

**University of Zakho**

**Faculty of Science**

**Department of Computer Sciences**

**Subject: Mobile Applications**

**Course Book – (Semester 8)**

**Lecturer's name: Yousif Garabet Arshak (MSc.)**

**Academic Year: 2021/2022**

**Course Book**

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| **1. Course name** | **Mobile Applications** |
| **2. Lecturer in charge** | **Yousif Garabet Arshak** |
| **3. Department/ College** | **Computer Science / Faculty of Science** |
| **4. Contact** | **E-mail:** [**yousif.arshak@uoz.edu.krd**](mailto:yousif.arshak@uoz.edu.krd)  **Tel: 0750 4948858** |
| **5. Time (in hours) per week** | **Theory: 2**  **Practical: 2** |
| **6. Office hours** | **Sunday: -**  **Thursday: -** |
| **7. Course code** |  |
| **8. Teacher's academic profile** | <https://staffportal.uoz.edu.krd/en/yousif.arshak> |
| **9. Keywords** | **Mobile Programming: Android, IOS and cross-platform** |
| **10. Course overview:**  This‌ course ‌is ‌aimed‌ at‌ helping‌ students ‌build‌ up‌ an ‌understanding‌ of‌ how‌ to‌ develop ‌a Mobile ‌app‌ from‌ scratch‌ by‌ guiding ‌them ‌through‌ the ‌development‌ process‌ and ‌giving ‌them the‌ fundamental ‌principles ‌of ‌Android ‌and ‌IOS‌ app ‌development ‌with ‌cross‌ platform technology‌ using ‌Xamarin Forms. The ‌course‌ will initiate ‌ students ‌ to ‌ the ‌ variety ‌ app ‌ components, ‌ project ‌ management ‌ and‌ different languages‌ used. | |
| **11. Course objective:**  The‌ aim‌ of ‌this ‌course ‌is ‌to ‌help ‌students ‌how ‌to ‌develop ‌an ‌Android‌ and ‌IOS ‌app ‌from scratch‌   * By ‌guiding ‌them‌ through ‌the ‌understanding ‌of ‌basic ‌mobile ‌programming ‌terms ‌and techniques.‌ * Having‌ a‌ glance ‌of ‌new‌ techniques ‌of ‌mobile ‌programming * Understanding‌ the ‌design‌ and ‌layout‌ of ‌mobile ‌apps * Understanding ‌the ‌code‌ behind‌ design * Understanding‌ the ‌integration ‌of ‌code ‌and ‌design | |
| **12. Student's obligation**   * Installing Xamarin and Visual Studio on their personal PCs * Homework * Projects * Pre-knowledge on Web Development | |
| **13. Forms of teaching**   Using Data show, PowerPoint slides, pointing devices | |

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| * assignments and Homework * building up projects from scratch together | |
| 14. Assessment scheme   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | Semester-2 | |  | Final Exam | | |  | 50% | |  | 50% | | | Presentation & Report | Quizzes  & Assignment | Project | Mid Term | Theory | Practical. | | 10 | 10 | 10 | 20 | 30 | 20 | | |
| **15. Student learning outcome:**  **1.** In this class, we will learn how to develop applications for the Android and IOS platform using C# language within Xamarin framework. In addition, a reasonable background knowledge of Native Script platform. | |
| **16. Course Reading List and References:**   * David Ortinau\_ Ed Snider - Mastering Xamarin.Forms app architecture techniques for building multi-platform, native mobile apps with Xamarin.Forms 4, third edition (2020) * David Ortinau\_ Ed Snider - Mastering Xamarin.Forms app architecture techniques for building multi-platform, native mobile apps with Xamarin.Forms 4, third edition (2020) | |
| **17. The Topics:** | 2 hours |
| Introduction‌ to‌ Mobile‌ applications? | Week‌ 1 |
| Available‌ platforms‌ and ‌challenges? | Week‌ 2 |
| Android‌ and ‌IOS‌ architecture | Week‌ 3 |
| Introduction‌ to Xamarin framework | Week‌ 4 |

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| C# Language | Week ‌5 |
| XAML ‌Language | Week‌ 6 |
| Designing‌ GUI | Week‌ 7 |
| Events‌ Handling | Week‌ 8 |
| Sizing ‌and ‌Positioning | Week‌ 9 |
| Layouts | Week‌ 10 |
| Activity‌ events | Week‌ 11 |
| Data Access | Week‌ 12, 13 |
| Navigation | Week‌ 14 |
| MVVM Architecture | Week‌ 15, 16 |
| **18. Practical Topics** |  |
| Introduction ‌Mobile ‌Programming | Week ‌1 |
| Xamarin ‌Framework | Week‌ 2 |
| Layouts | Week‌ 3, 4 |
| Tool Box (Entry, Button…. ) | Week‌ 5, 6 |
| Images | Week ‌7 |
| Lists | Week‌ 8,9 |
| Forms and setting pages | Week‌ 10,11 |
| Navigation | Week‌ 12 |
| Data Access | Week 13,14 |
| MVVM Architecture | Week ‌15,16 |
| **19. Examinations:**  **Q1) Choose/fill the correct answer/s for the following:**  Android C# code is compiled into a special ………………………. binary format. **Answers**: **A**. SDK, **B**. Dalvik, **C**. JDK, **D**. JRE.  Xamarin is based on ………………………. editor.  **Answers**: **A**. Eclipse ADT, **B**. IntelliJ IDEA, **C**. Visual Studio, **D**. NetBeans.  ……………………….: the fundamental units of GUI in an Xamarin app.  **Answers**: **A**. activity, **B**. layouts, **C**. widgets, **D**. views. | |

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| In Xamarin, there are two types of views: ………………………. , ……………………….  In linear layouts, we use ………………………. to specify the alignment direction that widgets are pulled to.  **Answers**: **A**. Orientation, **B**. Layouts, **C**. Gravity, **D**. Weight.  Which one of the following events is predictable exactly when/if it will be called?  **Answers**: **A**. onStart, **B**. onDestroy, **C**. onRestart, **D**. onResume.  To launch another activity (usually in response to an event), create an Intent object and call ………………………. with it.  You can access the Intent that spawned you by calling ………………………..  If the calling activity wants to wait for a result from the called activity: Call ……………………….  ……………………….: launches another app, without naming that specific app, to handle a given type of request or action.  **Q2) State whether the following statements are True or False.**   1. Some software has source code that only the person, team, or organization who created it can modify. People call this kind of software "closed source" software. 2. When the user exits an app, it is instantly cleared from memory. 3. When onPauseis called, your activity is invisible. 4. When we give match\_parent in the width/height: as wide or tall as 100% of the screen or layout. 5. onRestartis called every time the activity begins. |

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| **Q3) Answer one of the following:**   1. **What is an IDE and its main components?** 2. **When an app is closed and re-opened again, what are the events that are triggered and what code do you recommend to write.**   **Q4) What are intents and how can we use them? Answer briefly.** |
| **20. Extra notes:** |
| **‌‌‌‌‌‌‌‌‌‌‌‌‌‌‌‌‌‌‌‌پێداچوونه‌وه‌ی‌هاوه‌ڵ21. Peer review** |