JOHN ABBOTT
CEGEP/COLLEGE

Centre for Continuing Education

Internet Programming and Development (AEC LEA.BN)

420-P63-AB
DEVELOPING WEB SERVICES
COURSE OUTLINE

GENERAL INFORMATION

Course Title	Developing Web Services
Course Number	420-P63-AB
Course Ponderation	1-2-3
Total Hours	45
Number of Credits (Units)	2.00
Program Competency(ies)	DC67 – Create and apply platform-independent Web services
Prerequisite course(s)	(420-PW4-AB) HTML & XML
Timetable and Location	8h30 to 13h30 in BH-213
Start Date	July 11th, 2018
End Date	August 6th, 2018
Semester	Summer 2018
Instructor	Stephanie Moreau
Contact Information	The instructor can be reached by MIO

COURSE DESCRIPTION

In this course the student will learn how to create and consume a variety of platform-independent web services, such as XML-RPC, JSON-RPC, WebServices (with WSDL), SOAP, and REST.

The student will also learn to consume existing web services with public APIs, such as Facebook, Twitter, GoogleAPI, Yahoo Finances. Clients and servers for such services may be written using C#, Java, JavaScript, and PHP.

COMPETENCIES AND PERFORMANCE CRITERIA

Upon successful completion of this course, the student will be able to understand:

- The many standards for web services and similar API-based communication between computer systems over internet,
- How to consume (use) existing APIs and how to create own APIs on different platforms and using different programming languages.

OBJECTIVE	STANDARD

Statement of the Competency
DC67. Create and apply platform-independent Web services.
	Achievement Context
	• In a classroom and computer laboratory environments:
	  o Using a workstation and the appropriate software
	  o Based on situations representative of the workplace and requiring the development of applications involving a limited number of classes
	  o Using all the documentation available on the applications to be developed
	• Based on industry standards

ELEMENTS OF COMPETENCY	**PERFORMANCE CRITERIA**
1. Learn Web Services basics	1. Explain the nature, broad characteristics, and types of Web services 2. Understand the difference between Web services and the application service provider model and Web-based applications 3. Discover how Web services standards help develop distributed applications
2. Describe the XML-RPC and JSON-RPC protocol main characteristics	1. Explain the XML-RPC and JSON-RPC messaging protocols 2. Use the XML-RPC and/or JSON-RPC to consume or create a service
3. Describe RESTful Services main characteristics	1. Explain the use of RESTful services, including the usual challenges in using the exact specification, 2. Create software providing or consuming a RESTful service
4. Describe the Simple Object Access Protocol (SOAP) main characteristics	1. Explain the use of SOAP as a messaging protocol 2. Understand how SOAP promotes interoperability 3. Identify the advantages and limitations of SOAP
5. Describe the Web Services Description Language (WSDL)	1. Define the Web Services Description Language 2. Define Web services interfaces and implementations in WSDL
6. Describe the role of service registries and the service discovery process for Web services	1. Explain the use of the Universal Description, Discovery, and Integration (UDDI) as a standard registry 2. Identify the UDDI data structures and their relationship to WSDL documents 3. Understand the different UDDI usage models and variants
7. Explain how to implement Web APIs and protocols in a variety of languages	1. Implement a Web API client or server in PHP language 2. Implement a Web API client or server in JavaScript language 3. Implement a Web API client or server in Java language
8. Explain how to develop XML Web Services using Visual Studio .NET	1. Learn how to set up the development environment required to create XML Web Services for the Microsoft .NET platform 2. Explain the fundamental program elements provided by the Microsoft .NET Framework that are used to create an XML Web service 3. Describe how to manage Web references in Visual Studio .NET

COURSE CONTENT

Web Services basics
XML-RPC and JSON-RPC web services
RESTful web services
SOAP web services
WSDL
UDDI
Frameworks for integrating web services

TENTATIVE SCHEDULE

Class #	Topics	Competency Element(s)
1	Web Services Basics, XML-RPC, JSON-RPC	1, 2, 3
2	RESTful web services	3
3	**Test 1,** RESTful web services	
4	RESTful web services	3, 7
5	SOAP	4
6	SOAP, WSDL, UDDI, .NET Framework	4, 5, 6. 8
7	Project	7
8	**Test 2,** Project	
9	**Project**	7

TEXTBOOK AND REFERENCES:

***Required**:* None
***Optional Reading**:* (e-books available online from the John Abbott library)

Abeysinghe, Samisa. *RESTful PHP web services : learn the basic architectural concepts and steps through examples of consuming and creating RESTful web services in PHP*. Birmingham [U.K.], Packt Pub, 2008.

Kanjilal, Joydip. *ASP.NET Web API : build RESTful web applications and services on the .NET framework : master ASP.NET Web API using .NET Framework 4.5 and Visual Studio 2013*. Birmingham, UK, Packt Publishing, 2013

EVALUATION PLAN

Evaluation	Value	Competency Element							
		01	02	03	04	05	06	07	08
Assignments - 3 @ 10% each	30%	x	x	x	x	x	x	x	x
Test 1 (Class 3)	15%	x	x	x					
Test 2 (Class 8)	30%			x	x	x	x	x	x
Project (Class 9)	25%			x	x			x	x

(Note: Classes indicated are tentative)

COURSE COSTS

None

TEACHING METHODS

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

- 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 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/Assignments/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**
- **Student Presentations**
- **Classroom Activity**: Participation and Discussion

DEPARTMENTAL ATTENDANCE POLICY

Attendance

The Centre for Continuing Education expects all students to attend class regularly. It is an essential requisite for the academic success and the mastery of the competencies required. The level of mastery of theses competencies can be greatly increased with regular attendance as it allows the student time to demonstrate the complete understanding and perform certain elements of the competencies. Attendance and participation in class, lab, and fieldwork is mandatory. Attendance will be taken at the beginning of every class.

