SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO

COURSE OUTLINE

COURSE TITLE:	**Introduction to Visual Basic**		
CODE NO. :	**CSD206**	**SEMESTER:**	**3**
PROGRAM:	**Computer Programming**		
AUTHOR:	**Willem de Bruyne**		
DATE:	**07/07/10**	**PREVIOUS OUTLINE DATED:**	**07/07/09**
APPROVED:		"B.Punch"	
		_____ _____	
		CHAIR	DATE
TOTAL CREDITS:	**FIVE**		
PREREQUISITE(S):	**CSD101**		
HOURS/WEEK:	**FOUR**		

I.   COURSE DESCRIPTION:

This course uses Microsoft Visual Basic 2010 for Windows and Mobile Applications. The course is an introduction to ways to design and write programs using Visual Basic 2010. The goal of this course is to provide an introductory-level course in computer programming for students with little or no previous programming experience. The major objectives of this course are:

- To teach the fundamentals of the Microsoft Visual Basic 2010 programming language
- To understand and apply graphical user interface design principles
- To emphasize the development cycle when creating applications, which mirrors the same approach that professional developers use
- To illustrate well-written and readable programs using a disciplined coding style, including documentation and indentation standards
- To demonstrate how to implement logic involving sequence, selection, and repetition using Visual Basic 2010
- To write useful, well-designed programs for personal computers and handheld computers that solve practical business problems

The course focuses on hands-on, so there will be plenty of do-it-yourself features throughout the course.

II.   LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1.   An Introduction to Visual Basic 2010 and Programming

      Potential Elements of the Performance:
      - Understand software and computer programs
      - State the role of a developer in creating computer programs
      - Specify the use of a graphical user interface and describe an event-driven program
      - Specify the roles of input, processing, output, and data when running a program on a computer
      - Describe the arithmetic operations a computer program can perform
      - Explain the logical operations a computer program can perform
      - Define and describe the use of a database
      - Identify the use of a computer programming language in general, and Visual Basic 2010 in particular
      - Explain the use of Visual Studio 2010 when developing Visual Basic 2010 programs

- Specify the programming languages available for use with Visual Studio 2010
- Explain the .NET 2.0 Framework
- Explain RAD
- Describe classes, objects, and the .NET Framework 2.0 class libraries
- Explain ADO.NET 2.0, ASP.Net 2.0, MSIL, and CLR
- Specify the types of Visual Basic 2010 applications

2.   Program and Graphical User Interface Design

Potential Elements of the Performance:

- Open and close Visual Studio 2010
- Create a Visual Basic 2010 Windows Application project
- Name and set the Title Bar text in a Windows Form object; resize a Windows Form object
- Add a Label object to a Windows Form object; name the Label object; set the text in the Label object; change the Font properties of the text in the Label object
- Add a PictureBox object to the Windows Form object; name the PictureBox object; resize the PictureBox object
- Add a Button object to the Windows Form object; name the Button object; set the text in the Button object; change the Button object size
- Align Objects on the Windows Form object
- Save and open Visual Basic projects
- Understand and implement graphical user interface design principles
- Understand and implement the first two phases of the program development life cycle

3.   Program Design and Coding

Potential Elements of the Performance:

- Change the BackColor property of an object
- Add images to a PictureBox object
- Locate and save an image from the World Wide Web
- Import an image into the Program Resources folder
- Size an image
- Set the Visible property in the Properties window
- Set the Enabled property in the Properties window
- Run a Visual Basic 2010 program
- Enter Visual Basic 2010 code
- Understand Visual Basic 2010 code statement formats
- Use IntelliSense to enter Visual Basic 2010 code statements

- Using code, set the Visible property of an object
- Using code, set the Enabled property of an object
- Enter comments in Visual Basic 2010 code
- Correct errors in Visual Basic 2010 code
- Write code to use the Close() procedure
- Print code

4.   Variables and Arithmetic Operations

Potential Elements of the Performance:
- Create, modify, and program a TextBox object
- Use code to place data in the Text property of a Label object
- Use the AcceptButton and CancelButton properties
- Understand and declare String and Numeric variables
- Use assignments statements to place data in variables
- Use literals and constants in coding statements
- Understand scope rules for variables
- Convert string and numeric data
- Understand and use arithmetic operators and arithmetic operations
- Format and display numeric data as a string
- Create a form load event
- Create a concatenated string
- Debug a program

