



Unit Title	Web Design and Databases (blended)
FHEQ Level	Level 4
Unit Code	CLC20103
Credit Value	15
Unit Type	Subject

Learning Hours (blended)			
Staff – Student Contact Hours		Independent Study Hours	
Blended learning	35	Independent study	75
Supervised access to Ravensbourne resources	10	Preparation for assessment	30
Total		150	

Unit Description

This unit aims to give learners the opportunity to develop skills, knowledge and understanding needed to design effective websites and mobile applications. Data driven websites are commonly used in the industry. The vast amounts of data generated through various sources is also analysed for strategic decision making. Due to continuous nature of economic and social cycles around the world, it is imperative that data generated is reliable, secure, efficient and able to cope with changing environment.

Because of rapid developments in communication, particularly the internet, generated data has become complex in nature and larger in size as well. This unit will help learners understand the dynamics of various types of database systems including relational and non-relational databases, big data, data warehousing and data lakes.

Students will also examine the cloud-based database solutions, and how an efficient data design follows through into an effectively developed database management system. Students will evaluate the merits and demerits of available DBMS.

Students will explore the possible vulnerabilities on server side and client-side systems covering CyBOK Web and Mobile Security.

The Five Principles underpin the Mindsets and Skillsets Manifesto and are the foundation upon which all course curriculum frameworks and unit specifications are based. The relevant Principles as stated below have been mapped against the Learning Outcomes relevant to each course unit and at each level (see Programme Specifications for full description of the Five Principles):

1. Cultivate / Where the individual thrives.
2. Collaborate / Where disciplines evolve.
3. Integrate / Where education engages industry.
4. Advocate / Where purpose meets practice.

5. Originate / creativity meets technology.

Unit Indicative Content

Industry-wide Knowledge

- Programming languages used for web development
- Open source and vendor specific databases
- Internet and Intranet hosting and available server technologies
- Web development standards
- Client-side and Server-side security, HTTP, HTTPS, SSL etc.
- Big Data
- Data Structures, Management and Migration
- Data Warehouses and Data Lakes
- ERD and DFD
- Relational and Non-relational databases

AWS Specific Knowledge Area

- Aurora
- DynamoDB
- RDS
- Redshift

CyBOK knowledge areas

- Web & Mobile Security

Unit Aims

1. To demonstrate knowledge of databases, web design and mobile application development and choices between open source and vendor specific systems.
2. To be able to select suitable development environment for an application.
3. To apply knowledge for development of a dynamic and secure database driven website or mobile application.
4. To demonstrate understanding of web and database security.
5. To analyse and design a working solution for a website or mobile application.
6. To evaluate the risks and suggest actions for web sites and cloud-based databases.

Unit Learning Outcomes

(to be selected from the Mini Manual)

LO 1 Research/Inspiration Demonstrate your capacity for information gathering techniques using a wide range of sources, providing visual, contextual and industry case-study research as appropriate.

Related Principle: ORIGINATE

LO 3 Development/Prototyping

Demonstrate a range of tests and solutions, informed by knowledge of the principles of the creative process.

Related Principle: INTEGRATE

LO 4 (Pre) Production

Identify, select and apply an appropriate selection of processes, materials and methods that inform creative and academic practice.

Related Principle: COLLABORATE

LO 6 Critical and creative mindsets Demonstrate enquiry into what makes good practice - both creatively and academically

Related Principle: ORIGINATE

Learning and Teaching Methods

This unit will be delivered using a combination of:

- Lectures / Seminars
- Online activities
- Self-directed independent study
- Peer learning, group discussion, guest speakers

Assessment methods and tasks

Assessment tasks	Weighting (%) <i>(one grade or multi-grade unit)</i>
Individual artefact presentation with collateral (10 minutes + QA time) uploaded on VLE with speaker notes and presented in a suitable format (face to face or blended)	100%

Indicative Assessment Criteria

Develop a web based or resident database driven application or website. (LO3,LO4)

Explain the reasons for your choices in terms of application environment and other available tools (of a dynamic and secure database driven website or mobile application.) (LO1)

Explain how web and database security is catered for in your application design. (LO6)

Evaluate the risks and suggest actions for mobile applications, web sites and cloud-based database systems. (LO 6)

Essential Reading list

The Cyber Security Body of Knowledge. (2019). 1st ed. The National Cyber Security Centre.

Connolly, T. and Begg, C. (2014) Database systems: A practical guide to design, implementation and management. 3rd Ed. Addison-Wesley.

Recommended Reading List

Elmasri, R. and Navathe, S. (2011) Fundamentals of Database Systems. 6th Ed. Addison-Wesley.

Journals

International Journal of Database Management Systems

Journal of Database Management

The Computer Journal

Journal of Emerging Trends in Computing and Information Sciences

Further reading and resources will be identified in your Project Brief.