



**COLLEGE OF INFORMATION TECHNOLOGY  
DEPARTMENT OF INFORMATION TECHNOLOGY  
COURSE SYLLABUS/ SPECIFICATION**

**Course Code & Title: ITCS 222 - Visual Programming**

**Weight: (2 - 2 - 3)**

**Prerequisite: ITCS 122**

**NQF Level Allocated: 6**

**NQF Notional Hours / Credits: 120/ 12**

**Description:**

This course introduces Windows programming environment. Students learn how to write and develop programs with a polished graphical user interface (GUI) using event-driven programming language, which is Visual Basic. Topics include data types and structures, arithmetic and logical operators, declarations and input/output, control structures, and functions. Emphasis is placed on the development of problem- solving skills.

**Objective:**

1. To understand the concepts and techniques of event-driven programming.
2. To examine the modular programming using subroutine, function, and modules.
3. To create and implement user-defined data types such as arrays, structures, files, and database using Visual Basic.
4. To understand the Visual Basic Integrated Development Environment (IDE) and Windows programming by writing, executing and debugging Visual Basic programs.

**Semester:**

**Instructor(s):**

**Office Telephone:**

**Email (s):**

## Intended Learning Outcomes (ILOs):

A. Knowledge and Understanding		NQF Descriptor/ Level
A1	<b>Concepts and Theories:</b> Demonstrate understanding and detailed knowledge of the concepts of event-driven programming, IDE environment and GUI Programming techniques	Knowledge: theoretical understanding [Level 6]
A2	<b>Contemporary Trends, Problems and Research:</b>	N/A
A3	<b>Professional Responsibility:</b>	N/A
B. Subject-specific Skills		NQF Descriptor/ Level
B1	<b>Problem Solving:</b> Identify a real world problem and solve it by using visual basic programming language	Knowledge: Practical Application [Level6] Skills: Communication, ICT & Numeracy [Level6]
B2	<b>Modeling and Design:</b> Design computer applications and create prototypes to meet given requirements.	Knowledge: Practical Application [Level6]
B3	<b>Application of Methods and Tools:</b> Apply Visual Studio software to write, execute and correct the syntax, logical and run time errors.	Knowledge: Practical Application [Level6] Skills: Communication, ICT & Numeracy [Level6]
C. Critical-Thinking Skills		NQF Descriptor/ Level
C1	<b>Analytic skills:</b> Analyze problem specification and use appropriate visual programming constructs to meet these requirements.	Generic Problem Solving & Analytical skills [Level6]
C2	<b>Synthetic:</b> Integrate different visual programming constructs such as database and modules while developing real life projects.	Generic Problem Solving & Analytical skills [Level6]
C3	<b>Creative Thinking and innovation:</b> Apply new and/or using conventional programming techniques innovatively for solving real world problems.	Generic Problem Solving & Analytical skills [Level6]
D. General and Transferable Skills (other skills relevant to employability)		NQF Descriptor/

and personal development)		Level
D1	<b>Communication:</b>	N/A
D2	<b>Teamwork and Leadership:</b>	N/A
D3	<b>Organizational and Developmental Skills:</b> Demonstrate ability to organize ideas and effectively allocate time in given assignment.	Competence: Autonomy, Responsibility and Context [Level6]
D4	<b>Ethics and Social Responsibility:</b>	N/A

### Course Structure (Outline)

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Week	Hour		ILOs	Topics	Teaching Methods	Assessment Method
	Lec.	Lab				
1	2	2	A1	Introduction to Event-Driven Programming.	Lectures/Lab Demonstration	
2	2	2	A1, B3	<b>GUI :</b> Labels, Textboxes, Buttons, Group Boxes, Panels, Check box, Radio buttons ToolTips, Event Handling.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
3	2	2	A1, B3	<b>Relational Operators:</b> Compound Assignment Operators, Equality and Relational Operators.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
4	2	2	A1, B3	<b>Math Built-in Function:</b> Sqrt, Round, Int, Implicit Argument Conversions, Option Strict and Data-Type Conversions.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
5	2	2	A1, B3	<b>String:</b> Create and Manipulate the String Objects of String and String Builder Classes.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
6	2	2	A1, B1, B3	<b>Control Statements- GUI :</b> Mouse-event Handling, Keyboard-Event Handling, checklist box control, Menus, Tab control.	Lecture/ In-Lab Supervised Work	In-Lab Exercises

