Course Outline

Full-Stack Developer – LEA.BN

A. General Information

Course title	**Web Development I**
Course number	420-WE6-AB
Hours	90
Ponderation *Ratio of lecture, practical and homework hours*	1-5-4
Credits	3.33
Competency statement(s) and code(s)	00ST Develop non-transactional Web applications. Elements 2,3,5,7-9 only: 00ST.2 Prepare the computer development environment. 00ST.3 Prepare the database. 00ST.5 Program the server-side application logic. 00ST.7 Control the quality of the application. 00ST.8 Participate in the deployment of the application with a Web host. 00ST.9 Produce the documentation. 00SY Collaborate on the design of applications. Element 1 only: 00SY.1 Participate in the development of the functional specifications.
Prerequisite (s)	420-WD4-AB Web Services 420-SA5-AB Database
Cohort	FSD-05
Start date	September 6, 2022
End date	September 29, 2022
Day(s) and times	M-F: 9:00-12:00 & 12:30-2:30
Classroom/lab number	Online
Semester	F2022
Teacher	Elie Ngomseu Mambou
Teachers' contact info	MIO or TEAMS
Course format (F2F, online, hybrid)	Online

B. Introduction

This course is part of the Full-Stack Developer program leading to an Attestation of Collegial Studies (A.E.C.). It should be taken in the Second semester of the program.

In the first part of this course, the student will learn about the syntax and control structures of the PHP language, as well as its web-context-specific features that make it a powerful tool for dynamic web pages and web app development. The student will use PHP language and external libraries to implement web pages using the MVC (Model-View-Controller) principles, with a micro-framework, database access library, and templating library. The student will also learn about best industry practices, such as PHP IDEs, visual debugging, and the use of Composer. The second part of this course focuses on a full-stack project, to be done in the PHP language, in teams of 2 or 3 students.

C. Course Objectives

By the end of this course, students should be able to perform the following:

00ST	
Statement of the Competency	**Achievement Context**
Develop non-transactional Web applications.	• For Web applications associated with information delivery, marketing, etc. • For new applications and applications to be modified • Based on design documents • Using images • Using issue tracking and version control procedures
Elements of the Competency	**Performance Criteria**
2. Prepare the computer development environment.	• Proper installation of the Web development platform and the development database management system • Proper installation of software and libraries • Appropriate configuration of the version control system • Proper importing of source code
3. Prepare the database.	• Suitable creation or adaptation of the database • Proper insertion of initial or test data • Compliance with the data model
5. Program the server-side application logic.	• Appropriate choice of clauses, operators, commands or parameters in database queries • Correct handling of database data • Proper programming of the conversion of data into information • Proper application of internationalization techniques • Precise application of secure programming techniques
7. Control the quality of the application.	• Precise application of test plans • Thorough reviews of code and security • Relevance of the corrective actions • Compliance with issue tracking and version control procedures • Compliance with design documents
8. Participate in the deployment of the application with a Web host.	• Accurate identification of the domain name • Appropriate configuration of the application on the Web host • Proper application of the procedure for migrating the service onto the Web host • Precise application of security measures

	• Compliance with search engine indexing requirements
9. Produce the documentation.	• Proper identification of the information to be written up • Clear record of the work carried out

00SY	
Statement of the Competency	**Achievement Context**
Collaborate on the design of applications.	• Based on the client's requests and requirements • Using application development standards, methods and best practices
Elements of the Competency	**Performance Criteria**
1. Participate in the development of the functional specifications.	• Accurate analysis of the client's request and requirements • Accurate analysis of the features of the computer equipment and applications used by the client • Appropriateness of the recommendations regarding the nature of the requirements • Appropriateness of the recommendations regarding application development standards, methods and best practices

D. Evaluation Plan

Evaluation task	%	Approximate date	Link to competency(ies) and element(s)	Select if part of the final evaluation!
Class Exercises 3 @ 5%	15%		00ST.2, 00ST.3, 00ST.5 00SY.1	☐
Test 1	20%	Class 5	00ST.3, 00ST.5, 00ST.7	☐
Test 2	20%	Class 13	00ST.3, 00ST.5, 00ST.7	☒
Project Specifications	15%	Class 15	00SY.1	☒
Project	30%	Class 18	00ST.2, 00ST.3, 00ST.5, 00ST.7, 00ST.8, 00ST.9	☒

