

**BAIT2073 Mobile Application Development – Practical Plan 202306**

| Session | Type    | Topics  | Practical   |
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| 1       | Lecture | 1.Introduction to Mobile Application Development <ul style="list-style-type: none"><li>- Mobile operating systems and ecosystem</li><li>- Development tools</li><li>- Mobile devices</li><li>- Mobile application software architecture and framework</li></ul> | <a href="#">1.0: Install Android Studio</a><br><a href="#">1.1: Get started</a><br><a href="#">1.2: Anatomy of Basic Android Project</a><br><a href="#">1.3 Image resources and compatibility</a><br><a href="#">1.4 Learn to help yourself</a> |
| 2       | Lecture | 2.1 User Interfaces (Part 1) <ul style="list-style-type: none"><li>- UI Layouts</li><li>- UI Components</li><li>- View Binding</li></ul>  | <a href="#">2.1 Linear layout using the Layout Editor</a><br><a href="#">2.2 Add user interactivity</a><br><a href="#">2.3 Constraint layout using the Layout Editor</a>  |
| 3       | Lecture | 2.1 User Interfaces (Part 2) <ul style="list-style-type: none"><li>- Data Biding</li><li>- Style and Theme</li></ul><br>2.2 User Interfaces (Part 1) <ul style="list-style-type: none"><li>- Fragment</li></ul>   | <a href="#">2.4 Data-binding basics</a><br><a href="#">10.1 Styles and themes</a>   |
| 4       | Lecture | 2.2 User Interfaces (Part 2) <ul style="list-style-type: none"><li>- Dialog</li><li>- Navigation Drawer</li><li>- Tabs</li></ul>  | <a href="#">10.2 Material Design, dimens, and colors</a><br><a href="#">3.1 Create a fragment</a>   |
| 5       | Lecture | 2.3 User Interfaces <ul style="list-style-type: none"><li>- Menus</li><li>- Toast and Notification</li><li>- Design for everyone</li><li>- Accessibility</li></ul>  | <a href="#">3.2 Define navigation paths</a><br><a href="#">3.3 Start an external activity</a>   |

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| 6  | Lecture | Mobile Applications Models<br>- Activities and event handling<br>- Linking activities<br>- Application life cycle | <b>Assignment Presentation (Part 1)</b><br><br><a href="#">4.1 Lifecycles and logging</a><br><a href="#">4.2 Complex lifecycle situations</a>  |
| 7  | Lecture | Resources and Data Storage (Part 1)<br>- Providing and accessing to resources<br>- Shared preferences             | <a href="#">5.1 ViewModel and ViewModelProvider</a><br><a href="#">5.2 LiveData and LiveData observers</a>   |
| 8  | Lecture | Resources and Data Storage (Part 2)<br>- Internal Storage<br>- External Storage                                   | <a href="#">5.3 DataBinding with ViewModel and LiveData</a><br><a href="#">5.4 LiveData transformations</a>  |
| 9  | Lecture | Resources and Data Storage (Part 3)<br>- Database   | <a href="#">6.1 Create a Room database</a><br><a href="#">6.2 Coroutines and Room</a><br><a href="#">6.3 Record quality and button states</a><br><br><a href="#">7.1 RecyclerView fundamentals</a><br><a href="#">7.2 DiffUtil and data binding with RecyclerView</a><br><a href="#">7.3 GridLayout with RecyclerView</a><br><a href="#">7.4 Interacting with RecyclerView items</a> |
| 10 | Lecture | Resources and Data Storage (Part 4)<br>- Network and Background Operation   | <b>Practical Test</b><br><a href="#">8.1 Getting data from the internet</a><br><a href="#">8.2 Loading and displaying images from the internet</a><br><a href="#">8.3 Filtering and detail views with internet data</a>  |
| 11 | Lecture | Location-based Services<br>- Maps<br>- Getting location data  | <a href="#">9.1 Repository</a><br><a href="#">9.2 WorkManager</a><br><br><a href="#">4.1: Android Google Maps</a>  |
| 12 | Lecture | Specialised Instruments and Devices (Part 1)<br>- Camera  | <a href="#">Getting Started with CameraX</a><br><a href="#">Scan Barcodes with ML Kit on Android</a><br><a href="#">Detect Facial Features in Photos</a><br><a href="#">Recognition Text in Images</a>   |

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| 13 | Lecture | Specialised Instruments and Devices (Part 2)<br>- Audio capture<br>- Media playback  | <b>Assignment Presentation (Part 2)</b> |
| 14 | Lecture | Mobile Application Packaging and Publication<br>- Preparing for publishing<br>- Publishing on the market<br>- Updating application<br>- Monetising methods | <b>Assignment Presentation (Part 2)</b> |