

# Diploma in Web & Multimedia Development – LC201

## 1. Objectives

This course offers web and multimedia development skills which are focused on internet technologies such as the design and implementation of web-based client/server systems. The course is designed to ensure that students possess a broad range of computing knowledge and skills, and it includes core modules in general software design and development, as well as in scripting technologies specific for web development.

The Programme is aimed at those who wish to pursue a broader career related to the design, development and implementation of Internet-based Information Systems. It covers a range of techniques that will be invaluable to those intending to follow a technical, managerial or organizational role within the field of Information Systems.

## 2. General Entry Requirements

As per General Entry Requirements for admission to the University for Undergraduate programmes or any other qualifications acceptable to the university.

## 3. Programme Requirement

At least 2 GCE ‘A’ Level Passes and a Pass in Mathematics at Ordinary level. Mature candidates will also be considered on a case-by-case basis.

## 4. Minimum Requirements for Awards

### Diploma Award

A student will be awarded a Diploma in Web and Multimedia development provided she/he satisfies the following minimum requirements.

The student needs to satisfy 42 credits from the core modules and 9 credits for the Diploma Project and 12 credits from the elective modules forming a minimum of 63 credits.

## 5. Programme Duration

The programme is going to be offered on a flexible, blended mode with a DEOL (Distance Education/Online) component of over 60 %. The 40% will be face to face tutorial classes.

Students will therefore be allowed to be enrolled on a full-time basis (minimum duration 2 years) and on part-time basis (minimum duration 3 years).

|                      |                            |                             |
|----------------------|----------------------------|-----------------------------|
| Diploma (Full-time)  | 2 (Years)<br>(4 Semesters) | 4 (Years)<br>(8 Semesters)  |
| Diploma (Part-Time): | 3 (Years)<br>(6 Semesters) | 7 (Years)<br>(14 Semesters) |

## 6. Credits per Year: Maximum 36 credits, Minimum 12 credits, subject to regulation 5

Semester modules to be registered for on a semester basis. Yearly modules to be registered for only once at the start of the module, normally at the beginning of academic year.

## 7. Assessment

### *Continuous and written assessment of modules*

Each module will be assessed over 100 marks (i.e. expressed as %) with details as follows (unless otherwise specified):

Assessment will be based on written examination and continuous assessment. The continuous assessment will carry 40% of total marks except for the following modules:

|  | <b>Continuous Assessment</b> | <b>Exams</b> |
|--|------------------------------|--------------|
| LLC 1020Y: Software Development Methodologies    | 50%                          | 50%          |
| LLC 2020Y: Web Applications and Technologies     | 60%                          | 40%          |
| LLC 1010Y: Programming Fundamentals              | 70%                          | 30%          |
| LLC 2050Y: Multimedia Animation Tools            | 70%                          | 30%          |
| LLC 1000 : Communication and Presentation Skills | 100%                         |              |
| CSE 1010e: Introduction to IT                    | 30%                          | 70%          |

Continuous assessment may be based on laboratory work and/or assignments and should include at least two class tests (one per semester).

For a student to pass a module, an overall of 40% for Continuous Assessment and Written Examination components would be required without the minimum thresholds within the individual continuous assessment and written examination.

The module LLC1000 and CSE1010e are compulsory modules and students will deem to have passed upon satisfactory completion of the learning activities. The module carries zero credit.

## 8. Interruption of Studies

Students may be allowed to interrupt studies for a minimum period of one academic year subject to their satisfying provisions in the general regulations in respect of interruption of studies.

## 9. Specific Regulations

If CPA < 40, the student will have to repeat the entire academic year, and retake the modules as and when offered. However, s/he will not be required, if s/he wishes, to retake module(s) for which Grade C or above has been obtained.

Students are allowed to repeat only once over the entire duration of the Programme of Studies.

