

# Web Development II Course Information

Web Development II introduces learners to the web technology stack. From a basic introduction to web scripting, routing, validate to advanced concepts like filters, optimisation and monitoring. The course introduces the core concepts of web development and provides an important primer for your future career as a web developer.

## Learning Outcomes for Web Development II

1. Using object relation mapping to build robust data-based web applications.
2. Debugging Web Applications
3. Building applications that run on different operating platforms
4. Building and deploying applications to the cloud.
5. Know how to create custom filters and middleware.
6. Facilitating end to end communication on the web.
7. Be able to monitor applications on the cloud
8. Expose and consume web services on the cloud.

## Admission Requirements for Web Development II

Minimum admission requirement is a National Senior Certificate (NSC) or Senior Certificate (SC) or a National Certificate Vocational (NCV).

Applicants must also have completed Web Development Fundamentals I or successfully passed an admission assessment. A portfolio of an applicant's software development experience could also be used to waive the admission requirements.

## Course Content for Web Development II

1. Accessing Data Using and ORM
  - What is an ORM?
  - Setting up an ORM for a project
  - Creating Data Models
  - Understanding data migrations
  - Creating and mapping relationships with an ORM
  - Interacting with your data model
  - Performing CRUD operation and running queries
  - Working with stored procedures
2. Securing Secrets
  - Importance of securing secrets
  - Different ways to secure secrets
  - Using Environmental Variable to secure secrets
  - Creating a helper to access secrets
3. Using a data access pattern to interact with data
  - Introduction to pattern
  - Architecture of pattern
  - Overview of code design
4. Authentication and Authorisation
  - Authentication and Authorisation
  - Cookie Authentication
  - Logging users in and out
  - Creating users and roles
  - Working with external login providers
5. Working with filters and custom middleware

- What are filters and middleware?
  - How to create filters and middleware?
6. Web API
- Understanding REST
  - Understanding the pipeline and middleware
  - Learning about Routing in a Web API
  - Understanding http status and methods
  - Return types
  - Dependency Injection
  - Accessing data from a database on the Web API
  - Creating a Web API
  - Securing the Web API through the use of tokens
  - Exception Handling on the Web API
7. Deploying Applications
- How does a webserver work?
  - Exploring hosting settings
  - Deploying to a web server
  - Migrating your database to production
  - Connecting to SQL Server
8. Application Monitoring
- Importance of monitoring and logging
  - Application Logging
  - Implementing logging
  - Monitoring your application
  - Application insights and cloud-based logging
9. Performance Optimisation
- Caching types
  - Cache Response attributes and middle ware
  - Expiration Model
  - Validation Model
10. Building an application using technologies covered in this module