Prifysgol **Wrecsam**
Wrexham University

Module specification

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Module Code	COM480
Module Title	Database Systems
Level	4
Credit value	20
Faculty	FACE
HECoS Code	100754
Cost Code	GACP

Programmes in which module to be offered

Programme title	Is the module core or option for this programme
BSc (Hons) Software Engineering	Core
BSc (Hons) Software Engineering with Industrial Placement	Core

Pre-requisites

N/A

Breakdown of module hours

Learning and teaching hours	24 hrs
Placement tutor support	0 hrs
Supervised learning e.g. practical classes, workshops	12 hrs
Project supervision (level 6 projects and dissertation modules only)	0 hrs
Total active learning and teaching hours	**36** hrs
Placement / work based learning	0 hrs
Guided independent study	164 hrs
Module duration (total hours)	**200** hrs

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Initial approval date	08/11/2023
With effect from date	Sept 2024

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Date and details of revision	
Version number	1

Module aims

The aim of this module is to equip learners with the knowledge and skills to design and implement efficient database schemas and structures using SQL, ensuring data integrity. Additionally, the module aims to develop proficiency in utilizing SQL techniques and features to perform queries, manipulate, and manage data from multiple tables, thereby enabling learners to effectively retrieve, manipulate, and manage data within a database.

Module Learning Outcomes - at the end of this module, students will be able to:

1	Design and implement efficient database schemas and structures using SQL ensuring data integrity.
2	Apply SQL techniques and features to perform queries data from multiple tables.
3	Demonstrate proficiency in using SQL to retrieve, manipulate, and manage data within a database.

Assessment

Indicative Assessment Tasks:

This section outlines the type of assessment task the student will be expected to complete as part of the module. More details will be made available in the relevant academic year module handbook.

Students would design and implement a database system for a given real-world scenario. The system should include multiple tables with appropriate relationships, primary and foreign keys, and a normalized schema. SQL queries should be developed to retrieve, manipulate, and manage data within the database. Assessment criteria will focus on database design, implementation, querying and manipulation skills, as well as documentation and presentation.

Assessment number	Learning Outcomes to be met	Type of assessment	Weighting (%)
1	1,2,3	Coursework	100%

Derogations

None

Learning and Teaching Strategies

In line with the Active Learning Framework, this module will be blended digitally with both a VLE and online community. Content will be available for students to access synchronously and asynchronously and may indicatively include first and third-party tutorials and videos, supporting files, online activities any additional content that supports their learning.

As this module progresses, the strategies will change to best support a diverse learning environment. Initially, the module will start with a heavier reliance on engaging tutor-led lectures, demonstrations, and workshops to ensure that the students get the relevant threshold concepts. As the module continues experiential and peer learning strategies will be encouraged as the students' progress with their coursework.

Assessment will occur throughout the module to build student confidence and self-efficacy in relation to databases and technical SQL concepts.

Indicative Syllabus Outline

- Concepts of Data and Databases
- Principles of Normalisation
- Database Design
  - o Data Analysis
  - o Conceptual Design
    - ▪ Entity Relationships
    - ▪ Relational Schemas
  - Physical Design
  - Logical Design
- Development
  - o Implementation
  - o Defining Databases and their objects
    - ▪ Tables
    - ▪ Views
    - ▪ Indexes
- Relational Algebra
- Database Security

Indicative Bibliography:

Please note the essential reads and other indicative reading are subject to annual review and update. Please *ensure correct referencing format is being followed as per University Harvard Referencing Guidance.*

Essential Reads

K. A. Weiss and H. Balti, *Job Ready SQL*. Wiley. Available at: https://books.google.co.uk/books?id=YE5mzwEACAAJ. 2023

Other indicative reading

A. Molinaro and R. de Graaf, *SQL Cookbook*. O'Reilly Media. Available at: https://books.google.co.uk/books?id=Jw8LEAAAQBAJ. 2020