Visual Basic .NET and C# .NET Windows Development - 420-PQ5-AB

COURSE OUTLINE

General Information :	**A.E.C.**	
Course Title :	***Visual Basic .NET and C# .NET Windows Development***	
Course Number/Section :	**420-PQ5-AB sect. 00074**	
Start Date:	**March 29, 2021**	End date: April 20, 2021
Schedule :	Mon-Fri, 8:30am to 2:00pm, includes lunch break 11:30am-noon	
Classroom :	online	
Ponderation :	2 hours lecture + 3 hours laboratory + 3 hours homework	
Hours:	75	
Credits :	2.66	
Competencies :	DC64 – Use the appropriate tools to create Visual Basic .NET and C# .NET applications that conform to well-adopted Windows standards	
Pre-requisite(s) :	(420-PM3-AB) .NET Programming Fundamentals	
Semester :	Winter 2021	
Teacher :	Gregory Prokopski, PhD	
Email or contact info:	gregory@prokopski.com, MIO preferred	

A. Introduction (Program Related Information) :

This course introduces students to the VisualStudio.Net, Visual Basic.Net and C# .Net Integrated Development Environments (IDEs). Students will learn how to work with controls and their properties, as well programming methods and events. Coding conventions and code structure as well as acceptable levels of documentation will be employed in all applications. Emphasis is placed on clear software design, on advanced use and creation of Classes as well as Graphical User Interfaces (GUI) design. Windows Presentation Foundation (WPF) GUI will be explored in order to create rich, interactive client applications. Using the .NET Framework students will create and deploy fully functional, accessible, and secure Windows applications.

B. Objectives and Course Content : This course introduces students to the Visual Studio.Net, Visual Basic.Net and C# .Net Integrated Development Environments (IDEs). Upon successful completion of this course, the student will be able to understand:

- Coding techniques in Visual Basic .Net and C# .Net
- Writing an application from the ground up in Visual Basic .Net and C# .Net

OBJECTIVE	STANDARD

Statement of the Competency
Use the appropriate tools to create Visual Basic .NET and C# .NET applications that conform to well-adopted Windows standards.
	Achievement Context
	• In a classroom and computer laboratory environments – using:
	  ○ Using a workstation and the appropriate software
	  ○ Based on situations representative of the workplace and requiring the development of applications involving a limited number of classes
	  ○ Using all the documentation available on the applications to be developed
	• In written assignment(s) and/or in-class exam(s)
	• In simulation exercises
	• Working alone and in groups
	• Based on industry standards

Elements of the Competency	**Performance Criteria**

1. Explore the elements of Visual Basic .NET and C# .NET development environment	1.1 Explain Visual Basic .NET and C# .NET characteristics 1.2 Explore the elements of the development environment 1.3 Learn how to access help 1.4 Open a Visual Basic .NET and C# .NET solution 1.5 Explore the role of the developer 1.6 Examine the steps in creating and saving a solution
2. Explain programming based on events	2.1 Understand the organization of namespaces 2.2 Define delegates and examine their relationship to events 2.3 Explore event handling procedure in C# and VB
3. Explain component based development methods	3.1 Explain how to design and develop multiuser application using component based development methods 3.2 Learn how to use inheritance to extend the functionality of user-defined classes 3.3 Explain how to design and implement interfaces
4. Understand handling exceptions and stored data	4.1 Learn about exceptions, including how they are thrown and caught 4.2 Become aware and use exception handling techniques
5. Learn about technologies used for accessing databases	5.1 Understand how VB .NET and C# use a database 5.2 Understand the basics of ADO.NET 5.3 Learn how to access and update databases using ADO.NET classes

D. Evaluation: Midterm – 40% Project – 60% total, with components: - proposal 10% - midway progress 10% and tools use 5% (Git, Trello, Daily Scrum, etc.) - tools use at the end 5% - final project and presentation 30%	Competencies: 1, 2, 3, 4, 5 Competencies: 1, 2, 3, 4, 5

E. Course Content Schedule :

Day #	Topics	Link to the Competency or element
1	- Review: static, inheritance, constructors, encapsulation (getters, setters), access modifiers, arrays, lists, List<> - Working with Git	1, 2, 3, 4
2	- access modifiers, arrays, lists, List<> - text file I/O, exceptions handling and custom exceptions	1, 2, 3, 4
3	- pass by value vs. pass by reference, output parameters, indexer - delegates and events, generics (creation and use), enums	1, 2, 3, 4
4	- var vs. object types, casting vs as, nullable types - LINQ queries use - two formats for sorting and searching - Q&A / review before quiz 1	1, 2, 3, 4
5	- WPF architecture (XAML+Code Behind) and basic controls (window, radio buttons, check boxes, text inputs, labels, combo boxes, menus, context menus, status bars, slider)	1, 2, 3, 4, 5
6	**Midterm** - WPF architecture and basic controls - continued	1, 2, 3, 4, 5
7	- MS SQL server integration with C#, CRUD in WPF	1, 2, 3, 4, 5
8	- WPF event handling - button click, window closing/close, etc. - WPF advanced controls: ListView and GridView	1, 2, 3, 4, 5
9	- WPF data binding basic uses and examples - WPF layouts, especially: Grid, Stack Panel, WrapPanel, Dock Panel	1, 2, 3, 4, 5
10	- WPF standard dialogs, File Open/Save dialogs	1, 2, 3, 4, 5

	- WPF custom dialogs / windows handling of passing values to and results from - Q&A / review before quiz 2	
11	- NuGet and Entity Framework installation - Entity Framework architecture and use	1, 2, 3, 4, 5
12	- Entity Framework code-first annotations, conventions - Entity Framework relations between entities	1, 2, 3, 4, 5
13	- Integration of WPF and Entity Framework	1, 2, 3, 4, 5
14	**Final Project Presentations**	1, 2, 3, 4, 5
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Note: The above schedule is tentative. Teacher reserves the right to adjust the order of content and time spent on a subject as long as it fulfills the competency and helps improve the effectiveness of students learning.

F. Required Text & Course Materials (insert	Author		
All material is provided online, for free, by the teacher	--	--	*Included in the tuition*

G. Teaching

This course will be approached from both a theoretical and practical perspective through:

- Lectures and workshops
- In-class exercises, simulations, role playing and Web portfolio
- Case studies, quizzes and examinations

H. Departmental

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. , I pads, tablets, cell phones, pagers, CD-players, mp3-players, 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 MP3, 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.

I. College

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.

To ensure that a consistent and acceptable manner of conduct and level of safety conducive to a learning environment is maintained within the college, the following disruptive behaviours will not be tolerated in any degree on campus: unauthorised use of alcohol or illegal drugs, violence against persons or property, possession of weapons, verbal abuse or intimidation, theft, and gambling.

Copyright law must be respected at all times. Please be aware that any illegal copy of textbook material will be confiscated.

Religious Holidays

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

It is the responsibility of students to keep all assessed material returned to them for at least one semester in the event of a grade review.

Students with Disabilities: Students with disabilities, who have registered with The Access Centre, may be entitled to special accommodations for evaluations. Please notify the instructor as soon as possible.

Changes to the Evaluation Plan in Course Outline (Article 4.3)

Changes to the evaluation plan, during the course, requires unanimous consent.