5.   Mobile Applications Using Decision Structures

Potential Elements of the Performance:
- Write programs for devices other than a personal computer
- Understand the use of handheld technology
- Write handheld applications for a Personal Digital Assistant
- Use the Panel object
- Place RadioButton objects in applications
- Display a message box
- Make decisions using If…Then statements
- Make decisions using If…Then…Else statements
- Make decisions using nested If statements
- Make decisions using logical operators
- Make decisions using Case statements
- Insert code snippets
- Test input to ensure a value is numeric

6.   Loop Structures

Potential Elements of the Performance:
- Add a MenuStrip object
- Use the InputBox function
- Display data using the ListBox object
- Understand the use of counters and accumulators
- Understand the use of compound operators
- Repeat a process using a For...Next loop
- Repeat a process using a Do loop
- Avoid infinite loops
- Prime a loop
- Validate data
- Create a nested loop
- Select the best type of loop
- Debug using DataTips at breakpoints
- Publish a finished application using ClickOnce technology

7.   Using arrays and File Handling

Potential Elements of the Performance:
- Initialize an array
- Initialize an array with default values
- Access array elements using a loop
- Use ReDim to resize an array
- Determine the number of elements in an array using the Length command
- Use the For Each loop
- Initialize two-dimensional arrays
- Read a text file
- Write to a text file
- Calculate depreciation

III.   TOPICS:

1.   An Introduction to Visual Basic 2010 and Programming
2.   Program and Graphical User Interface Design
3.   Program Design and Coding
4.   Variables and Arithmetic Operations
5.   Mobile Applications Using Decision Structures
6.   Loop Structures
7.   Using arrays and File Handling

IV.   REQUIRED RESOURCES/TEXTS/MATERIALS:

MICROSOFT Visual Basic 2010 for Windows, Mobile, Web, Office, and Database Applications, COMPREHENSIVE

Authors: Shelly, Hoisington
ISBN: 978-1-4239-2716-7

V.   EVALUATION PROCESS/GRADING SYSTEM:
The mark for this course will be arrived at as follows:

Quizzes 4 @ 15%
Assign   3 @ 12%
Participation 4%
                    100%

The following semester grades will be assigned to students:

Grade	Definition	Grade Point Equivalent
A+	90 – 100%	4.00
A	80 – 89%	
B	70 - 79%	3.00
C	60 - 69%	2.00
D	50 – 59%	1.00
F (Fail)	49% and below	0.00
CR (Credit)	Credit for diploma requirements has been awarded.	
S	Satisfactory achievement in field /clinical placement or non-graded subject area.	
U	Unsatisfactory achievement in field/clinical placement or non-graded subject area.	

X	A temporary grade limited to situations with extenuating circumstances giving a student additional time to complete the requirements for a course.
NR	Grade not reported to Registrar's office.
W	Student has withdrawn from the course without academic penalty.

The professor reserves the right to adjust the final mark based on attendance, participation, leadership, creativity and whether there is an improving trend.

A minimum of **80% attendance** required in the labs and lectures.

- Students must complete and pass both the test and assignment portion of the course in order to pass the entire course.
- All Assignments must be completed satisfactorily to complete the course.
- Late hand in penalties will be a zero grade unless prior permission from the instructor.
- Makeup Tests are at the discretion of the instructor and will be assigned a maximum grade of 50%.
- The professor reserves the right to adjust the number of tests, practical tests and quizzes based on unforeseen circumstances. The students will be given sufficient notice to any changes and the reasons thereof.
- A student who is absent for 3 or more times without any valid reason or effort to resolve the problem will result in action taken.

NOTE: If action is to be taken, it will range from marks being deducted to a maximum of removal from the course.

Eligibility for X Grades/Upgrading of Incompletes   When a student's course work is incomplete or final grade is below 50%, there is the possibility of upgrading to a pass when a student meets all of the following criteria: The student's attendance has been satisfactory. An overall average of at least 50% has been achieved. The student has not had a failing grade in all of the theory tests taken. The student has made reasonable efforts to participate in class and complete assignments.

