

## **Module Synopses**

### **PDC 1: Post Diploma Certificate in Web Application Design**

#### **Fundamentals of Web Development Technology**

This module provides the students with the knowledge and skills to understand different evaluation strategies for a user interface prototype and design as well as develop interactive web application. Topics covered include Internet and HTTP protocol, basic web design principles, web interface and navigation, HTML, hypertext links, images, tables, frames, forms and different evaluation methods. Students will also be taught how to apply Cascading Style Sheets to maintain consistencies across web pages. It also provides an overview of other web technologies such as Web Client programming with Javascript, Web Development Methodology and Web Development Platforms In addition, students will appreciate various hardware and software platforms, and learn basic web administration.

#### **Java Programming**

This module teaches object-oriented programming and problem solving using Java Programming Language. It equips students with skills in design, development, test and deployment of enterprise application. Topics covered include language basics, creating and communicating with objects and graphical user interface, interfaces and abstract classes and multi-threading. At the end of the module, students will be competent in developing Java applications with an interactive user interface, in an object-oriented approach.

#### **Database Management Systems**

This module introduces the fundamentals of the relational database model. Key topics include information modelling, normalization, database design, stored procedure and database implementation. Structured Query Language (SQL) will be used to create, manipulate and retrieve data in a relational database.

### **PDC 2: Post Diploma Certificate in Web Application Development**

#### **Web Programming**

This module teaches techniques and skills required for client-side web programming. Students will learn to use JavaScript and JQuery for client-side programming to manipulate the DHTML object model to achieve dynamism in web pages. Students will also be taught how to adapt their web pages for mobile devices using HTML5 and JQuery Mobile for viewing on mobile web browsers. Usage of Cordova to convert the mobile JQuery webpage to a native mobile app will also be covered.

#### **Enterprise Application Development**

This module teaches the basic features of the server side programming (Java Server Pages, web services and database) and its application to Internet. Students will be able to develop

a mini Java client/server project over the Web. The topics covered in this module include Database Access, JavaServer Pages, Cookie and Session Objects and web services. Students will also be taught on how to host their application on a free cloud hosting platform for public access on the Internet. At the end of the module, students will be competent in developing Java server web applications, which can access data from an enterprise level database hosted on the server.

### **Web Application Secure Coding**

This module teaches the basic fundamentals of secure coding in web applications. Some secure coding concepts such as use of stored procedures to prevent SQL injection, importance of validation, exception handling, logging, authorisation, role based authentication and cryptography will be covered. Students will learn through a series of practical exercises on how they can secure their code and fix unsecured code that can be exploited.