| GANPAT UNIVERSITY                   |       |                        |                 |       |               |                                     |    |  |       |  |  |  |
|-------------------------------------|-------|------------------------|-----------------|-------|---------------|-------------------------------------|----|--|-------|--|--|--|
| FACULTY OF ENGINEERING & TECHNOLOGY |       |                        |                 |       |               |                                     |    |  |       |  |  |  |
| Programme                           |       | Bachelor of Technology |                 |       |               | Branch/Spec.                        |    | Computer Engineering / Information<br>Technology |       |  |  |  |
| Semester V Version 2.0.0.0          |       |                        |                 |       |               |                                     |    |  |       |  |  |  |
| Effective from                      | lemic | Year                   | 2020-2          | 1     | Effective for | Effective for the batch Admitted in |    |  |       |  |  |  |
| Subject code 2CEIT                  |       |                        | T5PE5 Subject N |       | Name          | Mobile Application Development      |    |  |       |  |  |  |
| Teaching scheme                     |       |                        |                 |       |               | Examination scheme (Marks)          |    |  |       |  |  |  |
| (Per week)                          | Lectu | cture Practi           |                 | tical | Total         |                                     | CE | SEE  | Total |  |  |  |
|                                     | (DT)  | $\Gamma$ ) (La         |                 | o.)   |               |                                     |    |  |       |  |  |  |
|                                     | L     | T                      | P               | TW    |               |                                     |    |  |       |  |  |  |
|                                     |       | U                      |                 |       |               |                                     |    |  |       |  |  |  |
| Credit                              | 2     | 0                      | 2               | -     | 4             | Theory                              | 40 | 60   | 100   |  |  |  |
| Hours                               | 2     | 0                      | 4               | -     | 6             | Practical                           | 30 | 20   | 50    |  |  |  |

## Pre-requisites:

Object oriented programming

## Objectives of the course:

- 1. Understand the basics of Android devices and Platform.
- 2. Acquire knowledge on basic building blocks of Android programming required for Application development.
- 3. Gain knowledge to user interfaces used in android applications.
- 4. Acquire knowledge on advanced application concepts like networking, Animations and Google Maps services etc.
- 5. Develop and publish Android applications in to Android Market.
- 6. Understand the knowledge of JSON and applications of JSON.

|      | o. Officerstand the knowledge of 35014 and applications of 35014.  |     |  |  |  |  |  |
|------|--|-----|--|--|--|--|--|
|      | syllabus   |     |  |  |  |  |  |
| Unit | Content  | Hrs |  |  |  |  |  |
| 1    | Introduction to Android: History of Mobile Software Development, Open Handset Alliance, What is an Android, Difference between i-phone OS (apple) and Android OS, Define term HTML, XML and WML  | 02  |  |  |  |  |  |
| 2    | Setting Up Your Android Development Environment: Configuring Your Development Environment, Difference between JVM and DVM, Android platform Architecture, Advantage of DVM over JVM, Android Emulator  | 02  |  |  |  |  |  |
| 3    | Understanding the Anatomy of an Android Application: What is the meaning of an Anatomy?, Explain the activity with their states?, What are the methods used in android activity life cycle?, Explain the Android activity life cycle   | 03  |  |  |  |  |  |
| 4    | Defining your Application using the Android Manifest file:  Core files and Directories of the Android Application, What are the contents of the Android Manifest file?, How to edit the Android manifest file?, Registering Activities and Other in Application  | 02  |  |  |  |  |  |
| 5    | Managing Application Resources: What Are Resources?, Storing Application Resources, Understanding the, Resource Directory Hierarchy, Resource Value Types, Setting Simple Resource Values Using Eclipse, Working with String, String Arrays, Boolean, Integer, Colours, Dimensions, Drawables, Images resources etc, Working with Layouts, Using Layout Resources Programmatically | 03  |  |  |  |  |  |
| 6    | <b>Exploring User Interface Screen Elements:</b> Introducing the Android View, Android Control, Android Layout, Displaying Text to Users with Text View, Configuring Layout and Sizing, Using Buttons, Check Boxes, Radio Groups,  | 03  |  |  |  |  |  |

