Online contact hours** **(total)**  (comprising online activities with mediated tutor input) | 12 |
| **Guided independent study hours  (including hours for assessment preparation)** | **140** |
| **Module Total** | **200** |

**ALIGNMENT OF LEARNING OUTCOMES AND ASSESSMENTS:**

**University of Northampton:**

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| **Assessment Activity** | | | **Learning Outcomes** | **Weighting (%)** |
| **Code** | **Assessment Type** | **Assessment Deliverables** |  |  |
| AS1 | Portfolio | A collection of weekly words and reflections (1200 words) | a, b, d, e | 30% |
| AS2 | Assignment | Technical report (2800 words) | b, c, f | 70% |

The assessment items listed above are graded and contribute to the overall module grade (assessment *of* learning). In addition, there are opportunities for formative assessment (assessment *for* learning), which are ungraded, to support students in achieving the module learning outcomes. These are NOT listed.

**APPROVAL/ REVIEW DATES:**

**Version: 1 (was CSY3024)**

Date of approval: