Bus 410-01: Software Design & Development - Fall 2010
TR: 8:00 – 9:30 AM; MIS Lab, Clow Classroom 33

Instructor: Dr. George Philip
Office: CF 207; Telephone: 424-3152; Email: philip@uwosh.edu
Office hours: M,T,W,R: 1:15 – 3:00; or, by appointment


Description:
This course deals with software design and development in the event-driven (visual or object-based) programming environment. Visual Basic (2010) will be used to gain an understanding of the event-driven environment. Both basic and some advanced features of Visual Basic will be covered in this course.

The objectives of the course are:
1. Students will gain an understanding of software design and development in the event-driven programming environment.
2. Students will be able to use Visual Studio (2010) and Visual Basic for developing business applications including database applications.
3. Students will understand how to create simple user-defined objects in Visual Basic.
4. Students will understand GUI design principles.
5. Students will develop problem solving and creative thinking skills.

College of Business Administration Assessment Goals (applicable to this course)
Business Knowledge: The COBA graduate will be competent in a functional area (major field).
Analytical Thinking & Problem Solving Skills: COBA graduates will analyze situations and make decisions, using problem solving techniques, as well as creative and advanced critical thinking skills.

The objectives of the MIS major that are addressed in this course are:
1. MIS graduates will have an understanding of information systems analysis and design.
2. MIS graduates will be able to develop software using a visual development tool.
3. MIS graduates will be able to model and develop database applications.
4. MIS graduates will have the basic knowledge/skills to evaluate, select and use appropriate information technology to solve business problems in the various functional areas.

The course involves extensive hands-on work involving Visual Basic 2008. The primary method of learning is through examples/exercises involving computer work. The course work includes four assignments and several exercises involving hands-on work with Visual Basic.Net. Details of these assignments are given on separate handouts.

Grading Scheme

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Exam I</td>
<td>55</td>
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<tr>
<td>Exam II</td>
<td>45</td>
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<tr>
<td>Exam III</td>
<td>40</td>
</tr>
<tr>
<td>Assignments</td>
<td>100</td>
</tr>
<tr>
<td>Practice Exercises</td>
<td>25</td>
</tr>
<tr>
<td>In-class exercises, attendance/participation/professionalism, &amp; Professional Development</td>
<td>35</td>
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<tr>
<td>Total</td>
<td>300</td>
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Exams must be taken at the specified times unless prior permission is obtained from the instructor.
for an alternate time.

Students are expected to attend all class and lab sessions. If you miss a lab session, you must complete the missed lab work before coming to the next session, since most lab exercises build from what you did in previous sessions.

The table below shows the course outline. Column 3 shows the assignments, chapter-end exercises from the textbook, additional practice exercises, and .Vb files that contain examples to be discussed in class.

All assignments are due at the beginning of the class, by 8:02 AM. Late assignments will have a penalty of 1 point/day the first time, 2 pts/day the second time, 3 pts/day the 3rd time, etc. No late assignment will be accepted after the graded assignment is returned to students. Special consideration will be given to unforeseen circumstances. When you plan your work on assignments, you must allow for computer/printer problems in the lab. Having a printer down in a lab is not a valid excuse for handing an assignment late.

You may work in groups of maximum two on assignments and exercises. Coding for the assignments must be done exclusively by your group, or by you if you work individually. Helping another group/person write the code, showing your code to another group/person, copying any part of someone else’s work, receiving help from others to do an assignment, is considered academic dishonesty and will result in appropriate disciplinary action including failing grade.

The .vb files specified in column 3 contain examples to be discussed/developed in class. These files are stored in subdirectories within the Bus 410\ folder.

You are strongly encouraged to do the end-of-chapter exercises from the textbook, for practice (not to be handed-in). The limited class time does not permit us to do them in class.

Practice exercises are additional exercises provided in handouts. If time permits, some class time may be given to do these in class. You are required to hand-in any six of the seven practice exercises specified in column 3, for a total of 25 point. You may hand-in the other for class participation points.

In-class exercises are done in class depending on the availability of time. So, they are not scheduled in the syllabus. Class exercises missed due to an unexcused absence cannot be made up. An excused absence may be granted for reasons related to university-approved event, bereavement, jury duty, or other personal exigencies, if the instructor is informed prior to the absence.

Students are awarded eight points (out of 35 from the last group) for participation in a professional development activity. You may select one from the following two options.

