

**FACULTY OF COMPUTER SCIENCE & I.T.**

**SYLLABUS**

**Of**

**CERTIFICATE COURSE IN  
NATIVE APP DEVELOPMENT USING KOTLIN ANDROID**

**Session 2023-24**



**The Heritage Institution  
KANYA MAHA VIDYALAYA  
JALANDHAR  
(AUTONOMOUS)**

**Kanya Maha Vidyalaya, Jalandhar (Autonomous)**

**Certificate Course in**

**Native App Development Using Kotlin Android**

**Session 2023-24**

Course Code	Course Title	Credit		Duration	Marks		Total Marks	Examination Time (in Hours)
		L-T-P	Total		L	P		
CNAM-1111	Native App Development Using Kotlin Android	1-0-1	2	45 Hours	10	40	50	1+3

**Prerequisites / Eligibility:**

- Must have passed 10+2 in any stream with 50% marks and having knowledge of OOPs and Java.

**Examination Pattern**

- A) 10 marks for Multiple Choice Questions (10) each of 1 mark.  
B) 40 marks for Practical/App Development.

# **Certificate Course**

**Session 2023-24**

**Course Title: Native App Development Using Kotlin Android**

**Course Code: CNAM-1111**

**L-T-P**

**1-0-1**

**Duration: 45 Hours (in 45 Working Days)**

**Credits: 2    Marks: 50**

## **Course Outcome:**

After passing the course the student will be able to:

CO1: Comprehend various UI Design and Layout of Activities in android application

CO2: Comprehend Activity and Fragment Lifecycle of android application

CO2: Manage linked data in the form of shared preferences and database

CO3: Apply knowledge to develop Android Application

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## **Examination Pattern**

A) 10 marks for Multiple Choice Questions (10) each of 1 mark.

B) 40 marks for Practical/App Development.

## **Course Content**

### **1. Basics**

- a. Android Studio and development environment setup.
- b. Basics of Kotlin
- c. Android Application Structure
- d. Emulator installation
- e. Running your first android app

### **2. Basic UI Design**

- a. Layouts - Linear, Relative, and constraint
- b. Ui widgets
- c. Dimensions and Graphic Elements

- d. Dialogs (Inbuilt and custom)
- e. Snackbar and Toasts

### **3. Basic Building Blocks**

- a. Introduction To activities, services, intents, and broadcast receivers.
- b. Activity and fragment life cycle
- c. Adding Splash Screen
- d. Adding Intents and passing values through intents.
- e. Adding validations in layout and naming Conventions

### **4. Content Providers**

- a. Saving and getting data with shared Preferences
- b. Create, read, update and delete operations with room database

### **5. Additional Concepts**

- a. View Binding
- b. Nav Controller
- c. Recycler view and list fragment
- d. Working with WebView
- e. Permissions in android
- f. Fetch and save data to/from gallery and camera

### **Suggested Readings:**

- Allen, Grant, Nikhil Gopal, and Michael Thomas. Beginning Android 4. Apress, 2012.
- Horton, John. Android Programming for Beginners. Packt Publishing Limited, 2015.
- Hardy, Brian, and Bill Phillips. Android Programming: The Big Nerd Ranch Guide. AddisonWesley Professional, 2013.
- Himanshu Dwivedi, Chris Clark, David Thiel, Mobile Application Security, Tata McGraw Hill, 1st Edition, 2010.
- Michael Burton. Android Application Development for Dummies, Wiley, 3rd Edition, 2015.
- Serhan Yamacli. Beginner's Guide to Android App Development, Create Space Independent Publishing Platform, 1st Edition, 2017.
- Bill Philips. Android Programming: The Big Nerd Ranch Guide, Big Nerd Ranch Guides; 3rd dition, 2017.
- Ryan Cohen, Tao Wang. GUI Design for Android Apps, Apress, 1st Edition, 2014.
- Marcin Moskala, Igor Wojda. Android Development with Kotlin, Packt Publishing Limited, 1st Edition, 2017.
- <https://developer.android.com>