Module Details

Module Title	Database Systems
Module Code	COS5020-B
Academic Year	2024/5
Credits	20
School	School of Computer Science, AI and Electronics
FHEQ Level	FHEQ Level 5

Contact Hours

Type	Hours
Lectures	12
Laboratories	24
Directed Study	164

Availability

Occurrence	Location / Period
BDA	University of Bradford / Semester 1

Module Aims

Database systems are indispensable in today?s digital industry and databases are the heart of any information system or data-driven software application. To serve data to the real-world applications in the most efficient manner, it is crucial to design appropriate databases. This module will provide a coordinated and consistent coverage of theory, design, implementation and use of relational database systems.

Outline Syllabus
Key topics:
Introduction to database systems.
Relational model.
SQL data manipulation.
SQL data definition.
Relational algebra and relational calculus.
Entity-relationship modelling.
Normalisation.
Physical database design, security and administration.
Data-related legal, ethical and social issues
Advanced DBMS topics.
Java, web technology and DBMSs.

Learning Outcomes	
Outcome Number	Description
O1	Understand the database approach, the relational database design, fundamental concepts for relational databases and SQL.
O2	Demonstrate practical SQL skills to write simple and effective SQL statements.
O3	Have a good understanding of the DBMS role and how to design and develop a relational database system.

Learning, Teaching and Assessment Strategy

There will be a one-hour lecture per week, followed by a two-hour practical lab session. The practical sessions will provide support in learning SQL and developing database systems. Learning materials will be principally delivered and made available to all students through our Canvas virtual learning environment.

Formative (mock) lab tests and MCQ quizzes on the lecture material will be made available in Canvas to support knowledge, understanding and autonomous learning. Other tools, such as Microsoft Teams, can be used to facilitate feedback, answer queries and support independent learning outside of formally timetabled sessions. Formative feedback on lab exercises and mock tests will be primarily provided through timetabled lab sessions.

During directed study hours, students are expected to undertake reading to consolidate and expand on the content of formal taught sessions; complete programming tasks; research and prepare for assessments, revise material from formal taught sessions.

Private study will be facilitated and supported via the use of Canvas which will provide mock tests / MCQ feedback, practical examples, additional resources and revision support.

The module will be summative assessed through a Practical lab test (50%) and an Exam (50%).

The practical lab assessment is involving the understanding of the design of a relational database and practical use of SQL. This is a closed-book computerised class test, that will take place in Week 8. Previous to this, a formative mock test will be organised in Week 6, students having the opportunity to receive formative feedback to improve their SQL understanding and skills.

The Exam will assess the understanding of fundamental database concepts, SQL and how they can support building database systems. The examination will consist in an MCQ (multiple choice question), closed-book computerised exam, that will take place in the exam period (January, week 13). During the semester, formative MCQ quizzes will be available in Canvas to support students learning and a Revision and will take place in week 12, focusing on the key concepts for every topic.

Students requiring supplementary assessment will conduct similar assessment to the original.

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Examination - practical/laboratory	Computerised assessment involving practical use of SQL	50%
Summative	Examination - MCQ	Examination - MCQ	50%
Formative		Formative (Mock) LAB test. Formative MCQ Quizzes (several provided)	N/A

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.