## 10. List of Modules - Diploma in Web & Multimedia Development

| <u>Core Modules</u>                                | <u>Hrs/week</u> | <u>Credits</u> |
|--|-----------------|----------------|
| LLC 1010Y: Programming Fundamentals                | DEOL            | 6              |
| LLC 1020Y: Software Development Methodologies      | DEOL            | 6              |
| LLC 1030Y: Database Design and Development         | DEOL            | 6              |
| LLC 2010Y: Visual Communication and Graphic Design | DEOL            | 6              |
| LLC 2020Y: Web Applications & Technologies         | DEOL            | 6              |
| LLC 2030Y: Interaction Design                      | DEOL            | 6              |
| LLC 2050Y: Multimedia Animation Tools              | DEOL            | 6              |
| LLC 2060: Web/Multimedia Diploma Project           | ---             | 9              |
| LLC 1000 : Communications and Presentation Skills  | DEOL            | 0              |
| CSE 1010e: Introduction to IT                      | DEOL            | 0              |

| <u>Elective Modules</u>                                    | <u>Hrs/week</u> | <u>Credits</u> |
|--|-----------------|----------------|
| LLC 2080Y: Open and Object-Oriented Web Architectures      | DEOL            | 6              |
| LLC 1090Y: Dynamic Scripting for the Web                   | DEOL            | 6              |
| LLC 1070Y: Mobile and Pervasive Computing and Technologies | DEOL            | 6              |

### 11. Programme Plan – Diploma in Web and Multimedia Development

| <u>YEAR 1/LEVEL 1</u> |   |        |         |
|-----------------------|---|--------|---------|
| Code                  | Module Name                             | Hrs/Wk | Credits |
| <b>CORE</b>           |   |        |         |
| LLC 1010Y             | Programming Fundamentals                | DEOL   | 6       |
| LLC 1030Y             | Database Design and Development         | DEOL   | 6       |
| LLC 2010Y             | Visual Communication and Graphic Design | DEOL   | 6       |
| LLC 1020Y             | Software Development Methodologies      | DEOL   | 6       |
| LLC 1000              | Communication and Presentation Skills   | DEOL   | 0       |
| CSE1010e              | Introduction to IT                      | DEOL   | 0       |
| <b>ELECTIVES</b>      |   |        |         |
|                       | Elective 1                              | DEOL   | 6       |
| <u>YEAR 2/LEVEL 2</u> |   |        |         |
| Code                  | Module Name                             | Hrs/Wk | Credits |
| <b>CORE</b>           |   |        |         |
| LLC 2030Y             | Interaction Design                      | DEOL   | 6       |
| LLC 2020Y             | Web Applications and Technologies       | DEOL   | 6       |
| LLC 2050Y             | Multimedia Animation Tools              | DEOL   | 6       |
| LLC 2060              | Web Multimedia Project                  | --     | 9       |
|                       | Elective 2                              | DEOL   | 6       |

\* **D.E.O.L – One/two-hour weekly tutorial sessions (depending on subject) + any number of online interactions/support.**

**Important Note:**

Elective modules will be offered subject to availability of resources. If critical mass of students is not attained, some modules may not be offered. VCILT reserves the right to change the order in which the modules are offered and to add to/or remove from the list of elective modules

## 12. Outline Syllabus

This outline syllabus **is not prescriptive and is intended to serve as a guide** only. Depending on the year of delivery and taking into account recent developments and progress in the field, the syllabus may be modified accordingly.

### CORE MODULES

#### **CSE1010E - INTRODUCTION TO IT (0 CREDIT)**

IT and Computers; Stepping in the Computer; Input and Output Devices; Secondary Storage; Programming; Systems Software; Applications Software; Systems Development; Computer Networks; The Internet; Computer Security; Software Utilities; Issues and Trends in IT.

#### **LLC 1000 - COMMUNICATION AND PRESENTATION SKILLS (0 CREDIT)**

Oral and Written communication in French and English. Formal and informal Communication at Work. Communication using IT as enabler. Presentation Styles. Personality and Individual Preferences. Social interaction and self-marketing. Negotiation and leadership skills.

#### **LLC 1010Y - PROGRAMMING FUNDAMENTALS (6 CREDITS)**

Programming Concepts. Structure of a Computer Program. Logic Structures. Data Structures. Program Design: Pseudocodes and Flowcharts. Jackson Structured Programming. The C++ Programming Language Constructs. File Processing. Stacks and Queues. Arrays and Structs. Advanced Programming Concepts.