**Option I.** Attend two professional MIS meetings/events. For example,
1. MIS club meetings that present an MIS topic (Make sure you write your name in the sign up sheet at the meeting; no report is necessary.)
2. Meetings of professional organizations in the IT field. (Assoc. of I.T. Professionals has monthly meetings in Appleton). Provide a brief report of the presentation.
3. Tour or other professional development activity arranged by the MIS club

**Option II.** Make a 10-minute presentation to the class on a current topic related to software development in VB. No written report is required.
<table>
<thead>
<tr>
<th>Week</th>
<th>Topics Covered</th>
<th>Exercises/Assignments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td><strong>Introduction</strong></td>
<td><strong>VBintro</strong> ConvertDollar1.vb, ConvertDollar2.vb, Date.vb, Strings.vb, DataTypes.vb</td>
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<tr>
<td></td>
<td>Ch. 1: Intro to Visual Studio</td>
<td><strong>CsharpIntro</strong> Convert1.cs. (These are examples to be discussed in class).</td>
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<td>Ch. 2: Design a Windows Form app.</td>
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<td>Ch 3: Code and Test a Windows Form app</td>
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<td>Ch. 4: Data types</td>
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<td>Label &amp; Text Boxes, Command buttons, Properties, methods, and events.</td>
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<td>Displaying data in List Boxes.</td>
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<td>Design Issues.</td>
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<td><strong>Form Design guidelines</strong> (handout)</td>
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<td>Ch 4, 9: Language essentials (Part 1)</td>
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<td>Numeric, Date, &amp; String data &amp; Variables.</td>
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<td>Formatting</td>
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<td>Built-in functions for Date &amp; String.</td>
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<td><strong>Week 2</strong></td>
<td><strong>Practice Exercise 1, due 9/16</strong></td>
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<td></td>
<td><strong>Ch 5: Control structures</strong></td>
<td>*<em>Q:\Bus 410\ProgramBasics*</em></td>
</tr>
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<td></td>
<td>Selection: If-Then-Else, Select statements.</td>
<td><strong>Grade.vb, ConvertDollar3.vb,</strong></td>
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<td></td>
<td>Enumeration.</td>
<td><strong>Validate.vb, DataEntry.Vb</strong></td>
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<td>Data validation: KeyPress, KeyUp, KeyDown, GotFocus &amp; Validate events.</td>
<td><strong>Loops.vb, Mortgage.vb, Savings.vb.</strong></td>
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<td>Loops: For-Next, Do while/until, For Each-Next.</td>
<td>*<em>Q:\Bus 410\Procedures*</em></td>
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<td><strong>Ch 6: Procedures, Event handlers</strong></td>
<td><strong>GradeSubG</strong></td>
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<td>Passing parameters, scope of variables, Functions, exception handling.</td>
<td><strong>GradeSubP.vb, Function.vb,</strong></td>
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<td><strong>Week 3</strong></td>
<td><strong>Assignment 1, due 9/23</strong></td>
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<td></td>
<td><strong>Software Design Principles</strong></td>
<td>*<em>Q:\Bus 410\GUIDesignPrinciples*</em></td>
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<td>Coupling and cohesion of procedures</td>
<td><strong>Tuition1.vb, Tuition1_alt.vb,</strong></td>
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<td><strong>Ch 10: Windows Forms &amp; Controls</strong></td>
<td><strong>Tuition2.vb,</strong></td>
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<td>Radio Button, ComboBox.</td>
<td><strong>MovieDesign1.vb,</strong></td>
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<td>CheckBox, ListBox</td>
<td><strong>MovieDesign2.vb,</strong></td>
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<td><strong>Week 4</strong></td>
<td><strong>MovieListBox.vb,</strong></td>
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<td><strong>GUI Design Guidelines(handout)</strong></td>
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<td><strong>Ch 12 : Testing and Debugging.</strong></td>
<td><strong>Practice Exercise 2, due 10/5</strong></td>
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<td><strong>Ch 21: Text Files, Common Dialog Box</strong></td>
<td>*<em>Q:\Bus 410\Files*</em></td>
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<td><strong>FileInput.vb, Fileoutput.vb,</strong></td>
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<td><strong>Fileoutput_dialog.vb</strong></td>
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<td><strong>Week 5</strong></td>
<td><strong>Practice Exercise 3, due 10/7</strong></td>
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<td><strong>Exam I, October 7</strong></td>
<td>*<em>Q:\Bus 410\Menus*</em></td>
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<td><strong>Ch. 24: Menus &amp; Multi-form applications:</strong></td>
<td><strong>MultiFormApps,</strong></td>
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<td>MDI forms, Tab control, Toolbar, ListView.</td>
<td><strong>Mortgage.vb,</strong></td>
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<td><strong>Pmts.vb,</strong></td>
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<td><strong>About.vb,</strong></td>
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<td><strong>MDIApp\frmMain.Vb, frmDocument.vb</strong></td>
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<td><strong>Additional Controls\frmTabControl.vb,</strong></td>
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Week 6  
Oct 14,19  
**Ch. 8: Arrays, Collections**  
Sharing data & programs between procedures & forms (handouts)  
Sharing controls between forms  

