

Syllabus - Application Development - Android

Duration: 6 Months

Sr. No.	Module Code & Version	Module Name	Theory Hours	Practical hours	OJT hours	Total Duration in Hours
1	HART/AWD/M039,V1	Computer Basics and Internet	05	10	-	15
2	HART/AWD/M040,V1	Introduction to Programming with C++	15	30	-	45
3	HART/AWD/M041,V1	Fundamentals of Java	15	45	-	60
4	HART/AWD/M042,V1	Querying and Managing data with SQL	15	30	-	45
5	HART/AWD/M043,V1	Android Programming	30	60	-	90
6	HART/AWD/M044,V1	Kotlin Fundamentals	15	30	-	45
7	DGT/VSQ/N0102	Employability Skills	60	-	-	60
8		Project/ OJT	-	-		30
		Total	155	205	30	390

Module 1: Computer Basics and Internet

- Introduction to Computer
- Characteristics & Application of computer
- Generation & Classification of Computers
- Components of Computer
- Computer Memory
- Hardware and Software Concepts
- Operating System – Introduction, Types and Functions
- Working with Windows
- Managing files and folders
- Control Panel
- Window Accessories
- Compression utilities (winrar, winzip)
- Basic Troubleshooting
- Internet and E-mail

Module 2: Introduction to Programming with C++

- Introduction to Programming Techniques
- Basic Concepts of Object Oriented Programming

- Object Oriented Languages
- Applications of Object Oriented Programming
- Beginning with C++
- Token Expressions & Control Structures
- Functions in C++, Arrays
- Classes & Objects
- Constructors & Destructors, Operator Overloading, Inheritance
- Pointers, Virtual Functions & Polymorphism
- Working with Files
- Exception handling

Module 3: Fundamentals of Java

- What is Java?
- Features of Java
- OOPs Concepts
- JVM & JDK
- Data types, Variables, Operators & Control Structures
- Arrays & Strings
- Object & Classes
- Inheritance, Abstraction, Encapsulation & Polymorphism
- Interface and Packages
- Exception Handling
- IO Package
- Multi- Threading
- Java AWT & Applets

Module 4: Querying and Managing data with SQL

- Introduction to SQL
- Introduction to Databases and Relational database Management system
- SQL syntax, data types and Operators
- SQL Commands- DDL, DML, TCL, DCL
- SQL Clauses
- SQL Constraints
- Sub queries and Joins

Module 5: Android Programming

- Introduction to Android
- Architecture of Android
- Installing Android
- Software Development Kit & Android Virtual Device(Emulator)
- Create Simple Android Application
- understand the project structure of Android Application

- Dalvik Virtual Machine (DVM)
- UI Widgets & Event Handling
- Styles and Themes
- Activity, Intent & Fragment
- Android Menu & Service
- Android Notifications
- Android Storage
- Android SQLite
- XML and JSON
- Android Multimedia
- Android Speech & Telephony
- Device Connectivity
- Location Based Services
- Packaging and Deployment
- Android based Project

Module 6: Kotlin Fundamentals

- Introduction to Kotlin
- Syntax and Data types
- Operators & Control Structures
- Adding Kotlin in Android Studio
- Develop apps using Kotlin

Module 7: Employability Skills

- Introduction to Employability Skills
- Constitutional values - Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting Ready for Apprenticeship & Jobs

Module 8: Project/ OJT

- Apply knowledge and skills to develop an Android-based application.