Module Descriptor

Title	Database Systems		
Session	2025/26	**Status**	Published
Code	COMP07088	**SCQF Level**	7
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Computing, Engineering and Physical Sciences**		
Module Co-ordinator	Jungkang Feng		

Summary of Module

This module provides a fundamental introduction to databases and database management systems (DBMS). Students will learn about the various types of databases, their applications, and the fundamentals of database management, supported by a variety of case studies demonstrating the practical use of databases in everyday computing.

Additionally, the module examines how databases can be used to meet the needs of a particular case study, achieved through a structured approach to the creation of a database system: the database life cycle. The stages of this life cycle, with particular attention to earlier stages including database planning, systems definition, requirements collection and analysis, and database design, will be discussed. The types of databases covered will include relational and non-relational ones.

The syllabus will cover the following:

- Introduction to databases
  - Role of databases in modern computing
  - Importance of DBMS
- Types of databases and use cases
  - Types and examples: relational, non-relational
  - Real-world applications and use cases of different database types
- Relational model and database design
  - Relational database concepts: tables, keys, constraints
  - Normalization
  - Entity relationship diagrams
- SQL
  - Creating and managing database structures: tables, columns, constraints
  - Querying data using SQL: select, insert, update, delete operations
  - Stored procedures
- DBMS and data security
  - Definition and core functions
  - Views

- Security measures
- Integration with computer systems
- Establishing connections between applications and databases
- Addressing object-relational mapping challenges for seamless integration
- Introduction to NoSQL Databases
- Overview of NoSQL Database Concepts and Architecture
- Understanding the Advantages and Limitations of NoSQL Solutions

This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module:

- Universal: analytical; critical thinker; and research-minded
- Work Ready: digitally literate; problem solver; and knowledgeable
- Successful: innovative; transformational; and driven

Module Delivery Method	**On-Campus**[1] ☐	**Hybrid**[2] ☒	**Online**[3] ☒	**Work -Based Learning**[4] ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☒ Lanarkshire ☐ London ☐ Paisley	☒ Online / Distance Learning ☐ Other (specify) Online Delivery / Distance Learning applies to delivery in the BSc (Hons) Data, AI and Software Engineering programme only	

Terms for Module Delivery	Term 1	☐	Term 2	☐	Term 3	☒
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

Learning Outcomes

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

L1	Demonstrate an understanding of the foundational concepts of databases and their significance in organising and managing data within various contexts, including an awareness of the role of DBMS's and their security aspects.
L2	Use a range of routine skills and techniques to produce a conceptual and logical design for a database.
L3	Use SQL to create databases and tables and to create queries
L4	Demonstrate an understanding of how to integrate databases with applications using APIs.
L5	N/A

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 7** Demonstrate a thorough understanding of foundational database concepts and the role of Database Management Systems (DBMS) in managing data securely.
Practice: Applied Knowledge and Understanding	**SCQF 7** Apply theoretical knowledge to practical scenarios, designing database models and implementing them using SQL.
Generic Cognitive skills	**SCQF 7** Develop critical thinking skills to analyse database requirements and make informed decisions regarding database design and implementation in a business setting.
Communication, ICT and Numeracy Skills	**SCQF 7** Communicate effectively about database concepts and solutions, utilising ICT tools for database management.
Autonomy, Accountability and Working with Others	**SCQF 7** Take some responsibility for the work of others and for a range of resources in undertaking the necessary activities to complete the module coursework.

Prerequisites	**Module Code**	**Module Title**
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours.

Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Lecture / Core Content Delivery	18
Laboratory / Practical Demonstration / Workshop	24
Tutorial / Synchronous Support Activity	6
Independent Study	152
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Forta, B. (2018) SQL in 10 Minutes a Day, Sams Teach Yourself. Indianapolis: Pearson Education. Hernandez, M.J. (2020) DATABASE DESIGN FOR MERE MORTALS : 25th anniversary edition. S.L.: Addison-Wesley.
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** The School of Computing, Engineering and Physical Sciences considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week. Where you are unable to attend a timetabled learning session due to illness or other circumstance, you should notify the Programme Leader that you cannot attend. Across the School an 80% attendance threshold is set. If you fall below this, you will be referred to the Student Success Team to see how we can best support your studies.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE,

material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has lab-based teaching and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Computing**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	Business and Applied Computing
Moderator	Rebecca Redden
External Examiner	A Jindal
Accreditation Details	
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.1

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
The module assessment consists of a class test and a lab-based coursework. The first summative assessment is an online-class test worth 40% which takes place towards the end of the module covering theory but also practical questions regarding database design, SQL queries, and application of database management concepts.
Assessment 2
The second summative assessment is a lab-based coursework worth 60% undertaken in the second half of this module.
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1

Assessment Type	LO1	LO2	LO3	LO4	LO5	Weighting of Assessment Element (%)	Timetabled Contact Hours
Class Test (Written)	☒	☒	☐	☐	☐	40	2

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Portfolio of Practical Work	☒	☐	☒	☒	☐	60	o

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	2 hours

Change Control

What	When	Who
Attendance and Engagement and Eqiality and Diversity statements updated	17/1/25	L Smith