 Note: The opportunity for an X grade is usually reserved for those with extenuating circumstances.   The nature of the upgrading requirements will be determined by the instructor and may involve one or more of the following: completion of existing labs and assignments, completion of additional assignments, re-testing on individual parts of the course or a comprehensive test on the entire course.

Labs:

Lab activities represent a very important component of this course in which practical 'hands-on' skills will be developed. Because of this, attendance is mandatory and the satisfactory completion of all lab activities is required. Evaluation of lab work in-class will be done. It is the student's responsibility to discuss absences from regularly scheduled labs with the instructor so that alternate arrangements (where possible) can be made to complete the lab requirements.

Attendance:

Absenteeism will affect a student's ability to succeed in this course.
Absences due to medical or other unavoidable circumstances should be discussed with the professor. Students are required to be in class on time and attendance will be taken within the first five minutes of class. A missed class will result in a penalty in your marks unless you have discussed your absence with the professor as described above. Unauthorized absences could result in a zero grade being assigned. The penalty depends on course hours and will be applied as follows:

Course Hours	Deduction
5 hrs/week (75 hrs)	1% / hr
4 hrs/week (60 hrs)	1.5% /hr
3 hrs/week (45 hrs)	2% /hr
2 hrs/week (30 hrs)	3%/hr

Absentee reports will be discussed with each student during regular meetings with Faculty Mentors. Final penalties will be reviewed by the professor and will be at the discretion of the professor.

Electronic Devices in the Classroom:

Students who wish to use electronic devices in the classroom will seek permission of the faculty member before proceeding to record instruction. With the exception of issues related to accommodations of disability, the decision to approve or refuse the request is the responsibility of the faculty member. Recorded classroom instruction will be used only for personal use and will not be used for any other purpose. Recorded classroom instruction will be destroyed at the end of the course. To ensure this, the student is required to return all copies of recorded material to the faculty member by the last day of class in the semester. Where the use of an electronic device has been approved, the student agrees that materials recorded are for his/her use only, are not for distribution, and are the sole property of the College.

VI.   SPECIAL NOTES:

<u>Special Needs:</u>
If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your professor and/or the Special Needs office. Visit Room E1101 or call Extension 2703 so that support services can be arranged for you.

<u>Retention of Course Outlines:</u>
It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

<u>Communication:</u>
The departmental expectations are that I.T. Studies students will check their e-mail at least 3 times per day. Students should also make sure to check e-mail from home. Faculty use e-mail as the primary means to communicate with students outside of class contact.

<u>Plagiarism:</u>
Students should refer to the definition of "academic dishonesty" in *Student Code of Conduct.* Students who engage in academic dishonesty will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

<u>Student Portal:</u>

The Sault College portal allows you to view all your student information in one place. **mysaultcollege** gives you personalized access to online resources seven days a week from your home or school computer. Single log-in access allows you to see your personal and financial information, timetable, grades, records of achievement, unofficial transcript, and outstanding obligations, in addition to announcements, news, academic calendar of events, class cancellations, your learning management system (LMS), and much more. Go to https://my.saultcollege.ca.

<u>Course Outline Amendments:</u>
The professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

Tuition Default:

Students who have defaulted on the payment of tuition (tuition has not been paid in full, payments were not deferred or payment plan not honoured) as of the first week of *March,* will be removed from placement and clinical activities. This may result in loss of mandatory hours or incomplete course work. Sault College will not be responsible for incomplete hours or outcomes that are not achieved or any other academic requirement not met as of the result of tuition default. Students are encouraged to communicate with Financial Services with regard to the status of their tuition prior to this deadline to ensure that their financial status does not interfere with academic progress.

VII.   PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII.   ADVANCE CREDIT TRANSFER:

Students who wish to apply for advance credit transfer (advanced standing) should obtain an Application for Advance Credit from the program coordinator (or the course coordinator regarding a general education transfer request) or academic assistant. Students will be required to provide an unofficial transcript and course outline related to the course in question.