**Practice Exercise 4, due 10/19**  
Arrays\frmArrayIntro1.vb,  
frmArray2D_Intro.vb, Array2D.vb,  
Collections\frmList.vb, SortedList.vb  
ShareProcedures\  
AnalyseScore.vb, AboveAve.vb,  
FindScore.vb. (Versions 0 – 2),  
ShareData\  
Timer.Vb, StartTimer.Vb, StopTimer.Vb (Versions 0,1,2)  
ShareControls/frmTimer, frmStartTimer, frmStopTime,  
(Versions 0,1,2), ModTimer.vb

Week 7  
Oct 21,26  
**Ch 13, 14, 15: Database and ADO.Net – bound controls:**  
Connect to a data source.  
Use of Datasets, Table Adapter, & Binding Navigator.  
Display data in DataGrid & TextBoxes,  
Complex Binding with ComboBoxes.  
Searching for records,  
Display data from multiple tables  

**Assignment 2, due Oct 26**  
Database_bound\  
Countries_Grid.vb, EmpDept.vb,  
EmployeeSearch_FilterBy.Vb’  
EmployeeSearch_ParmQry.Vb  
MasterDetail.vb  

Week 8  
Oct 28,  
Nov 2  
**Ch. 15: Database - bound Controls**  
Add/Edit/Delete database records.  
**Ch. 15: Database – unbound controls:**  
Create data access objects using code at run time from classes generated at design time.  
Add/edit/delete records  

**Database_bound\**  
EmployeeAddEdDel1.Vb,  
EmployeeAddEdDel2.Vb,  

**Database_UsingCode\**  
Employee_AddEdDel_UsingCode.vb

Week 9  
Nov 4,9  
**Exam II, November  4**  
**Ch. 16, 17Database – unbound controls:**  
Create data access at run time from .Net classes.  
DataReader, Untyped Datasets, Transaction Processing.  

**Practice Exercise 5, due Nov 9**  
Database_UsingCode\  
Employee_UntypedDataSet.Vb,  
Employee_DataReader.Vb,  
TransactionProc.Vb’

Week 10  
Nov 11,16  
**Large databases**  
Accessing Oracle databases & Spreadsheets  
Crysta Reports  

**Practice Exercise 6, due Nov 16**  
DatabaseLargeUsingDr\AccountsDr.vb  
DatabaseLargeUsingTA\AccountsTA.vb  
Database_Oracle\Location.vb  
Database_Oracle\LocationUsingCode.vb  
SpreadSheet\ClubOfficers.vb  
Crysta Reports\  
frmOrders.vb, rptOrder.rpt,  
Instructions1.doc,  
instructions2.doc.
Week 11  
Nov 18, 23  
Crystal Reports  
Ch 11, 18: Object Oriented Programming

THANKSGIVING BREAK

Week 12  
Nov 30,  
Dec 2  
Ch 19, 20, 21: Object Oriented Programming

Week 13  
Dec 7, 9  
Language-Integrated Query (LINQ)  
Creating Custom Controls

Week 14  
Dec 14, 16  
Windows API, Windows Registry  
Read/Write XML  
Exam III, Dec 16.

Assignment 3 due Nov 23  
OOP\OopDemo\frmBookValue1.vb,  
frmBookValue2.vb,  
frmInvoice.vb  
OOP\Invoice\frmInvoice.Vb,  
ValidData.Vb

THANKSGIVING BREAK

OOP\InvoiceLib\Invoice.vb  
OOP\Invoice_Test\  
frmInvoice_TestLib.Vb

Practice Exercise 7 due Dec 9  
LINQ\CustInvoice_1.vb,  
CustInvoice_2.vb  
CreateControls\ctlClock.vb,  
ctlLabelScrollBar.vb  
CreateControls\  
TestControls\frmClock.vb  
CreateControls\  
TextBoxLib\CustomTextBox.vb

Assignment 4 due Dec 14  
API&Registry\API.vb, Registry.vb  
OOP\InvoiceXML\frmReadXML.vb,  
Invoice.vb

Grading Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
<th>Description</th>
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<tbody>
<tr>
<td>A</td>
<td>92.0% - 100%</td>
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<tr>
<td>A-</td>
<td>89.0% - 91.9%</td>
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<tr>
<td>B+</td>
<td>86.0% - 88.9%</td>
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<tr>
<td>B</td>
<td>82.0% - 85.9%</td>
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<tr>
<td>B-</td>
<td>79.0% - 81.9%</td>
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<tr>
<td>C+</td>
<td>76.0% - 78.9%</td>
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<td>C</td>
<td>72.0% - 75.9%</td>
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<td>D</td>
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