| Spinner, Progress Bar   Designing User Interfaces with Layouts:  |          |   |     |  |  |
|--|----------|---|-----|--|--|
| Creating User Interfaces in Android, Creating Layouts Using XML Resources and Programmatically, ScrollView, GridView, ListView, Spinner  |          | spinner, Progress Bar   |     |  |  |
| Programmatically, ScrollView, GridView, ListView, Spinner  Drawing and Working with Animation:  8 Design Working with Canvases and Paints, Drawing Ovals and Circles, Frame by frame & 103 tween animation  9 Explore Data Storage Techniques: Working with Shared Preferences, What is SQLite, features of SQLite, store data in SQLite Explore Google Map: Peature of Google map, version of Google map APIs, integration of google map in android application Working with other components: 11 Use of TimePicker & DatePicker, Different Dialogboxs, Option menu & context menu, O3 Send/read SMS, JSON & Application with JSON  iPhone OS: 12 Introduction to iPhone Architecture, AppDelegate, View controller, Interface Builder, Nib Pic, COCOA and MVC Framework, Overview of features of latest iOS  Practical content Experiments/Practicals/Simulations would be carried out based on syllabus.  Text Books 1 The Swift Programming Language By Apple Inc. 2. Android Programming with Kotlin for Beginners by John Horton, Packt Publishing Limited.  Reference Books 1 Android Wireless Application Development, by Shane Conder & Lauren Darcey. Pearson. 2 Head First Kotlin: A Brain - Friendly Guide by Dawn Griffiths and David Griffiths. 4 Kotline in Action By Dmitry Jemerov, Svetlana Isakova. 5 Programming Kotlin By Stephen Samuel, Stefan Bocutiu. 6 iOS 11 Swift Programming Cookbook By Vandad Nahavadipoor.  ICT/MOOCs Reference 1 https://www.mooc-list.com/tags/ios-development 2 https://www.mooc-list.com/tags/ios-development 3 https://www.mooc-list.com/tags/ios-development 4 https://www.mooc-list.com/course/kotlin-for-android-developersud888 4 https://www.udacity.com/course/kotlin-for-android-developersud888 5 https://developer.android.com/guide 6 https://developer.android.com/guide 6 https://developer.android.com/guide 6 https://developer.android.com/guide 6 https://developer.android.com/guide   |          | Designing User Interfaces with Layouts:   |     |  |  |
| Drawing and Working with Canvases and Paints, Drawing Ovals and Circles, Frame by frame & University to the Canvases and Paints, Drawing Ovals and Circles, Frame by frame & University to the Explore Data Storage Techniques: Working with Shared Preferences, What is SQLite, features of SQLite, store data in SQLite  | 7        |   | 02  |  |  |
| Design Working with Canvases and Paints, Drawing Ovals and Circles, Frame by frame & tween animation   |          |   |     |  |  |
| tween animation    Explore Data Storage Techniques:   Working with Shared Preferences, What is SQLite, features of SQLite, store data in SQLite   Explore Google Map:   Feature of Google map, version of Google map APIs, integration of google map in android application   Working with other components:   Use of TimePicker & DatePicker, Different Dialogboxs, Option menu & context menu, Send/read SMS, JSON & Application with JSON   IPhone OS: Introduction to iPhone Architecture, AppDelegate, View controller, Interface Builder, Nib File, COCOA and MVC Framework, Overview of features of latest iOS   Practical content  |          |   | 0.0 |  |  |
| Surplore Data Storage Techniques:   Working with Shared Preferences, What is SQLite, features of SQLite, store data in SQLite     Explore Google Map:     Feature of Google map, version of Google map APIs, integration of google map in android     application   Working with other components:     11  | 8        |   | 03  |  |  |
| Working with Shared Preferences, What is SQLite, features of SQLite, store data in SQLite  Explore Google Map: Feature of Google map, version of Google map APIs, integration of google map in android application  Working with other components:  Use of TimePicker & DatePicker, Different Dialogboxs, Option menu & context menu, Send/read SMS, JSON & Application with JSON  iPhone OS:  Introduction to iPhone Architecture, AppDelegate, View controller, Interface Builder, Nib File, COCOA and MVC Framework, Overview of features of latest iOS  Practical content  Experiments/Practicals/Simulations would be carried out based on syllabus.  Text Books  I The Swift Programming Language By Apple Inc.  Android Programming with Kotlin for Beginners by John Horton, Packt Publishing Limited.  Reference Books  I Android Wireless Application Development, by Shane Conder & Lauren Darcey. Pearson.  Head First Kotlin: A Brain - Friendly Guide by Dawn Griffiths and David Griffiths.  Kotline in Action By Dmitry Jemerov, Svetlana Isakova.  Programming Kotlin By Stephen Samuel, Stefan Bocutiu.  io St Il Swift Programming Cookbook By Vandad Nahavadipoor.  ICT/MOOCS Reference  https://www.mooc-list.com/tags/android-developmen  https://www.mooc-list.com/tags/android-developmen  https://www.udacity.com/course/kotlin-for-android-developersud888  https://www.udacity.com/course/kotlin-by-making-android-app/  https://www.udemy.com/course/kotlin-by-making-android-app/  https://developer.android.com/guide  https://developer.android.com/guide   |          |   |     |  |  |
| Explore Google Map:   Feature of Google map, version of Google map APIs, integration of google map in android application   Working with other components:   Use of TimePicker & DatePicker, Different Dialogboxs, Option menu & context menu, O3 Send/read SMS, JSON & Application with JSON  | 9        |   | 03  |  |  |