E. Course Content and Schedule

Course Content

PHP Fundamentals: syntax, variables, arrays, control structures, forms
Using MySQL
Internationalization and Localization
Debugging and Logging
Integrating JavaScript APIs
Building and deploying a Full-Stack PHP/MySQL Project

Schedule

Date or class	Topic(s)	Additional info	F2F	Online
Class 1	Setup PHP web server, PHP Syntax, variables		☐	☐
2	Control Structures		☐	☐
3	Form handling and validation		☐	☐
4	File handling		☐	☐
5	**Test 1**		☐	☐
6	Connecting to database, CRUD		☐	☐
7	CRUD		☐	☐
8	Composer, Framework, DB Access		☐	☐
9	Templating, Logging		☐	☐
10	Web Application Security Risks Website Migration to a Web Host Search Engine Optimization		☐	☐
11	Web APIs		☐	☐
12	JavaScript client for APIs		☐	☐
13	**Test 2**		☐	☐
14	Project – Planning and Design		☐	☐
15	**Project Specifications Due**		☐	☐
16	Project		☐	☐
17	Project - Deployment		☐	☐
18	Presentation		☐	☐

F. Required Textbooks / Materials / Costs

Title / Item	Cost $
N/A	
Technical requirements for this course (hardware, software, High speed Internet connection, etc.)	

G. Bibliography (books, articles, videos, websites, podcasts, etc.)

Optional Reading:

Nixon, Robin, L*earning PHP, MySQL, JavaScript and CSS, Second Edition*, O'Reilly Media Inc., 2012
Tarr, Andrea, *PHP and MySQL 24-Hour Trainer*, John Wiley & Sons, Inc., 2012
Welling, Luke, Thomson, Laura., *PHP and MySQL Web Development*, 5/E, Addison-Wesley, 2017

E-Books (John Abbott Library)
Bierer, Doug. (2016), *PHP 7 : real world application development : use new features of PHP 7 to solve practical, real-world problems faced by PHP developers like yourself every day : a course in three modules*. Birmingham, UK, Packt Publishing.
Nutile, Alfred. (2016), *Laravel 5.x cookbook : a recipe-based book to help you efficiently create amazing PHP-based applications with Laravel 5.x*. Birmingham, UK, Packt Publishing.
Terrell, Bob. (2019), *Creating data-driven web sites : an introduction to HTML, CSS, PHP, and MySQL*. New York, NY, Momentum Press, Engineering.

H. Teaching Methods

The course is a combination of theory and labs. Students will:

- Work alone
- Work in groups

The course requires your individual presence and your active, consistent and sustained participation in your individual work. Your individual responsibilities are to complete the work assigned and be ready to work at the start of each class. Léa, the course management system within Omnivox, will be used in this course.

Learning Activities:

- Lectures/Demonstrations: Discussion is encouraged as is student-procured, outside material relevant to topics being covered.
- Hands-On Exercises/Project: Case problems, concepts reviews, and skills practice, will help support and reinforce material in the course. These will be structured to be as realistic as possible given the time available.
- Tests
- Term Project (In teams of 2 or 3 students)
- Classroom Activity: Participation and Discussion

I. Departmental Policies and Classroom Policies

Classroom Policies

Late submission of work Work submitted late will result in a 10% deduction from the grade, per calendar day
Classroom behaviour
Online etiquette

Departmental Policies

Please refer to the following document concerning policies in place at the Centre for Continuing Education:

Continuing Education Policies and Guidelines
(version: December 1, 2020)

A. College Policies

Please refer to the following document concerning the provisos related to course outlines as a response to Covid-19.

Provisos for Course Outlines (Covid-19)
(version: winter 2022)

Topic	Resource
Student rights and responsibilities (see articles 3.2 and 3.3)	Policy 7:IPESA - Institutional Policy on the Evaluation of Student Achievement (version: June 12, 2019)
Changes to evaluation plan in the course outline (see article 5.3)	
Religious holidays (see article 4.1)	
Cheating and plagiarism (articles 9.1 and 9.2)	
Cheating and plagiarism	Academic Integrity: Cheating and Plagiarism Procedure (version: October 22, 2021) ***You will need to log into Omnivox to access this document.***
Code of conduct	Policy 13: Policy on Student Conduct and Discipline Procedures (version: September 21, 2021)

DISCLAIMER: Policies may be updated during the academic year. Should a link in the section above no longer work, please refer to the college website: https://www.johnabbott.qc.ca/the-college/official-documents/