Module: Distributed Database 361

Module name:	Distributed Database 361
Code:	DDB361
NQF level:	6
Type:	Speciality – Diploma in Information Technology (Database)
Contact Time:	42 hours
Structured time:	7 hours
Self-directed time:	21 hours
Notional hours:	70 hours
Credits:	7
Prerequisites:	DBD361

Purpose

This module aims to provide students with an easy introduction to distributed database with a focus on the practical implementation and applications of distributed database. Students will be exposed to different distributed database platforms during the course.

Outcomes

Upon successful completion of this module, the student will be able to demonstrate:

- Detailed knowledge and informed understanding of the core areas of distributed database implementation, and an informed understanding of the key terms, concepts, characteristics, and applications thereof.
- Demonstrate an informed understanding of Data Delivery Alternatives including delivery modes, frequency, and communication methods.
- The ability to describe and utilize a range of techniques for designing distributed database for real-world applications and be able to make informed decisions about the design, understand design issues and architectures of distributed database.
- Select and apply standard methods, procedures, or techniques to implement and maintain an efficient distributed database system using NoSQL database.
- Demonstrate an informed understanding of the practical application of NoSQL via hands-on projects.

Assessment

- Continuous evaluation of theoretical work through an assignment, a formative tests, and a summative test.
- Continuous evaluation of relationships between concepts, turning problem definitions into a form ready to be implemented in a well-defined distribute database environment and physically implementing the through a project work.
- Final assessment through a written examination

Teaching and Learning

Learning materials

Prescribed books (EBSCO)

- 🕮 ***Coronel, C., Morris, S. (2019) Database Systems - Design, Implementation, and***

Management (13th Edition), Cengage, Boston, USA .

📖 ***Meier, A., & Kaufmann, M. (2019). SQL & NoSQL databases. Berlin/Heidelberg, Germany: Springer Fachmedien Wiesbaden.***

Learning activities

The teaching approach will use a combination of exercises, theory presentations and whole group discussions. It is a collaborative model with a practical approach, with a mandatory assignment and a project which must be completed during the module.

Notional learning hours

Contact	Distance	Other	Type of learning activities	% Learning
y	y	n	Lectures (face-to-face, limited interaction or technologically mediated)	40%
y	y	n	Tutorials: individual groups	20%
n	y	n	Syndicate groups	10%
n	y	n	Independent self-study of standard texts and references (study guides, books, journal articles)	10%
n	y	n	Independent self-study of specially prepared materials (case studies, multi-media, etc.	20%

Syllabus

- Introduction to distributed database and its characteristics.
- Understanding design issues in distributed
- Setup and configuration of a distributed database,
- Working with in a distributed database environment (MongoDB database),
- "Sharding" with MongoDB to create a distributed environment.

Suggested Tools:

- MangoDB