

Module Specification

Module Summary Information

1	Module Title	Foundations of Database Systems
2	Module Credits	20
3	Module Level	5
4	Module Code	CMP5338

5	Module Overview
This module provides a thorough grounding in all aspects of: conceptual data modelling (entity relationship models), relational theory and relational algebra, CASE tools for designing a database and its interface, database design and normalization. It also looks at SQLPlus to for querying data in a relational database system. The module will make use of practical sessions to practice database design theory and apply the techniques to producing a quality database design. This module will form the foundation for the Database Development and Implementation module in semester 2. The module will also develop the skills, knowledge and experience of key techniques within Database design industry – more specifically practical skills. This will lead to wider intellectual and transferable skills in planning, synthesis, written communication and critical evaluation. Learning and Teaching The module will be taught using a combination of lectures, interactive seminars and lab sessions. A case study approach to learning and teaching will be utilised throughout the module and assessment, using live case studies involving global organisations where possible, supported by current research and industry best practice. During the module, students will work individually and in groups to derive information requirements and explore different ways to apply good design practice to a range of scenarios. Flipped learning methods will be used throughout the module whereby you are expected to study theoretical aspects in your own time and the practical learning takes place in class within an interactive dynamic environment. Independent learning will be supported by a range of materials and activities delivered using Moodle such as: - Directed reading will be provided on Moodle before each interactive tutorial. - Details of each tutorial and case-based resource (such as videos, quizzes, online tutorials and example case studies). - Recommended reading to broaden understanding of the theory and practice introduced in the module. - Forums for sharing resources and working in teams.	

- Quizzes to check understanding of key theories and their practical application, providing immediate formative feedback.
- Guidance on how to approach the assessment and opportunities to submit draft work for formative feedback.

Relationship to programme philosophy:

This module contributes towards the programme philosophy by enabling students to analyse business data requirements and produce a high-quality database design to meet these requirements. The module also allows students to design and execute queries for these requirements. This module enables business to exploit information and technology in order to drive innovation and growth in the modern global organization. The module will provide the students with an awareness of the professional, ethical and social responsibilities of IT professionals in a digitally connected society. This module provides an opportunity for the student to develop knowledge and skills, which will contribute to the acquisition of key BCU graduate attributes; creative problem solvers, global outlook, enterprising, professional and work ready.

6	Indicative Content
Introduction to the database concept and key benefits Introduction to Database Management Systems (DBMS) and examples eg relational, NoSQL The relational data model, Dr Codd and relational terminology Relational algebra and the associated relational operators Conceptual data models – entity-relationship models and diagrams Functional dependencies, normalization and optimizing the database design Introduction to SQL (Structured Query Language) • SQL – functions and set operators Introduction to Rapid Application Development (RAD) tool, Graphical User Interface (GUI)/ Human Computer Interface (HCI) and web design principles • Use of a RAD tool to design and build web-database forms Use of a RAD tool to design and build web-database reports NoSQL Revision Further Revision	

7	Module Learning Outcomes	
	On successful completion of the module, students will be able to:	
	1	Effectively communicate the Entity-Relationship Model (ERM/EERM) developed to meet the data requirements of a given enterprise.
	2	Produce a normalized relational database design.
	3	Effectively communicate the SQL queries produced to meet given information requirements

8	Module Assessment		
Learning Outcome			
	Coursework	Exam	In-Person
1,2	x		
3		x	

9	Breakdown Learning and Teaching Activities	
Learning Activities		Hours
Scheduled Learning (SL) includes lectures, practical classes and workshops, peer group learning, Graduate+, as specified in timetable		48
Directed Learning (DL) includes placements, work-based learning, external visits, on-line activity, Graduate+, peer learning, as directed on VLE		72
Private Study (PS) includes preparation for exams		80
Total Study Hours:		200