STUDENT AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Information			
Module Title	Database and Data Banks [TSI]		
Module Code	UFCFTX-12-1	Level	Level 4
For implementation from	2021-22		
UWE Credit Rating	12	ECTS Credit Rating	6
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		
PSRB Requirements	None		

Part 2: Description
Educational Aims: The aim of this module is to acquire knowledge and practical skills in the field of IS development based on data bases. **Outline Syllabus:** Introduction to Data Bases. Information and data. Main terms, concepts and definitions in the field of data bases; Models of the data. Purpose of the data models and their classification. Model entity-relationship and its development; Relational theory of Data Bases. Main concept of data relational model. Structure of the relation. Main features of the relation. Relational model of entity-relationship; Relational Algebra. Activities of relational algebra for ratios; Functional dependencies in ratios. The definition of functional dependency. Armstrong's axioms. Closure of functional dependencies; Normalisation of ratios. Kinds of a periodicities which appear in ratios. Definition of normal form. Kinds of normal form and their requirements. Ratio sequence towards 3rd normal form; Introduction to Structured Query Language. Purpose and special features of the language. Types of data. SQL commands; Introduction to optimisation of queries. Types of query optimization. Plan of query creation. improving the speed of query completion;

Introduction to Data Base Management Systems. Purpose, types and functions of DBMS. Main features of popular DBMS;
Introduction to modern technologies of Data Bases. Purpose and issues being solved. Short description of modern Data Base technologies;
Data Depository. Purpose and issues being solved. Layouts of Data Depositories. Data model OLAP and its completion;
Distributed Data Bases. Purpose and issues being solved. Definition of distributed and remote query, transactions;
Object-oriented Data Bases. Expanded ER model. Object-oriented Data model.

Teaching and Learning Methods: Learning and teaching will be provided to students in forms: lectures, labs and practical classes. During lectures, theoretical aspects of the course will be provided to students by the teaching staff. Lectures will be supported by presentation published and available to the students on e.tsi.lv under the module section. Also, additional materials, like code examples, text books, publications on the internet, videos etc will be presented in e.tsi.lv.

During labs, each student receives an individual task to perform.

Practical classes are used to explain in details practical elements of the module and to train students to do application area analysis, ER model development, database normalization etc.

In addition to learning activities during taught sessions, students are expected to spend time outside of class on independent learning activities. These might include completing assignment tasks, independent reading, practising new skills on personal projects and watching informative videos, completing self-assessment test etc.

Part 3: Assessment

This module assessment is split into two components (A – Exam, B – Labs):

A1 - final 3-hour examination which will assess the students understanding of taught material that forms part of the learning outcomes but cannot easily be assessed through practical tasks.

B1 – series of practical tasks, exploring different aspects of design and development of data base in Data Base Management System using SQL language.

First Sit Components	Final Assessment	Element weighting	Description
Examination - Component A	✓	50 %	Examination
Portfolio - Component B		50 %	series of 5 practical tasks, exploring different aspects of design and development of data base in Data Base Management System using SQL language.
Resit Components	Final Assessment	Element weighting	Description
Portfolio - Component B		50 %	series of 5 practical tasks, exploring different aspects of design and development of data base in Data Base Management System using SQL language.
Examination - Component A		50 %	Examination

Part 4: Teaching and Learning Methods

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<tr>
<td>Learning Outcomes</td>
<td colspan="2">On successful completion of this module students will achieve the following learning outcomes:</td>
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<tr>
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<td>Module Learning Outcomes</td>
<td>Reference</td>
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<tr>
<td></td>
<td>Design and develop the data bases and their content, as well to apply the technologies used for development of the data bases</td>
<td>MO1</td>
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<td>Model subject area using different notations and create data base using different Data Base Management Systems</td>
<td>MO2</td>
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<td>Build the set of requirements and functions for the database development</td>
<td>MO3</td>
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<td>Use SQL to work with database (SELECT, UPDATE, INSERT, DELETE)</td>
<td>MO4</td>
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<td>Contact Hours</td>
<td colspan="2">Independent Study Hours:</td>
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<td></td>
<td>Independent study/self-guided study</td>
<td>96</td>
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<td>Total Independent Study Hours:</td>
<td>96</td>
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<td></td>
<td colspan="2">Scheduled Learning and Teaching Hours:</td>
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<td>Face-to-face learning</td>
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<td></td>
<td>Total Scheduled Learning and Teaching Hours:</td>
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<td></td>
<td>Hours to be allocated</td>
<td>120</td>
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<td>Allocated Hours</td>
<td>164</td>
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<td>Reading List</td>
<td colspan="2">The reading list for this module can be accessed via the following link:

https://rl.talis.com/3/uwe/lists/E21CBD0C-8BAD-6AFD-7B8C-1595070C82AA.html?lang=en-gb&login=1</td>
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Part 5: Contributes Towards
This module contributes towards the following programmes of study: Computer Science and Software Development [Oct][PT][TSI][5yrs] BSc (Hons) 2020-21 BSc (Hons) 2020-21 Computer Science and Software Development [Oct][FT][TSI][4yrs] BSc (Hons) 2020-21 Computer Science and Software Development [Feb][FT][TSI][4yrs] BSc (Hons) 2020-21 Computer Science and Software Development [Feb][PT][TSI][5yrs] BSc (Hons) 2020-21 BSc (Hons) 2020-21