



## MODULE SPECIFICATION

Part 1: Information			
Module Title	Data Management		
Module Code	UFCE8K-15-M	Level	Level 7
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Computer Science and Creative Technologies
Department	FET Dept of Computer Sci & Creative Tech		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p><b>Educational Aims:</b> See Learning Outcomes</p> <p><b>Outline Syllabus:</b> Overview of data management. Methods of data organisation and access. From files to databases. Database architectures. Database Management Systems (DBMS). Distributed databases and distributed DBMS.</p> <p>Database design methods and methodology. Fact finding and requirements determination prior to design. Conceptual, logical, and physical design. Data analysis and design within systems analysis and design. Database design within a system development methodology. Entity Modelling. Entities, attributes and relationships. E-R diagramming. UML notation for ER diagrams.</p> <p>Relational modelling. Tables, relations, attributes, and normalisation. Relational algebra and calculus.</p> <p>SQL: the Structured Query Language. Syntax and application.</p> <p>Object-oriented approaches. Classes and instances; association and aggregation. Generalisation and inheritance. Object-relational DBMSs.</p>

## STUDENT AND ACADEMIC SERVICES

Data management in the organisational context. Database administration and management. Overview of database application areas. Introduction to, and uses and characteristics of: knowledge bases and knowledge management systems (KBS/KMS); online analytical processing (OLAP); data warehouses; data mining.

Developments in database systems. WWW as an emerging platform for database applications. XML and query languages for XML. Multimedia databases. Document management systems and digital libraries. Spatial and temporal databases. Active databases. Mobile databases

**Teaching and Learning Methods:** The module provides an overview of contemporary frameworks and practices in data management, with a central focus on developing skills in data modelling, small-scale database design and implementation, and SQL.

Lectures are used to present and highlight major concepts and approaches to data analysis and design and data management. Additional detail is provided in online notes, readings, and other indicated sources.

Practical exercises are emphasised in the tutorial sessions. The exercises are designed to exemplify and reinforce the theoretical content and develop students' practical skills through use of data management software. Data analysis and design methods are taught using case studies based on realistic industrial examples, and with reference to current practices and emerging standards.

### Part 3: Assessment

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First Sit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	50 %	Online Examination (3 hours) 24 hour window
Set Exercise - Component B		50 %	Database design exercise
Resit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	50 %	Online Examination (3 hours) 24 hour window
Set Exercise - Component B		50 %	Database design exercise

### Part 4: Teaching and Learning Methods

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Learning Outcomes	On successful completion of this module students will achieve the following learning outcomes:	
	<b>Module Learning Outcomes</b>	<b>Reference</b>
	Understand and use the Relational Model of Data	MO1
	Understand, evaluate & apply a range of data query languages: SQL, XQUERY, XPATH & ETL tools.	MO2
	Design & develop a range of data models & schemas: XSD, ER, NoSQL(DOM, JSON document etc.).	MO3

## STUDENT AND ACADEMIC SERVICES

	Understand enterprise data management methods & strategies including data cleansing, backup & recovery, security, replication, clustering, warehousing & multi-modal distributed cloud based data grids.	MO4
	Appreciate & critically reflect on the web of data and its value in use (transactional, social, scientific etc.) as well as its possible panoptic consequences (surveillance issues, privacy & ownership concerns etc.).	MO5
Contact Hours	<b>Independent Study Hours:</b>	
	Independent study/self-guided study	114
	<b>Total Independent Study Hours:</b>	114
	<b>Scheduled Learning and Teaching Hours:</b>	
	Face-to-face learning	36
	<b>Total Scheduled Learning and Teaching Hours:</b>	36
	<b>Hours to be allocated</b>	150
	<b>Allocated Hours</b>	150
Reading List	<p>The reading list for this module can be accessed via the following link:</p> <p><a href="https://uwe.rl.talis.com/index.html">https://uwe.rl.talis.com/index.html</a></p>	

### Part 5: Contributes Towards

This module contributes towards the following programmes of study: