| Course Name | Mobile Application Development using Android |
|---|---|
| Course Code | CSE/2020/016 |
| Course Duration | 80 Hours |
| Minimum Eligibility Criteria and Pre-requisites(if any) | ITI/10<sup>th</sup>/+2/Diploma/Graduates Basics of SQL /C#,C++,Java |
| | |
| Course Objectives | Training module has been designed to ;<br>• Have knowledge about Basic Android Development tools such as Eclipse, DDMS, Drivable, Listeners, and so on.<br>• Use various Layouts and Widgets in Android Applications.<br>• Create interactive applications in android with multiple activities including audio, video and notifications.<br>• Create applications using SQLite database.<br>• Publish your App on Google Play.<br>• Use development tools, such as those found in the Android Developer's Toolkit to efficiently create, understand, debug and optimize Android applications.<br>• Understand the key forces and constraints acting on handheld devices<br>• Know where to find additional sources of information to understand and solve Android-related problems.<br>• Understand the Android platform's organization, patterns and programming mechanisms and be able to use them effectively to develop their own Android applications. |
| Course Outcomes | After completion of the course, students will be able to :<br>• Create applications and activities for the Android mobile phone platform using the SDK. They will be able to create user interface and location based services in Android.<br>• Demonstrate the android features and create ,develop using android<br>• Demonstrate and Understanding anatomy of an Android application<br>• Apply the android geo location based services<br>• Illustrate the android wifi features and advance android development |
| Expected Job Roles | Mobile Application Developer |

| TEACHING AND SCHEME OF EXAMINATION | | | | | | |
|---|---|---|---|---|---|---|
| Course Code | Course Name | Hours | | Assessment Marks | | Duration of Examination |
| | | | | Min | Max | |
| CSE/2020/016 | Mobile Application Development using Android | Theory | 30 | 10 | 20 | 3 Hours |
| | | Practical | 50 | 40 | 80 | |
| | | Total | 80 | 50 | 100 | |

# CSE/2020/016 - MOBILE APPLICATION DEVELOPMENT USING ANDROID

## DETAILED SYLLABUS

| UNIT NO | MODULES | NO.OF.HOURS THEORY |
|---|---|---|
| I | INTRODUCTION TO MOBILE PHONE HARDWARE SOFTWARE | |
| 1.1 | Introduction to Mobile Phones-Basic Circuit Board components of Mobile Phones -Use of Tools & Instruments Used in Mobile Phone Repairing- All Troubleshooting, Fault Finding and Repairing of Various Brand & Model- Basic and Android Smart Cell Phone. | 7 |
| 1.2 | Assembling & Disassembling of Different Types of Basic Mobile Phones, Android Smart Mobile Phones. | |
| 1.3 | Troubleshooting of Mobiles through Computer-Flashing-Formatting- Understanding Mobile Applications , Features and types | |
| 1.4 | Phone Unlocking- Use of Cell phone Secret Codes | |
| 1.5 | Downloading-Installation of necessary softwares | |
| II | INTRODUCTION TO ANDROID STUDIO | |
| 2.1 | Basics of Android - Android Architecture- Android Studio Setup-Modifying project parameters in android studio and gradle build files- activity lifecycle, event listener- Linear Layout- Relative Layout | 8 |
| 2.2 | Frame Layout-Table Layout-Web View-Check Box | |
| 2.3 | Radio Buttons-Spinner –Auto Complete Text View-Card View- | |
| 2.4 | Time Picker-Date Picker Dialog-Broadcast Receivers (System & Custom)- Local Broadcast Manager | |
| III | ACTIVITIES, INTENTS, FRAGMENTS AND NOTIFICATION | |
| 3.1 | Activities - Persisting application state during configuration changes and creating activity hierarchies-Fragments-Explicit and Implicit intents - | 8 |
| 3.2 | Navigating between activities using intents-Using Notification Compact to Show Notifications | |
| 3.3 | Using Pending Intent to package and send a delayed action- Services for executing background work Using Job Scheduler for syncs | |
| 3.4 | Periodic tasks and Scheduling time sensitive tasks with alarms. | |

| IV | CUSTOMIZING WIDGETS AND CONSTRUCTING OPTION MENU , STORAGE MEDIA ,ANIMATIONS AND GOOGLE MAP | |
|---|---|---|
| 4.1 | Grid View-List View - Building layouts using XML and Java code and Grouping common UI design elements with styles | |
| 4.2 | Constructing Option menus for action bar navigation-Internal & External File Storage-Shared Preference | 7 |
| 4.3 | Creating settings UI using the preferences framework and reacting to changes in a Shared Preferences instance | |
| 4.4 | Web Services, Location and Google Map, Database Framework and Third Party Libraries (SAS,SQLite) | |
| **Total Theory Hours** | | **30** |
| **Total  Practical  Hours** | | **50** |
| **Total Hours** | | **80** |

## PRACTICAL ( 50 HOURS )

1. How to Flash IMEI Number in Android Mobile Phone

2. How to solve  Bluetooth Not Working – Problem

3. Installation of Android Studio in Windows

4. Create a simple project in Android studio again open ,close and reopen the project

5. Creating Android Virtual Device

6. Create a simple application of Hello World in Android Studio.

7. Create a android application to understand the use of linking activities using Intent

8. To create an android application to understand passing data through Intent.

9. To create an android application with multiple screen, each screen should use different

   layout like Linear Layout, Relative Layout, Frame Layout and Table Layout.

10. To integrate the webpage inside our android application using Web view.

11. To create an android application to store the details of a student permanently and display the details in another activity using shared preference.

12. To create an android application to manage student database using SQlite database.

13. Digital Bio data application using HTML15

14. Installation of application on a mobile device

## Apps Oriented Projects

Countdown Timer / Stopwatch , Random Number Generator , Calculator, To Do List / Grocery List, SQLite Multiple Choice Quiz.

## HARDWARE REQUIREMENT

| S.NO | LIST OF TOOLS /EQUIPMENTS |
|---|---|
| 1 | Computer |
| 2 | Printer |
| 3 | Smartphone |

## SOFTWARE REQUIREMENT

| S.NO | LIST OF SOFTWARES |
|---|---|
| 1 | Android Studio |
| 2 | Eclipse |

## REFERENCE BOOKS

| S.NO | NAME OF THE BOOK | AUTHOR | PUBLISHER |
|---|---|---|---|
| 1. | Android Programming for Beginners: Build in-depth, full-featured Android 9 Pie apps starting from zero programming experience, 2nd Edition | John Horton | Packt Publishing (October 31, 2018) |
| 2. | Android Application Development Cookbook- Second Edition | by Rick Boyer and Kyle Mew | Packt Publishing; 2 edition (31 March 2016) |
| 3. | Android Programming in a Day: The Power Guide for Beginners in Android App Programming | by Sam Key | CreateSpace Independent Publishing Platform (February 7, 2015) |
| 4. | Professional Android 4 Application Development" | Reto Meier | Wrox; 3rd edition (May 1, 2012) |
| 5. | Android Application Development All-in-One For Dummies 2nd Edition | Barry Burd | For Dummies; 2 edition (August 3, 2015) |
| 6. | Head First Android Development: A Brain-Friendly Guide 2nd Edition | Dawn Griffiths, David Griffiths | O'Reilly Media; 2 edition (August 19, 2017) |

## ASSESSMENT AND CERTIFICATION

| S.No | Criteria for assessment |
|------|-------------------------|
| 1. | A trainee will be assessed based on the performance in End Examination for Theory and Practical conducted internally in the Project Polytechnic College for a duration of 3 hours |
| 2. | A trainee must have 75% of attendance to appear for End examination in Theory and Practical. |
| 3. | The assessment for theory part will be based on the marks scored in the end examination on the knowledge bank of questions (1 word/objective type questions) |
| 4. | The assessment for practical part will be based on the marks scored in the end examination conducted by the Project Polytechnic and assessed by the Examiners approved by Strategic Plan Implementation Committee (SPIC) of the project polytechnic. |
| 5. | The criteria for successful completion of training is every trainee should score 50% of marks in theory and practical examination. |
| 6. | On successful completion of training , Certificate will be issued to the participants by the Directorate of Technical Education through the Project Polytechnic. |

## END EXAMINATION

## ALLOCATION OF MARKS

| S.No | Description | Max.Marks |
|------|-------------|-----------|
| 1. | Theory Examination | 20 |
| 2. | Practical Examination | |
| | a)Procedure | 10 |
| | b)Execution | 30 |
| | c)Output | 20 |
| | d)Record | 20 |
| | **Total Marks** | **100** |

# THEORY MODEL QUESTION PAPER

## CSE/2020/016 - MOBILE APPLICATION DEVELOPMENT USING ANDROID

(Maximum Marks : 20 )

(N.B:  Answer any **twenty** questions)                                      **20 x 1 = 20 Marks**

1.  When Developing  for the Android OS , java byte is compiled into _____
2.  What does the .apk extension stands for?
3.  Computer hardware consists of interconnected _____that we can use to control a computer's operation, input and output.
4.  Which device has the limitation that we can only read it but cannot modify or erase it?
5.  ____ is known as the translator for low-level programming language.
6.   A device that is used to transmit data over telecommunications lines is called _____
7.  The software used to drive microprocessor-based systems is known as _____
8.  Which of the following stores all the user-related data that is relevant for the GSM system in mobile computing?
9.  What are the layouts available in android?
10. What is the use of Oncreate().
11. _____simply respond to broadcast messages from other applications or from the system itself.
12. What is the use of android :id ?
13. What is the use of destroy().
14. A _____is a piece of an activity which enable more modular activity design.
15. Android AutoCompleteTextViewis_____which shows a list of suggestions when user starts typing text.
16. To format a drive means to prepare the chosen partition on the drive to be used by an operating system by _____
17. A _____is a handheld electronic device that provides a connection to a cellular network.
18.  What is Intent.
19. What is the use of bind Service().
20. *Android*_____is a system component powered by Chrome that allows *Android* apps to display web content.
21. _____ method is used to join the adapter with Grid View.
22. Which  view which groups several items and display them in vertical scrollable list.
23. ------- used in Android devices running on OS version older than **3.0(Honeycomb)**.
24. ----- method returns an estimated number of bytes that can be read or skipped without blocking for more input.
25.  Which method returns a Shared Preference instance pointing to the file that contains the values of preferences.