MODULE SPECIFICATION

Part 1: Information			
Module Title	Advanced Databases		
Module Code	UFCFU3-15-3	Level	Level 6
For implementation from	2019-20		
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	Web Programming 2019-20		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: Pre-requisites: students must take one out of UFCFB3-30-1 Web Programming or UFCFC3-30-1 Introduction to OO Systems

Educational Aims: During this module, students will be given the opportunity to build upon their existing experiences within database modelling and design by examining the latest database paradigms and associated research. A recurrent thread throughout the module will be the examination of how increasing data complexity and heterogeneity requires the development and implementation of ever more agile and complex representations for data storage, management, and retrieval. The database paradigms that will be examined will be chosen to explore these themes.

In addition the educational experience may explore, develop, and practise but not formally discretely assess the following:
Presentation activity, working as a team member

Outline Syllabus: Indicative module content will include:

Weaknesses of the standard relational paradigm – application domains and complexity, OO response
Data models in advanced applications

Object-Oriented Database concepts and development – object-data model, critical appraisal of ODM advantages and disadvantages
Hybrid or Object-Relational database concepts and development – SQL extensions etc
Database design and development – intelligent databases and knowledgebase management systems, intelligent data-mining
Temporal databases – temporal data and data models, valid and transaction time, bi-temporality, SQL time support
Spatial databases
Distributed and Parallel databases – parallelization concepts and applications, shared memory architectures, shared disk architectures, shared nothing architectures, NUMA and cluster architectures
Databases and the internet

Module content will remain under continued revision and scrutiny due to the researchled orientation of the fields in question

Teaching and Learning Methods: Scheduled learning:

The main material in the module will be introduced in lectures. This theoretical exposure to the material will then be supplemented by practical lab sessions using ObjectStore, an industry-standard OODBMS that exhibits many of the features that characterise aspects of advanced database development. The lectures will also be supplemented by tutorials in which research papers will be examined and discussed, and selectively reviewed in the form of student-driven presentations.

Independent learning:

In addition, students will be expected to develop independent learning approaches through directed reading and study, and presentation development.

Part 3: Assessment

The assessment strategy comprises TWO parts:

Written examination (3 hours) comprising material relating directly to all topics covered in lectures and thus to all learning outcomes

Coursework elaborating and extending experiences gained in laboratory sessions

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	Coursework based on the lab experiences.
Examination - Component A	✓	50 %	Exam (3 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	Coursework based on the lab experiences.
Examination - Component A	✓	50 %	Exam (3 hours)

Part 4: Teaching and Learning Methods

Learning Outcomes

On successful completion of this module students will achieve the following learning outcomes:

Module Learning Outcomes	Reference
Be cognisant of and critically appraise the dominant and competing database paradigms available today	MO1
Be aware of the benefits and weaknesses of competing or complementary database architectures and models	MO2
Engage with and critically appraise examples of advanced research within the domains in question	MO3
Critically evaluate the needs of given problem domains with a view to determining the most suitable database paradigms for their examination and solution	MO4
Engage in types of critical-analytical activity that have both subject-specific and generic application	MO5
Complete independent work involving high degrees of autonomy and critical engagement	MO6

Contact Hours

Scheduled Learning and Teaching Hours:	
Face-to-face learning	36
Face-to-face learning	114
Total Scheduled Learning and Teaching Hours:	150
Hours to be allocated	150
Allocated Hours	150

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/modules/ufcfu3-15-3.html

Part 5: Contributes Towards

This module contributes towards the following programmes of study: