Course Outline

Full-Stack Developer – LEA.BN

A. General Information

Course title	**Programming III**
Course number	420-JD5-AB
Hours	75
Ponderation *Ratio of lecture, practical and homework hours*	2-3-3
Credits	2.67
Competency statement(s) and code(s)	00SU - Develop transactional Web applications Elements 6 & 7 only: 00SU.6 Program the client-side application logic 00SS.7 Control the quality of the application
Prerequisite (s)	420-JB4-AB Programming II, 420-SA5-AB Database
Cohort	FSD-05
Start date	October 18, 2022
End date	November 4, 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	
Course format (F2F, online, hybrid)	

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 third semester of the program.

In this course the student will learn how and when to use the advanced Object-Oriented Programming features of the Java language in a more practical and advanced context. This course will also expose the student to event-driven programming and writing unit and integration tests for an application written in Java's Spring framework. This course will also integrate SQL Databases into Java software. Emphasis is put on integration of the content learned in this course and the previous two programming courses. Students will focus on a project using Java Spring Boot.

C. Course Objectives

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

	00SU
Statement of the Competency	**Achievement Context**
Develop transactional Web applications.	• For transactional Web applications: reservations, registrations, collaboration, inventory management, e-commerce, etc. • For new applications and application to be modified • Based on design documents • Using images • Using issue tracking and version control procedures
Elements of the Competency	**Performance Criteria**
6. Program the client-side application logic.	• Correct manipulation of DOM objects • Proper programming of asynchronous calls • Proper programming of interactions between the Web interface and the user • Systematic use of Web form data validation techniques • Web forms in compliance with usability requirements
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

D. Evaluation Plan

Evaluation task	%	Approximate date	Link to competency(ies) and element(s)	Select if part of the final evaluation!
Class Exercises (2 @ 5% each)	10		00SU.6-00SU.7	☐
Test 1	30	Class 7	00SU.6-00SU.7	☒
Test 2	30	Class 12	00SU.6-00SU.7	☒
Project	30	Class 15	00SU.6-00SU.7	☒

E. Course Content and Schedule

Course Content

Introduction to Java Spring Spring MVC Database transactions with Spring Form data validation and database access Programming the web interface Testing a Spring-based Application Implementing RESTful API service and client Unit and Integration Testing Project

Schedule

Date or class	Topic(s)	Additional info	F2F	Online
Class 1	Introduction to Java Spring	Configuring the environment Inversion of Control Defining Bean Scopes Using FactoryBeans Bean Lifecycle	☐	☐
Class 2	Spring MVC	Building our First Spring Web App, understanding MVC	☐	☐
Class 3	Database transactions with Spring	Adding more functionality to our Web App including database access	☐	☐
Class 4	Form data validation and database access		☐	☐
Class 5	Programming the web interface	User registration and login	☐	☐
Class 6	Testing a Spring-Based Application		☐	☐
Class 7	**Test 1**		☐	☐
Class 8	Implementing RESTful API service and client	Building a RESTful API service	☐	☐
Class 9	Unit and Integration Testing	Testing the API, troubleshooting	☐	☐
Class 10	Project proposal due	Spring Boot configuration Creating an Application	☐	☐
Class 11	**Test 2**, Project		☐	☐
Class 12	Project	How to deploy a Spring application in the cloud	☐	☐
Class 13	Project	Unit and Integration Testing	☐	☐
Class 14	**Project Demo and Presentation**		☐	☐

F. Required Textbooks / Materials / Costs

Title / Item	Cost $
N/A	0
Technical requirements for this course (hardware, software, High speed Internet connection, etc.)	

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

Optional:

- Deitel, P. J., & Deitel, H. M. (2018). *Java: How to program early objects* (11th ed.). New York, NY: Pearson. ISBN-13: 9780134743356.
- Liang, Y. D. (2020). *Introduction to Java Programming and Data Structures: Comprehensive version* (12th ed.). New York: Pearson. ISBN-10: 0136520235, ISBN-13: 9780136520238.

E-books available from the John Abbott Library online

- Çalişkan, Mert. (2015), Beginning spring. Indianapolis, Indiana, Wrox.
- Samoylov, Nick. (2018), Introduction to programming : learn to program in Java with data structures, algorithms, and logic. Birmingham, Packt.
- Tragura, S. J. C. (2017). Spring 5.0 Cookbook. Packt Publishing.

H. Teaching Methods

The course is a combination of theory and practical work.
Students will be required to:

- Work alone
- Work in groups

It 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.
Hands on experience is mandatory to your success in this course.
Léa, the course management system within Omnivox, will be used in this course.
Learning Activities:

- Lectures/Demonstrations.
- 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
- Team Project: The project focuses on methodologies and tools seen in this course.
- 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/