7	2	2	A1, B1, B2, B3, C1, D3	<b>Control Statements - GUI:</b> List control, Combo Box control, Date Time Picker, Month calendar control.	Lecture/ In-Lab Supervised Work	In-Lab Exercises/ Assignment 1
8	2	2	A1, B1, B3, C1	<b>Repetition Statements:</b> Different types of loops.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
9	2	2	A1, B1, B3, C1, C2	<b>Modules and Procedures:</b> Creating procedures, specifying the scope, types of procedures and calling the	Lecture	Lab Test 1
10	2	2	B1, B3	<b>Other Control Statements:</b> Logical Operators, Exit Terminate Repetition Statements, Continue Repetition Statements.	Lecture/ In-Lab Supervised Work	In-Lab Exercises
11	2	2	B3	<b>Syntax Error Correction:</b> Using the Debugger by locating Logic Errors and Run Time Errors.	Lab Demonstration	In-Lab Exercises
12	2	2	A1, B1, B2, B3, C1, C2, D3	<b>Sub Procedures, Function and Modules</b>	Lecture/ In-Lab Supervised Work	In-Lab Exercise/ Assignment 2
13	2	2	A1, B1, B3, C1	<b>Arrays:</b> One-Dimensional and Multidimensional	Lecture/ In-Lab Supervised Work	In-Lab Exercise
14	2	2	B3, C2	<b>Accessing Text Files:</b> Read/Write a text file line by line <b>Accessing Databases:</b> Creating a Database Application in Visual Basic	Lab Demonstration	Lab Test 2
15	2	2	B1, B2, B3, C1, C2, C3, D3	Student Project	Project Supervision	Project Presentation
16	2	-	A1, B1, B2, C1, C2	<b>All Topics</b>		Final Exam

## Teaching Materials:

<b>Textbook(s):</b>	Tony Gaddis, Kip R. Irvine (2019) <i>Starting Out With Visual Basic</i> , 8 <sup>th</sup> Edition, Pearson, ISBN: 978-0135204658
<b>Handout(s):</b>	PowerPoint slides available on Moodle i.e. <a href="http://www.ahlia.edu.bh/moodle">http://www.ahlia.edu.bh/moodle</a>
<b>Reference(s):</b>	1. Gaddis T. and Irvine K. (2016) <i>Starting Out With Visual Basic</i> , 7 <sup>th</sup> Edition, Pearson. 2. Schneider D. (2016) <i>Introduction to Programming Using Visual Basic</i> , 10 <sup>th</sup> Edition, Pearson.

## Assessment

Method of Assessment	Description	Learning Outcomes	Weighting
<b>Lab Tests</b>	Two practical tests to be given to students during lab time where each will take two hours and worth 15 marks. The total of both tests will be considered at the end. The first test will cover topics from week 1 to 8 and the second test will cover topics from week 9 to 14.	B1, B3, C1, C2	30%
<b>Assignments</b>	Two assignments will be given to students and their average will be considered. These assignments will assess students' skills in using different visual programming constructs to solve given problems.	A1, B1, B2, B3, C1, C2, D3	10%
<b>In-Lab Exercises</b>	Exercises will be conducted in the lab and it will allow the students to practice all the topics covered in the course such as designing forms, using built-in functions, writing procedures, etc.	B1, B3, C1, C2	Formative
<b>Project</b>	One practical project will be given the students to assess their skills in applying the different concepts learned during the course in solving a real-life problem. The project covers all the chapters comprehensively	B1, B2, B3, C1, C2, C3, D3	20%
<b>Final Exam</b>	Final exam will be for two hours, including all types of questions: MCQs, short answers questions, problem solving, etc.	A1, B1, B2, C1, C2	40%
<b>Overall:</b>			<b>100 %</b>

Admissions	
<b>Minimum number of students</b>	<b>5</b>
<b>Maximum number of students</b>	<b>20</b>

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