**CSC-455: Mobile Application Development**

**General Information**

|  |  |
| --- | --- |
| **Course Number** | CSC-455 |
| **Credit Hours** | 3+1 (Theory Credit Hour = 3, Lab Credit Hours = 1) |
| **Prerequisite** | None |
| **Course Coordinator** | Not Specified |

**Course Objectives**

|  |
| --- |
| This course is a fundamental base for knowledge about mobile computing and application development platforms. The knowledge of algorithm design and programming gained in programming courses with continued emphasis on the logic underlying the transition from specification to program. Particular attention is paid to issues arising in the implementation of mobile applications: specifically, for android using databases and offline storage and web based services using object-oriented programming techniques. |

**Catalog Description**

|  |
| --- |
| CSC 455 |

**Course Content**

|  |  |  |  |
| --- | --- | --- | --- |
| **Session No.** | **Week No.** | **Topic** | **Suggested Readings (Chapters)** |
| 01-03 | 01 | 1. Introduction to Android 2. Installation of Android Studio 3. Understanding Android Architecture and Runtime Environment 4. Building Android First App (Hello World!) | Book Chapter (1, 2) and Lecture Notes |
| 04-06 | 02 | 1. Introduction to Cross Platform App Development Tools 2. **A guest lecture on cross platform app development tools (React Native**) 3. Exercise and Practice Tasks (React Native) | Lecture Notes |
| 07-09 | 03 | 1. Understanding the hierarchy of Android Project 2. Using the tools (ADB, Emulator, Monitor and Debugger) 3. Understanding LifeCycle of android App (Activity) 4. Using Layouts, Basic widgets | Book Chapter (2, 3) and Lecture Notes |
| 10-12 | 04 | 1. Using Events to work with widgets 2. Working with Intents (Implicit and Explicit) 3. Creating apps with multiple activities 4. Working with Intent Filter | Book Chapter (3, 4, 5) and Lecture Notes |
| 12-15 | 05 | 1. Understanding the state preferences 2. Understanding state of an application, How to maintain it, and how to restore it. 3. Create app based state preferences 4. Create activity based shared preferences | Book Chapter (7) and Lecture Notes |
| **First Mid Term Exam** | | | |
| 16-18 | 06 | 1. Adding Menu Bars 2. Working with the Media Player 3. Camera and Implicit Intent working | Book Chapter (15) and Lecture Notes |
| 19-21 | 07 | 1. Working with File storage 2. Reading / Writing files 3. Reading files from Raw and Online 4. Lists and other widgets 5. Working with Android Built In Database (SQLite) | Book Chapter (7, 8) and Lecture Notes |
| 22-24 | 08 | 1. Working with Fragments 2. Creating swipe functionality along with fragments 3. Fragments using menu | Book Chapter (5) and Lecture Notes |
| 25-27 | 09 | 1. Android Text to Speech 2. Android Speech to text | Book Chapter (11) and Lecture Notes |
| 28-30 | 10 | 1. Working with Background Tasks 2. Using services 3. Bind service 4. Threads, AssyncTask and Handlers | Book Chapter (09) and Lecture Notes |
| **Second Mid Term Exam** | | | |
| 31-33 | 11 | 1. Broadcast receivers 2. Working with UI Notifications 3. Static and dynamic broadcast receivers 4. Working with IPC using broadcast in services | Book Chapter (05, 09) and Lecture Notes |
| 34-36 | 12 | 1. Content Providers 2. Reading Content Providers 3. Creating Content Provider | Book Chapter (8) and Lecture Notes |
| 37-39 | 13 | 1. Working with Network based apps 2. JSON and XML parsing 3. MAPs and GeoCoding | Book Chapter (9) and Lecture Notes |
| 40-42 | 14 | 1. Introducing Sensors 2. Working with accelerometer, gyroscope, light and proximity sensors 3. Working with SMS and Telephony 4. Introducing 2D Graphics 5. Exercises | Book Chapter (12) and Lecture Notes |
| 43-45 | 15 | 1. Uploading app to the Android Google App Market | Book Chapter (19) and Lecture Notes |
| **Final Exams** | | | |

**Text Book**

|  |
| --- |
| 1. Professional Android 4 Application Development by Reto Meier |

**Reference Material**

|  |
| --- |
| 1. Instructor’s notes 2. Head First To Android Development (by Orie’lly) |

**Course Learning Outcomes**

|  |  |
| --- | --- |
|  | **Course Learning Outcomes (CLO)** |
| 1 | **Design** and **develop** Android device-specific, native applications |
| 2 | **Describe** the components and structure of a mobile development framework (Google’s Android Studio) |
| 3 | **Integrate** database and server-side technologies to provide complete mobile development solutions |
| 4 | **Analyze** the working of android code. |

**CLO-SO Map**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **SO IDs** | | | | | | | | | | |
| **CLO ID** | **a** | **b** | **c** | **d** | **e** | **f** | **g** | **h** | **i** | **j** | **k** |
| CLO 1 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| CLO 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CLO 3 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CLO 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

**Approvals**

|  |  |
| --- | --- |
| Prepared By | Nisar Ahmed Siddiqui |
| Approved By | Not Specified |
| Last Update | Saturday, July 27, 2019 |