



MODULE SPECIFICATION

Part 1: Information			
Module Title	Advanced Databases		
Module Code	UFCFU3-15-3	Level	Level 6
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	Web Programming 2020-21		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>Overview: Learners will explore different technologies that support the storage, access and processing of organisational data at various levels. The systems that support the processing of Big Data to allow for efficient processing with advanced algorithms will also be explored. Learners will be expected to be able to evaluate different options in supporting data systems that are used in complex real life projects</p> <p>Students will develop skills to assess the legal and ethical implications of designing, storing and managing access to increasing volumes of data particularly where such data is a mixture of sensitive and personal data with various levels of complexity that could lead to different levels of risk</p> <p>Educational Aims: The aim of this module is to support students in developing the skills to experiment with the design and implementation of SQL and NoSQL databases.</p> <p>Outline Syllabus: Indicative module content will include:</p> <p>Relational; Object Relational Databases; Transaction processing – ACID property; Complex queries; Query optimisation; NoSQL databases; Distributed and Scalable Databases – CAP Theorem, Horizontal/Vertical fragmentation; Temporal Databases; Data Warehousing; Data Marts; Big Data; GDPR; Access Management; Authentication, authorisation; Information risk management.</p>

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Teaching and Learning Methods: Face to face learning:

The theoretical underpinning will be provided in lectures with material being made available on the University's VLE. Further reading will be made available through the reading list and appropriate research papers that will be supplied via the VLE for special reflective evaluation sessions.

Practical sessions will provide the opportunity to design and implement solutions with the support of materials available on the VLE and continuous in class feedback from the module tutors.

Independent learning:

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

Online forum and other support means such videos and external links will be made available via the VLE and the University's library systems.

Part 3: Assessment

Assessment will be formative and summative in nature.

Formative will occur during the practical sessions where students will be completing in-class exercises and will be receiving verbal feedback. Formative feedback will also be provided to those students that will make their draft coursework available to tutors for review - such feedback will be both verbal and written, (usually in the form of an email to the student).

Summative assessment will be in the form of an end of the semester examination. This will assess a student's ability to select and justify the use of appropriate database technologies in solving real world problems with storage and management of data.

Further to the examination, a practical coursework will require a student to demonstrate their ability to work independently in implementing a design of a database that yields a solution to a practical problem. The efficiency of the solution and its impact on security and legal issues will be assessed via a short video submission.

Referral work will be of the same type as per the main assessment.

First Sit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	40 %	Exam (2 hours) 24-hour window
Practical Skills Assessment - Component B		60 %	Coursework requiring the design, implementation and supporting video presentation of a database system, modelled on the exercises to be completed during the practical sessions
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Part 4: Teaching and Learning Methods													
Learning Outcomes	<p>On successful completion of this module students will achieve the following learning outcomes:</p> <table border="1"> <thead> <tr> <th style="text-align: left;">Module Learning Outcomes</th> <th style="text-align: left;">Reference</th> </tr> </thead> <tbody> <tr> <td>Design and Implement Prototypes of Database Systems that serve the needs of Real World problems with complex data (assessed in component B)</td> <td>MO1</td> </tr> <tr> <td>Critically evaluate database systems as to risk and safety of data stored in them and the way such data is accessed and processed (assessed in components A and B)</td> <td>MO2</td> </tr> <tr> <td>Demonstrate a thorough knowledge of the ethical and legal challenges posed with the storing of very large volumes of data in corporate systems (assessed in component A)</td> <td>MO3</td> </tr> <tr> <td>Critically assess the different database paradigms in addressing efficiency and effectiveness requirements of a problem area (assessed in components A & B)</td> <td>MO4</td> </tr> </tbody> </table>	Module Learning Outcomes	Reference	Design and Implement Prototypes of Database Systems that serve the needs of Real World problems with complex data (assessed in component B)	MO1	Critically evaluate database systems as to risk and safety of data stored in them and the way such data is accessed and processed (assessed in components A and B)	MO2	Demonstrate a thorough knowledge of the ethical and legal challenges posed with the storing of very large volumes of data in corporate systems (assessed in component A)	MO3	Critically assess the different database paradigms in addressing efficiency and effectiveness requirements of a problem area (assessed in components A & B)	MO4		
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Reading List	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://rl.talis.com/3/uwe/lists/77E1E73E-4F67-C0E9-7D2B-76FC4B76FF26.html?lang=en-GB&login=1</p>												

Part 5: Contributes Towards
<p>This module contributes towards the following programmes of study:</p> <p>Software Engineering {Dual} [Aug][FT][Taylors][3yrs] BSc (Hons) 2018-19</p> <p>Software Engineering {Dual} [Mar][FT][Taylors][3yrs] BSc (Hons) 2018-19</p> <p>Software Engineering [Sep][FT][Frenchay][3yrs] BSc (Hons) 2018-19</p> <p>Computing [Sep][FT][Frenchay][3yrs] BSc (Hons) 2018-19</p> <p>Software Engineering [Jan][FT][Northshore][3yrs] BSc (Hons) 2018-19</p> <p>Computing {Dual} [Mar][FT][Taylors][3yrs] BSc (Hons) 2018-19</p> <p>Computing {Dual} [Aug][FT][Taylors][3yrs] BSc (Hons) 2018-19</p> <p>Software Engineering for Business [Sep][FT][Frenchay][3yrs] BSc (Hons) 2018-19</p> <p>Forensic Computing and Security {Dual} [Mar][FT][Taylors][3yrs] BSc (Hons) 2018-19</p> <p>Forensic Computing and Security {Dual} [Aug][FT][Taylors][3yrs] BSc (Hons) 2018-19</p> <p>Computer Science [Sep][FT][Villa][3yrs] BSc (Hons) 2018-19</p>

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Computer Science [Sep][FT][Frenchay][3yrs] BSc (Hons) 2018-19

Computer Science [May][FT][Villa][3yrs] BSc (Hons) 2018-19

Computer Science [Jan][FT][Villa][3yrs] BSc (Hons) 2018-19