MODULE SPECIFICATION

Part 1: Information			
Module Title	Data Management		
Module Code	UFCE8K-15-M	Level	M
For implementation from	September 2019		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	FET	Field	Computer Science and Creative Technologies
Department	Computer Science and Creative Technologies		
Contributes towards	MSc Applied Geographical Information Systems MSc Information Technology MSc Financial Technology		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	n/a		

Part 2: Description

You will cover:

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.

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.

Relational modelling. Tables, relations, attributes, and normalisation. Relational algebra and calculus.

SQL: the Structured Query Language. Syntax and application.

Object-oriented approaches. Classes and instances; association and aggregation. Generalisation and inheritance. Object-relational DBMSs.

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

Identify final timetabled piece of assessment (component and element)	Component A	
% weighting between components A and B (Standard modules only)	**A:** **50%**	**B**: **50%**

First Sit

Component A (controlled conditions) **Description of each element**	**Element weighting (as % of component)**
1. Examination (3 hours)	100%
Component B **Description of each element**	**Element weighting (as % of component)**
1. Database design exercise	100%

Resit (further attendance at taught classes is not required)

Component A (controlled conditions) **Description of each element**	**Element weighting (as % of component)**
1. Examination (3 hours)	100%
Component B **Description of each element**	**Element weighting (as % of component)**
1. Database design exercise	100%

Part 4: Learning Outcomes & KIS Data

Learning Outcomes	On successful completion of this module students will be able to: • basic concepts in data management [Comp A] • the main approaches to data modelling [Comp A] • the structure and architecture of database management systems [Comp A]

	• trends in database technologies and applications [Comp A] • execution and evaluation of data analysis and design [Comp B] • query formulation [Comp B] • understanding the use and potential of database systems in business applications [Comp A] • carrying out data analysis and design tasks within a system development project [Comp B] • database design, query and implementation [Comp A B] • using data modelling methods [Comp B] • IT skills in context [Comp B] • problem formulation and decision making [Comp A B]
Reading List	**Indicative sources:** *The following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. However, CURRENT advice on readings will be available via other more frequently updated mechanisms.* • Date, C.J. (2003) *An Introduction to Database Systems*. Addison Wesley. [ISBN: 0321197844] • Connolly, T., Begg, C. (2001) *Database Systems: A Practical Approach to Design, Implementation and Management. 3rd Edition*. Addison Way. [ISBN: 0321181050] • Date, C., & Darwen, H. (2000) *Foundation for Object/Relational Databases: The Third Manifesto. 2nd Edition*. Addison Way. [ISBN: 2021309785] • Elmasri, R. & Navathe, S. (2001) *Fundamentals of Database System – with E-Book.*. Addison Way. [ISBN: 0201741539] • Ramakrishnan, R. & Gehrke, J. (2002) *Database Management Systems. 3rd Edition*. McGraw-Hill. [ISBN: 0071151109] • Silberschatz, A., Korth, H. & Sudarshan, S. (2001) *Database Systems Concepts. 4th Edition*. McGraw-Hill. [ISBN: 0072283637] **Reading strategy:** There is one set (compulsory) text for this module which all students are expected to acquire. Any other specific readings requires will be provided in electronic or photo-copied form. Students are expected to identify all other reading relevant to their chosen topic for themselves. It will be expected that assignment bibliographies and reference lists will reflect the range of reading carried out.

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First Approval Date (and panel type)	6th August 2013			
Revision ASQC Approval Date	29 May 2019 UVP	Version	*2*	CAR ID 5026