| 10   Feature of Google map, version of Google map APIs, integration of google map in android application   Working with other components:   Use of TimePicker & DatePicker, Different Dialogboxs, Option menu & context menu,   O3   Send/read SMS, JSON & Application with JSON   iPhone OS:   Introduction to iPhone Architecture, AppDelegate, View controller, Interface Builder, Nib   O2   File, COCOA and MVC Framework, Overview of features of latest iOS   Practical content   Experiments/Practicals/Simulations would be carried out based on syllabus.   Text Books   1   The Swift Programming Language By Apple Inc.   2.   Android Programming with Kotlin for Beginners by John Horton, Packt Publishing Limited.   Reference Books   1   Android Wireless Application Development, by Shane Conder & Lauren Darcey. Pearson.   2   Head First Kotlin: A Brain - Friendly Guide by Dawn Griffiths and David Griffiths.   3   Head First Android Development: A Brain-Friendly Guide By Dawn Griffiths and David Griffiths.   4   Kotline in Action By Dmitry Jemerov, Svetlana Isakova.   5   Programming Kotlin By Stephen Samuel, Stefan Bocutiu.   6   iOS 11 Swift Programming Cookbook By Vandad Nahavadipoor.   ICT/MOOCs Reference   1   https://www.mooc-list.com/tags/ios-development   2   https://www.mooc-list.com/tags/ios-development   3   https://www.udacity.com/course/kotlin-for-android-developersud888   4   https://www.udacity.com/course/kotlin-for-android-developersud888   4   https://www.udacity.com/course/kotlin-for-android-developersud888   4   https://developer.android.com/guide   6   https://developer.android.com/guide   h |          |   |     |  |  |
| application  Working with other components: Use of TimePicker & DatePicker, Different Dialogboxs, Option menu & context menu, Send/read SMS, JSON & Application with JSON  iPhone OS: Introduction to iPhone Architecture, AppDelegate, View controller, Interface Builder, Nib Pie, COCOA and MVC Framework, Overview of features of latest iOS  Practical content  Experiments/Practicals/Simulations would be carried out based on syllabus.  Text Books  I The Swift Programming Language By Apple Inc. Android Programming with Kotlin for Beginners by John Horton, Packt Publishing Limited.  Reference Books  I Android Wireless Application Development, by Shane Conder & Lauren Darcey. Pearson. Head First Kotlin: A Brain - Friendly Guide by Dawn Griffiths and David Griffiths. Head First Android Development: A Brain-Friendly Guide By Dawn Griffiths and David Griffiths. Kotline in Action By Dmitry Jemerov, Svetlana Isakova. Frogramming Kotlin By Stephen Samuel, Stefan Bocutiu.  i iOS 11 Swift Programming Cookbook By Vandad Nahavadipoor.  ICT/MOOCs Reference  I https://www.mooc-list.com/tags/android-developmen  https://www.mooc-list.com/tags/ios-development  https://www.udacity.com/course/kotlin-for-android-developersud888  https://www.udaeity.com/course/kotlin-for-android-developersud888  https://www.udemy.com/course/kotlin-for-android-developersud888  https://www.udemy.com/course/learn-kotlin-by-making-android-app/ https://developer.android.com/guide https://developer.android.com/guide  | 10       |   | 02  |  |  |
| Working with other components:   Use of TimePicker & DatePicker, Different Dialogboxs, Option menu & context menu, Send/read SMS, JSON & Application with JSON   | 10       |   |     |  |  |
| Send/read SMS, JSON & Application with JSON  iPhone OS:  Introduction to iPhone Architecture, AppDelegate, View controller, Interface Builder, Nib File, COCOA and MVC Framework, Overview of features of latest iOS  Practical content  Experiments/Practicals/Simulations would be carried out based on syllabus.  Text Books  1 The Swift Programming Language By Apple Inc. 2. Android Programming with Kotlin for Beginners by John Horton, Packt Publishing Limited.  Reference Books  1 Android Wireless Application Development, by Shane Conder & Lauren Darcey. Pearson.  2 Head First Kotlin: A Brain - Friendly Guide by Dawn Griffiths and David Griffiths.  3 Head First Android Development: A Brain-Friendly Guide By Dawn Griffiths and David Griffiths.  4 Kotline in Action By Dmitry Jemerov, Svetlana Isakova.  5 Programming Kotlin By Stephen Samuel, Stefan Bocutiu.  6 iOS 11 Swift Programming Cookbook By Vandad Nahavadipoor.  ICT/MOOCs Reference  1 https://www.mooc-list.com/tags/android-developmen  2 https://www.mooc-list.com/tags/ios-development  3 https://www.udacity.com/course/kotlin-for-android-developersud888  4 https://www.udemy.com/course/learn-kotlin-by-making-android-app/  5 https://developer.apple.com/documentation/   |          |   |     |  |  |
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| 2 https://www.mooc-list.com/tags/ios-development 3 https://www.udacity.com/course/kotlin-for-android-developersud888 4 https://www.udemy.com/course/learn-kotlin-by-making-android-app/ 5 https://developer.android.com/guide 6 https://developer.apple.com/documentation/   | ICT/M    | OOCs Reference  |     |  |  |
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| Course Outcomes:   |          | A AA  |     |  |  |

## Course Outcomes

After successful completion of this course, student will be able to

- 1. Analyse business trends impacting Android Platform.
- 2. Be competent with the characterization and architecture of mobile applications.
- 3. Understand enterprise scale requirements of mobile applications.
- 4. Design and develop mobile applications using application development framework.
- 5. Understand how to handle and share android data.
- 6. Develop an android services and to publish android application for use.