#### **LLC 1020Y - SOFTWARE DEVELOPMENT METHODOLOGIES (6 CREDITS)**

Problems in Software Projects. Ad-Hoc Computing & Costs of failures. Software Development Lifecycles & Methodologies. Structured Software Analysis and Design Method. Data-flow Diagrams. Entity Life Histories. Data Modeling. Systems Flowcharts. Object-Oriented Analysis and Design. Unified Modeling Language. Use Cases and Classes. Inheritance, polymorphism and related object-oriented concepts. Design Patterns. Case Studies.

#### **LLC 1030Y - DATABASE DESIGN AND DEVELOPMENT (6 CREDITS)**

Traditional File Systems and related problems. The concept of database. Database management systems. Database design and data normalization. Relational Integrity concepts. Structured Query Language. Programming with PL/SQL. Overview of Vendor-specific database management systems. Object-Relational Databases. Data Warehousing. Concurrent transactions. Query optimization. Distributed databases.

#### **LLC 2010Y - VISUAL COMMUNICATION AND GRAPHIC DESIGN (6 CREDITS)**

Principles of visual communication; Principles and elements of design. Theory and use of colour; Image Types, resolutions and formats. Optimization of Images. Typography and layout. Icon design. Web and Graphic design. Semiotics. Image Editing and manipulation Software.

#### **LLC 2020Y - WEB APPLICATIONS & TECHNOLOGIES (6 CREDITS)**

Architecture of web applications. Two-tier and three-tier architectures. Markup Languages. Server-side applications. J2EE and .NET architectures. Online database systems. Security Concerns in Web Applications. Applets, Java Server Pages, Servlets and Java Beans. Configuration and deployment of web applications and servers. Struts, JSF and Hibernate.

#### **LLC 2030Y - INTERACTION DESIGN (6 CREDITS)**

Introduction to Usability Engineering. Usability Engineering Lifecycle. Information Architecture: Process and Practice. The User and the Task. Usability Metrics. Usability evaluation. Design Heuristics and Expert Evaluations. Interface Standards. Usability Engineering for portable and handheld devices (Mobile Usability). User-Centered Requirements Engineering. Psychological Issues in User-Centered Design.

Social, contextual and organizational aspects of user centred interactive systems. User-Centered Design Methods. Models of the User in design. Evaluation and User-Centered Design. User-Centred Design for web-based interaction.

**LLC 2060 - WEB/MULTIMEDIA DIPLOMA PROJECT (9 CREDITS)**

This involves the use of well-defined systems development methodologies to develop an IT system prototype in any field of application.

**LLC2050Y- MULTIMEDIA ANIMATION TOOLS AND TECHNIQUES (6 CREDITS)**

Multimedia and its components. Benefits of the use of multimedia in business, developing multimedia applications. Software, tools and techniques. Open source development tools.

**ELECTIVES**

**LLC 2080Y - OPEN AND OBJECT-ORIENTED WEB ARCHITECTURES (6 CREDITS)**

The Chisimba Object-Oriented PHP development framework. Overview of PHP 5. Web Services. XML and Interoperable Web Applications. XML Parsers, DOM and XSLT. Metadata Standards. The W3C Multimodal Architecture. Security and Encryption Techniques. Simple Object-Access Protocols. Web 2.0 and its architecture. AJAX architectures and server-side impacts. Other frameworks: Symphony, Joomla.

**LLC 1090Y- DYNAMIC SCRIPTING FOR THE WEB (6 CREDITS)**

Introduction to basic Javascript and VBScripts. DHTML and XHTML. Cascading Style Sheets. AJAX scripting. New Scripting Techniques. Advanced HTML. Advanced JavaScript and VBScript. Dynamic HTML Menu Builders. Basic Server Side Scripting.

**LLC 1070Y- MOBILE AND PERVASIVE COMPUTING AND TECHNOLOGIES (6 CREDITS)**

Introduction to Mobile Computing. Overview of the J2ME (Java 2 Micro Edition) Technology. Programming with MIDP. Event Handling. MIDP for the Palm OS. The MIDlet Suite. Connected, limited Device Configuration (CLDC). High and low level user interface. Record Management System (RMS). Wireless Network Technology, Bluetooth Communication. WAP and WML. .NET Framework for mobile development