

MODULE DESCRIPTOR

Module Title

Databases and Information Security

Reference	CM2709	Version	4
Created	January 2023	SCQF Level	SCQF 8
Approved	June 2017	SCQF Points	30
Amended	June 2023	ECTS Points	15

Aims of Module

To provide an understanding of database design principles and the ability to apply them to develop a relational database to meet the requirements of a business environment. To provide an understanding of the security threats against information systems and the legal and ethical considerations around storing data for business considering risks.

Learning Outcomes for Module

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

- 1 Develop relational database models to meet the requirements of organisations.
- 2 Write Structured Query Language (SQL) statements to create, populate and query database objects.
- 3 Implement stored procedures, function and triggers to solve business problems.
- 4 Select appropriate database security mechanisms to meet business requirements.
- 5 Identify the legal and ethical issues of data security and privacy with regard to business risks in order to mitigate potential threats.

Indicative Module Content

The relational model: relations, keys, entity and referential integrity, and constraints. Conceptual and logical modelling: Entity-Relationship modelling and normalisation techniques. SQL: Data definition and manipulation languages. Programming in the database (functions, procedures and triggers). Database Security: data auditing, data encryption, data masking and row-level security. Information Security: security concepts (threats, vulnerabilities, and risks), security objectives (Confidentiality, integrity and Availability), and security controls. Legal and ethical issues of data security and privacy. Risk management. Security standards and compliance.

Module Delivery

The module is delivered in Blended Learning mode using structured online learning materials/activities and directed study, facilitated by regular online tutor support. Workplace Mentor support and work-based learning activities will allow students to contextualise this learning to their own workplace. Face-to-face engagement occurs through annual induction sessions, employer work-site visits, and modular on-campus workshops.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	30	N/A
Non-Contact Hours	30	N/A
Placement/Work-Based Learning Experience [Notional] Hours	240	N/A
TOTAL	300	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>	240	

ASSESSMENT PLAN

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

Component 1

Type:	Coursework	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4, 5
Description:	This coursework will consist of a database design and development exercise and a discussion on aspects of database/information security as demonstrated within the workplace environment.				

MODULE PERFORMANCE DESCRIPTOR

Explanatory Text

The calculation of the overall grade for this module is based on 100% weighting of C1. An overall minimum grade D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
A	The student must achieve an A in C1.
B	The student must achieve a B in C1.
C	The student must achieve a C in C1.
D	The student must achieve a D in C1.
E	The student must achieve an E in C1.
F	The student must achieve an F in C1.
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	Successful completion of Stage 1 or equivalent.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 CONNOLLY, T. and BEGG, C., 2014. Database Systems - A Practical Approach to Design, Implementation and Management. Pearson.
- 2 ELMASRI, R and NAVATHE, S., 2017. Fundamentals of Database Systems. Pearson.
- 3 FOSTER, E.C., GODBOLE, S., 2016. Database Systems: A pragmatic Approach. Apress.
- 4 CAMPBELL, G., 2014. The Manager's Handbook for Business Security. Elsevier.
- 5 CEBOLLERO, M., NATARAJAN, J., COLES, M. 2015. Pro T-SQL Programmer's Guide. Apress.