Future Academy
Higher Future Institute for Specialized Technological Studies

Course Specification

1- Course information:	
Course Code:	CSC214
Course Title:	Visual Programing
Year/level	2nd
Academic Programs	Computer Science Program (B.Sc.)
Contact hours/ week	(Theoretical = 3hrs, Practical =3hrs), Total = 6hrs

2- Course aims:

This course aims to provide students with the foundation to create visual imagery, interactive content, and programming foundations to expand their possibilities in the visual, audio, and interactive realms at large. This course will explore the creative design environment and processing. It is an expository of the object-oriented programming methodology with an emphasis on software design and code reuse as its core objectives, along with the use of GUI components. The main concepts discussed are: window-based, event-driven application design and implementation, data types, operators, properties, menus, file streaming, database file processing, and building visual components (windows, menus, message boxes, buttons, lists, etc.), managing containers and layout, event handlers, exceptions, and employing GUI class libraries.

3- Intended learning outcomes of the course (ILOs):

a- Knowledge and understanding:

On successful completion of this course, the student should be able to:
al- Understand various concepts of visual programming and interface.

a2- Demonstrate terminology, key elements, window components and user controls.

a3- Recognize the difference between event-driven programming and command-line programming.

a4- Use the different elements of a visual programming language as building blocks to develop correct, coherent programs.

b- Intellectual skills:

On completing this course, the student should be able to:

b1- Indicate the data type and scope of variables and constants.

b2- Formulate a wide range of problems and use the conceptual designs that solve those problems, and transform those designs to Visual Programs with VB.Net.

b3- Clarify constructing programs using visual programming components.

b4- Develop small programs and organize the visual output of each one.

c- Professional and practical skills:

At the end of this course, the student will be able to:

c1- Examine software solutions to some types of problems.

c2- Use event-driven programming to create look, communication via messages, windows resources

c3- prepare code, test, and debug simple event-driven programs that respond to user events.

c4- utilize programing code that responds to exception conditions raised during execution.

d- General and transferable skills:

On successful completion of this course, the student should be able to:

d1- Compute the personal responsibility by working to multiple deadlines in relation to the course requirements.

d2- Working in groups to the deployment of communication skills.

4- **Course contents**

Week No.	Topics/units	Number of hours		ILO's
		Lecture hours	Practical hours	
1	Introduction to Microsoft's Visual Studio integrated development environment (IDE). The OOP concepts of objects, properties, methods, and events. The elements of debugging and using the Help system are also introduced.	3	3	a1, b1
2	"User Interface Design," Techniques for good program design, including making the interface easy for users as well as guidelines for designing maintainable programs. Several controls are introduced, including text boxes, group boxes, check boxes, radio buttons, and picture boxes.	3	3	a2, b1, b3, c1,
3	Graphical User Interfaces (GUI). Par II Labels, GroupBoxes, Panels, CheckBoxes and RadioButtons , PictureBoxes ToolTips	3	3	a2, b2, b3, d1

	NumericUpDown Control			
4	"Variables, Constants, and Calculations," The concepts of using data and declaring the data type + Quiz 1	3	3	a2, b2, c1,
5	"Decisions and Conditions," If statement to validate input data. Multiple decisions are handled with both nested If statements and the Select Case structure.	3	3	a1, b3, c1,
6	Event Handling, mouse-Event Handling Keyboard-Event Handling Menus MonthCalendar Control DateTimePicker Control LinkLabel Control	3	3	a3, b2, b4, c2, d1
7	Midterm Exam	3	3	
8	The debugging features of the IDE are covered, including a step-by-step exercise covering stepping through program statements and checking intermediate values during execution.	3	3	a3, b4, c2
9	Error handling is accomplished using structured exception handling. The Try/Catch/Finally structure the MessageBox class and the OOP concept of overloaded constructors.	3	3	a2, a3, c2, c4
10	"Menus, Common Dialog Boxes, Sub Procedures, and Function Procedures," writing and calling general sub procedures	3	3	a2, b2, b4, c3, d2
11	function procedures. menus and context menus display the Windows common dialog boxes, and use the input provided by the user.	3	3	a1, a4, b2, b4, c2,
12	TreeView Control ListView Control TabControl Control + Quiz 2	3	3	a2, a4, b4,
13	Multiple Document Interface (MDI) Windows Visual Inheritance User-Defined Controls	3	3	a1, a3, a4, c2, d2
14	Course Review	3	3	

5- Teaching and learning methods

Methods	a1	a2	a3	a4	b1	b2	b3	b4	c1	c2	c3	c4	d1	d2
Lectures	√	√	√	√	√		√		√	√			√	
Practical sections				√		√	√	√			√	√	√	
Self-learning						√								
Assays and reviews														
Discussion groups – Project							√		√				√	√
Brainstorming														
Blended-learning														
E-learning														

6- Teaching and learning methods for Low-achieving students

- Extra teaching hours for those who need help
- More quizzes to assess their ability for understanding the course
- Encourage the team work for those students with other advanced ones to increase their participation and understanding

7- Student assessment

Assessment method	Time	Grade weight (%)	Week	ILOs
Course Work (Tutorial Exercise and Assignments)	Through the semester	5%	Every Week	a3, a4, b2, c1, c3, c4, d1
Quiz 1	30 min, Through the lecture	5%	Week#4	a1, a2, b1, c3
Mid-term exam	1 hr	10 %	Week#7	a2, a3,
Quiz 2	30 min, Through the lecture	5%	Week#12	a4, b3, b4, c1
Practical exam	1 hr	15 %	Week#14	a4, b2, b4, c2, c3, c4, d1
Final Written exam	2 hrs	60%	Week# 15-16	a1, a2, a3, a4, b1, b4, c1

8- List of references

8.1. Student notebooks:

Comprehensive instructor Notes - Slides delivered to students at the end of some lectures.

8.2. Essential textbooks:

- Thomas H. Cormen, Charles E.Leiserson, Ronald L. Rivest, "Introduction To Algorithms", 4th ed. MIT Press, Cambridge, Massachusetts, London, 2022

8.3. Recommended textbooks:

- Anany Levitin, "Introduction To The Design & Analysis of Algorithms", 3rd ed. Pearson, ISBN 13: 978-0-13-231681-1, 2012

8.4. Journals, Periodical and Reports ……..etc.

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8.5. Websites

- **https://www.tutorialspoint.com/design_and_analysis_of_algorithms/index.htm #:~:text=Design%20and%20Analysis%20of%20Algorithms%20covers%20the%20c oncepts%20of%20designing,optimal%20solution%20for%20a%20problem**.

- **https://www.tutorialspoint.com/design_and_analysis_of_algorithms/index.htm #:~:text=Design%20and%20Analysis%20of%20Algorithms%20covers%20the%20c oncepts%20of%20designing,optimal%20solution%20for%20a%20problem**.

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