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## MODULE DESCRIPTOR

### Module Title

Database Systems

Reference	CM2101	Version	3
Created	December 2020	SCQF Level	SCQF 8
Approved	July 2016	SCQF Points	15
Amended	March 2021	ECTS Points	7.5

### Aims of Module

To provide an understanding of database design principles and the ability to apply them to develop a relational database management system.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Map relational algebra constructs to implement SQL commands.
- 2 Generate and test SQL code to define and manipulate relational data.
- 3 Design appropriate and efficient database systems at the conceptual and logical level.
- 4 Appraise and evaluate database performance improvement criteria.
- 5 Describe, analyse and evaluate modern database trends.

### Indicative Module Content

The relational model: relations, keys, entity and referential integrity, constraints and relational algebra. Database design methods: Entity-Relationship modelling and normalisation techniques. SQL: data definition and manipulation languages. Database fine-tuning: indexing strategies, triggers and procedures, transactions and security. Standards and best practice guides: ISO 27001, ISO 27005, ISO 27031.

### Module Delivery

Key concepts are introduced and illustrated through lectures. The understanding of the student is tested and further enhanced through interactive sessions. In the laboratories the students will progress through a sequence of exercises to develop sufficient knowledge of a relational DBMS environment to enable them to complete the practical implementation of a relational database application.

**Indicative Student Workload**

	Full Time	Part Time
Contact Hours	36	N/A
Non-Contact Hours	114	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
Actual Placement hours for professional, statutory or regulatory body		

**ASSESSMENT PLAN**

If a major/minor model is used and box is ticked, % weightings below are indicative only.

**Component 1**

Type:	Practical Exam	Weighting:	50%	Outcomes Assessed:	2, 3
Description:	A practical coursework consisting of database design and implementation.				

**Component 2**

Type:	Examination	Weighting:	50%	Outcomes Assessed:	1, 4, 5
Description:	A written exam.				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

The calculation of the overall grade for this module is based on a 50% weighting for C1 and 50% weighting for C2. An overall minimum grade D is required to pass the module.

		Coursework:						
		A	B	C	D	E	F	NS
Examination:	A	A	A	B	B	C	E	
	B	A	B	B	C	C	E	
	C	B	B	C	C	D	E	
	D	B	C	C	D	D	E	
	E	C	C	D	D	E	E	
	F	E	E	E	E	E	F	
	NS	Non-submission of work by published deadline or non-attendance for examination						

**Module Requirements**

Prerequisites for Module	None except for course entry requirements.
Corequisites for module	None.
Precluded Modules	None.

**INDICATIVE BIBLIOGRAPHY**

- 1 CONNOLLY, T and BEGG, C., 2015. Database Systems: A Practical Approach to Design, Implementation and Management. Pearsons.
- 2 CHURCHER, C., 2016. Beginning SQL Queries: From Novice to Professional. 2nd ed. Berkeley, CA: Apress L. P.
- 3 DEWSON, R., 2014. SQL Server Management Studio. ID: cdi\_springer\_books\_10\_1007\_978\_1\_4842\_0280\_7\_2. Berkeley, CA: Apress. pp. 25-42
- 4 ELMASRI, R. and NAVATHE, S., 2017. Fundamentals of Database Systems. Boston: Pearson.
- 5 GORDON, K., 2013. Principles of data management facilitating information sharing. 2nd ed. Swindon: BCS Learning & Development Limited.
- 6 MCQUILLAN, M., 2015. Introducing SQL Server. Berlin: Apress.