



## Database Design and Management II Course Descriptor

Course Title	Database Design and Management II	Faculty	EDGE Innovation Unit (London)
Course code	NCHNAP556	Course Leader	Professor Scott Wildman (interim)
Credit points	15	Teaching Period	This course will typically be delivered over a 6-week period.
FHEQ level	5	Date approved	June 2020
Compulsory/ Optional	Compulsory		
Pre-requisites	None		
Co-requisites	None		

### COURSE SUMMARY

This course studies the design of a database for use in a relational database management system (DBMS). The entity-relationship model and normalization are used in problems. Relational algebra and then the SQL (structured query language) are presented. Advanced topics include triggers, stored procedures, indexing, elementary query optimization, and fundamentals of concurrency and recovery. Students implement a database schema and short application programs on one or more commercial relational database management systems. Learners will have the opportunity to apply their knowledge of databases using industry-standard cloud-based technology e.g. using ServiceNow training.

### COURSE AIMS

- Train learners in advanced SQL and be introduced to NoSQL databases.
- For learners to compare and contrast SQL and NoSQL.
- For learners to work on a project that includes the design and implementation of a database as well as an application for interacting with the database.
- For learners to implement schema and short application programs.

## LEARNING OUTCOMES

On successful completion of the course, learners will be able to:

### KNOWLEDGE AND UNDERSTANDING

- K1b Write complex SQL queries, SQL functions, SQL triggers and SQL procedures.
- K2b Represent SQL queries with relational algebra operations.
- K3b Describe the strengths and the weaknesses of both the SQL and NoSQL DBMS.

### SUBJECT SPECIFIC SKILLS

- S1b Define and represent a conceptual design using an extended entity relationship diagram given a textual description of a data domain. Convert the conceptual design to a logical design. Represent a logical design using the MySQLT.
- S2b Connect a computer application to a commercial relational database (MySQL) and access and manipulate data from the database within the application.
- S3b Act as a database administrator to a MySQL database server, using basic shell commands for a chosen operating system.

### TRANSFERABLE AND PROFESSIONAL SKILLS

- T1bi Develop advanced technical skills.
- T1bii Demonstrate an effective technical proficiency of written English that uses a wide range of literacy skills and vocabulary selected appropriately to communicate to specialist and non-specialist audiences.
- T2b Demonstrate the ability to obtain and use information from a variety of sources as part of self-directed learning.
- T3b Demonstrate time-management and organisational skills within the context of self-directed learning.

## TEACHING AND LEARNING

This is an e-learning course, taught throughout the year.

This course can be offered as a standalone short course.

Teaching and learning strategies for this course will include:

- On-line learning
- On-line discussion groups
- On-line assessment

Course information and supplementary materials will be available on the College's Virtual Learning Environment (VLE).

Learners are required to attend and participate in all the formal and timetabled sessions for this course. Learners are also expected to manage their self-directed learning and independent study in support of the course.

The course learning and teaching hours will be structured as follows:

- Off-the-job learning and teaching (6 days x 7 hours) = 42 hours
- On-the-job learning (12 days x 7 hours) = 84 hours (e.g. 2 days per week for 6 weeks)
- Private study (4 hours per week) = 24 hours

Total = 150 hours

Workplace assignments (see below) will be completed as part of on-the-job learning.

## ASSESSMENT

### FORMATIVE

Learners will be formatively assessed during the course by means of set assignments. These will not count towards the final degree but will provide learners with developmental feedback.

### SUMMATIVE

Assessment will be in two forms:

AE	Assessment Type	Weighting	Online submission	Duration	Length
1	Practical skills assessment (Workplace dataset)	60%	Yes	Requiring on average 20-30 hours to complete	-
2	Set computational exercise	40%	Yes	Requiring on average 10-20 hours to complete	-

### FEEDBACK

Learners will receive formal feedback in a variety of ways: written (via email or VLE correspondence) and indirectly through online discussion groups. Learners will also attend a formal meeting with their Academic Mentor (and for apprentices, including their Line Manager). These bi- or tri-partite reviews will monitor and evaluate the learner's progress.

Feedback is provided on summatively assessed assignments and through generic internal examiners' reports, both of which are posted on the VLE.

### INDICATIVE READING

Note: Comprehensive and current reading lists for courses are produced annually in the Course Syllabus or other documentation provided to learners; the indicative reading list provided below is used as part of the approval/modification process only.

### BOOKS

- Connolly, T. and Begg, C., (2015), *Database Systems. A practical approach to design, implementation and management*, Harlow, Essex, England

- Benyon-Davis, P., (2000), *Database Systems*, Basingstoke: Macmillan
- Fowler, A., (2015), *NoSQL for Dummies*, Hoboken, NJ: For Dummies, a Wiley brand
- Casteel, J., (2015), *Oracle 12C: SQL*, Course Technology

### JOURNALS

Learners are encouraged to consult relevant journals on database design and management.

### ELECTRONIC RESOURCES

Learners are encouraged to consult relevant electronic resources on database design and management.

### INDICATIVE TOPICS

- Transactions and the ACID properties
- NoSQL databases and the CAP theorem
- File storage and Indexes

<b>Title: NCHNAP556 Database Design and Management II</b>					
<b>Approved by: Academic Board</b>					
<b>Location: Academic Handbook/Programme specifications and Handbooks/ Undergraduate Apprenticeship Programmes/BSc (Hons) Digital &amp; Technology Solutions Programme Specification/Course Descriptors</b>					
Version number	Date approved	Date published	Owner	Proposed next review date	Modification (As per AQF4) & category number
2.1	May 2022	May 2022	Scott Wildman	June 2025	Category 1: Corrections/clarifications to documents which do not change approved content.
2.0	January 2022	April 2022	Scott Wildman	June 2025	Category 3: Changes to Learning Outcomes
1.0	June 2020	June 2020	Scott Wildman	June 2025	