Without a valid reason or prior approval, students cannot miss more than 20% of the total hours of a course, i.e. 9 hours for a 45 hour course, 12 hours for a 60 hour course etc. or risks failing the course.

Since marks recognize the extent to which the competencies are met, no marks can be given for attendance alone or deducted for absence. Although attendance cannot be used as a component of the final grade, excessive absences may have consequences affecting the final grades.

Absences are subject to the following procedures:

Students who miss class without a valid reason or prior approval will receive a mark of zero on any in-class assignment or quiz given in the period without the opportunity for make-up work.

Exceptions apply in cases of authorized absences.

Authorized Absences

Students must be excused if they provide written proof of a valid medical or other special reason for missing a class or an evaluation within a 24 hour period. Teachers must require proof. (IPESA Art.7.1) Teachers are not required to re-teach course material missed by these students. Students with authorized absences cannot loose marks for missing an evaluation. The marks for the evaluation may be assigned to another evaluation even if the guidelines in IPESA Article 5 are exceeded. Teacher must provide alternative major evaluations if students miss a major evaluation due to an excused absence.

According to article 7.1 IPESA, special arrangements may be made in cases where chronic illness prevents the student from attending on a regular basis. Proof may be required. Special arrangements

should also be made for religious holidays; however, students must inform the teacher at the beginning of the course, in writing.

Absences fewer than 5 days
Students who miss less than 20% of the course for justified reasons must provide a written note to the teacher or the program coordinator.

Five days or more
Students who will be absent for 5 days or more for justified reasons should provide a medical note to the Registrar's Office. The Registrar's Office will then advise the teacher of the date of return or if it is undetermined. Arrangements for submission of missed work, test, exams etc. are made between the teacher and the student.
Extended Absences after the Course withdrawal deadline (according to the Registrar policy) http://www.johnabbott.qc.ca/academics/registrar/authorized-absences/

Classroom Policies
Students who miss a class will receive a mark of zero on any in-class assignments or quizzes given in the period without the opportunity for any make-up work. Exceptions to this policy apply only in the event of absence due to medical or special reasons or religious holidays.
All electronic communication and music devices (e.g., iPad, tablets, cell phones, etc.) must be turned off while in class, unless authorized otherwise by the teacher.
Class time is limited, and each student at John Abbott is entitled to the very best educational experience in every class. It is important that the atmosphere of each classroom or lab be as conducive to the learning process as possible. The following guidelines have been established so as to create and maintain such an atmosphere.
Inappropriate behaviour in the classroom includes the following:

- Speaking while another person (teacher or student) has the floor (that is, he/she is addressing the class as a whole).
- Using cellular phones or other electronic devices not related to the course.
- Threatening, harassing, or offensive behaviour towards any person in the class, other students, teachers or College staff.
- Use of derogatory language or referring directly or indirectly to someone else in the class in a rude manner or using offensive language.
- Misuse or abuse of the College's computers, telephone systems or other equipment.
- Speaking, reading or writing about subjects which are not part of the current class discussion.
- Arriving late, leaving early, and leaving the room for any non-emergency without having teacher approval and the courtesy to make this known.
- Eating or drinking in the computer laboratories is forbidden.

COLLEGE POLICIES

Policy No. 7 – IPESA, Institutional Policy on the Evaluation of Student Achievement:
http://www.johnabbott.qc.ca/wp-content/uploads/2014/12/2011-IPESA-FINAL-website-JAN-2013-rev-Dec-102014.pdf

- **Changes to Evaluation Plan in Course Outline (Article 4.3)**
  Changes to the evaluation plan, during the semester, requires unanimous consent.
- **Mid-Semester Assessment MSA (Article 3.3)**
  Students will receive an MSA in accordance with College procedures.
- **Religious Holidays (Article 3.2)**
  Students who wish to observe religious holidays must inform their teacher in writing within the first two weeks of the semester of their intent.

Student Rights and Responsibilities

- **(Article 3.2, item 19.)**

It is the responsibility of students to keep all assessed material returned to them in the event of a grade review. (The deadline for a Grade Review is 4 weeks after the start of the next regular semester.)

- **(Article 3.3, item 7.)**

  Students have the right to receive the results of evaluation, for regular day division courses, within two weeks. For evaluations at the end of the semester/course, the results must be given to the student by the grade submission deadline. Where applicable: for intensive courses (i.e.: intersession, abridged courses), timely feedback must be adjusted accordingly.

- **Cheating and Plagiarism (Article 8.1 & 8.2)**

  Cheating and plagiarism are serious infractions against academic integrity which is highly valued at the College; they are unacceptable at John Abbott College. Students are expected to conduct themselves accordingly and must be responsible for all of their actions.

Cheating

Cheating means any dishonest or deceptive practice relative to examinations, tests, quizzes, lab assignments, research papers or other forms of evaluation tasks. Cheating includes, but is not restricted to, making use of or being in possession of, unauthorized material or devices and/or obtaining or providing unauthorized assistance in writing examinations, papers or any other evaluation task and submitting the same work in more than one course without the teacher's permission. It is incumbent upon the Department through the teacher to ensure students are forewarned about unauthorized material, devices or practices that are not permitted.

Plagiarism

Plagiarism is a form of cheating. It includes the intentional copying or paraphrasing (expressing the ideas of someone else in one's own words), of another person's work or the use of another person's work or ideas without acknowledgement of its source. Plagiarism can be from any source including books, magazines, electronic or photographic media or another student's paper or work.