VNUHCM-UNIVERSITY OF SCIENCE
FACULTY OF INFORMATION TECHNOLOGY

COURSE SYLLABUS
CSC13001 – Windows Programming

1. GENERAL INFORMATION

Course name:	Windows Programming
Course name (in Vietnamese):	Lập trình Windows
Course ID:	CSC13001
Knowledge block:	
Number of credits:	4
Credit hours for theory:	45
Credit hours for practice:	30
Credit hours for self-study:	90
Prerequisite:	None
Prior-course:	None
Instructors:	

2. COURSE DESCRIPTION

The course is designed to provide students with knowledge and techniques for creating graphical user interface application on Windows. Students will start with learning how to create controls and handle events using inputs like mouse and keyboard. Essential aspects of Windows apps will be discussed like adaptive and responsive design, passing data between screens, validation, navigation and animation. Students will also be enhanced their programming skill with database programming and working with server API technique. Finally, students are instructed to perform reading comprehension skills and working in group to create a presentation based on a given research topic.

3. COURSE GOALS

At the end of the course, students are able to

ID	Description	Program LOs
G1	Understand, explain basic knowledge of Windows graphical interface programming	2.3.2, 2.4.3
G2	Use supporting tools to create graphical user interface application on Windows	5.3.2
G3	Work individually & in group to solve Windows programming problem	2.1, 2.2.2, 5.3.2, 2.1.8
G4	Work in group to do research on a given topic and make presentation	2.3.1, 2.3.2
G5	Create simple application that uses database	5.3.2
G6	Create simple application that can call API	5.3.2

4. COURSE OUTCOMES

CO	Description	I/T/U
G1.1	List user interface elements of a Windows application	I, T
G1.2	List application resources	I, T
G1.3	Understand, explain English terms of Windows programming	I
G2.1	Create application using basic controls	I, T, U
G2.2	Work with resouces such as menu, images, dialogs, strings	I, T, U
G2.3	Create, edit graphical objects	I, T, U
G2.4	Handle mouse, keyboard event	I, T, U
G2.5	Work with Windows file system	I, T, U
G2.6	Work with clipboard & registry	I, T, U
G2.7	Create & use DLL file	I, T, U

G2.8	Read multimedia files	I, T, U
G2.9	Monitor events using hook	I, T, U
G3.1	Work individually to solve Windows programming problem	U
G3.2	Work in group to solve Windows programming problem	U
G4.1	Write report about the application that has been developed by individual or group	U
G4.2	Present the topic that has been research by group	U
G5	Create application using database	I, T, U
G6.1	Create application that can call Restful API	I, T, U
G6.2	Create application that can call GraphQL API	I, T, U

5. TEACHING PLAN THEORY

ID	Topic	Course outcomes	Teaching/Learning Activities (samples)
1	**Course overview**: outcomes, topics, grading, materials **C# basic**: variable, constant, primitive types, control (if, switch), loop (for, do, while), function, array. **OOP**: Abstraction, Encapsulation, Inheritance, Polymorphism	G1.1 G1.2 G1.3	Lecturing Discussion
2	**Basic controls**: Label, Button, TextBox, Image, ContentDialog, CheckBox, Radio,Window **Containers**: Canvas, StackPanel, Grid, VariableSizedWrapGrid	G2.1 G2.2	Lecturing Discussion

	User control: create, use		
3	**Data binding for one object**: Bind & Binding, Path, Mode, UpdateSourceTrigger, INotifyPropertyChanged	G2.1 G2.2	Lecturing Discussion
4	**Data binding for list**: ItemsSource, ItemTemplate **Paging**: create, navigate, optimize roundtrip	G2.1 G2.2	Lecturing Discussion
5	**Navigation:** Frame, NavigationView **Passing data between screens**: Constructor parameters, Delegate & Event, IClonable	G2.1 G2.2	Lecturing Discussion
6	**Handle mouse & Keyboard**: register, handle, parameters **File system**: File, folder, traverse, copy, move, delete, properties **DLL**: create, load	G2.4 G2.5 G2.7	Lecturing Discussion
7	**Graphics**: Objects, Animation **Creating chart**: prepare data, load, display	G2.3	Lecturing Discussion
8	**Architecture**: Plugin architecture, 3-layer architecture, clean architecture	G2.8	Lecturing Discussion Flipped classroom
9	**Hook**: types, register, handle **Clipboard**: put data into clipboard, retrieve **Registry**: put data into registry, retrieve	G2.6 G2.9	Lecturing Discussion Flipped classroom

10	**Working with database**: Migrations, Seeding, CRUD	G5	Lecturing Discussion Flipped classroom
11	**Working with API:** Rest, GraphQL	G6.1	Lecturing Discussion

6. ASSESSMENTS

ID	Topic	Description	Course outcomes	Ratio (%)
A1	**Assignments**			**20%**
A11	Quizzes: QZ1-QZ11	Small quizzes in class for each topic	G1.1->G3.1	15%
A12	Homework: HW1->HW11		G1.1->G3.1	15%
A2	**Projects**			**65%**
A21	Milestone 01	UI Design, Mock data	G3.2->G6.2	30%
A22	Milestone 02	Working with API	G3.2->G6.2	35%
A3	**Presentation**	Research a topic then write report & deliver presentation	G3.2	**15%**

		G4.1	
		G4.2	

7. RESOURCES

Textbooks

- **Learn WinUI 3.0 - Leverate the power of WinUI, the future of native Windows application development**, Packt Publishing, 2021.

References

- **Tools and Skills for .NET 8: Get the career you want with good practices and patterns to design, debug, and test your solutions**, Packt Publishing, 2024.
- **Design Patterns in .NET - Mastering design patterns to write dynamic and effective .NET Code**, BPB Online, 2024.

Others

- **WinUI**: https://learn.microsoft.com/en-us/windows/apps/winui

8. GENERAL REGULATIONS & POLICIES

- All students are responsible for reading and following strictly the regulations and policies of the school and university.
- Students who are absent for more than 3 theory sessions are not allowed to take the exams.
- For any kind of cheating and plagiarism, students will be graded 0 for the course. The incident is then submitted to the school and university for further review.
- Students are encouraged to form study groups to discuss on the topics. However, individual work must be done and submitted on your own.