

## Module: Web Database 361

<b>Module name:</b>	Web Database 361
<b>Code:</b>	WDB361
<b>NQF level:</b>	6
<b>Type:</b>	Speciality – Diploma in Information Technology (Web Development)
<b>Contact time:</b>	48 hours
<b>Structured time</b>	8 hours
<b>Self-directed time</b>	24 hours
<b>Notional hours:</b>	80 hours
<b>Credits:</b>	8
<b>Prerequisites:</b>	WPR261, WFS361

### Purpose

The purpose of this course is to teach learners how to persist data in a web application using a database, and how to use an object-oriented business model to write effective queries quickly against a database.

The course will cover concepts related to defining a schema, creating models, and performing database-related operations.

### Outcomes

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

- Detailed knowledge of creating a database-driven web application; and an understanding of how web applications interact with data that is persisted in a local or cloud repository.
- The ability to use an Object Relational Mapper to interact with a data repository.
- The ability to identify, analyse and solve problems by manipulating and presenting data based on a set of requirements.
- The ability to communicate effectively with a variety of audiences through a range of modes and media, to technical and non-technical audiences via reports or presentations and using appropriate discourse.
- The ability to work as part of a team, and to take responsibility for decisions and actions taken within the team.

### Assessment

Assessment is performed using a variety of instruments:

- Continuous evaluation of theoretical work through one written assignment, two practical projects, two formative assessments, and a summative test.
- Continuous evaluation of practical work, whereby the student must create and deploy a website.
- Final assessment through a written examination.

## Teaching and Learning

### Learning materials

*Prescribed books (EBSCO)*

- 📖 **Mithun Satheesh, Bruno Joseph D'mello and Jason Krol (2015) Web Development with MongoDB and NodeJS - Second Edition : Build an Interactive and Full-featured Web Application From Scratch Using Node.js and MongoDB. Birmingham, UK: Packt Publishing (Community Experience Distilled).**

### Learning activities

The teaching is a combination between presentation of practical and theoretical concepts, and exercises and discussions. It is practice-oriented, with a mandatory assignment and project which must be completed during the course.

### 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

- How web applications interact with a database
- Picking the correct database for your application
- ORMs and ODMs
- Installing MongoDB and Compass
- Configuring and connecting to MongoDB
- Defining and creating models
- Performing CRUD operations
- Primer: MongoDB Atlas (cloud-hosted database)
- Overview of Content Management Systems (CMSs)
- Installing and configuring CMSs.
- Working with themes and plugins
- Using CMSs to manage content
- Administration (Deploying and managing users)