Android App *Development*

Diploma Program in

'Mobile App Development (Android)'

Duration: 52 weeks

Sr. No.	Name of the Programme	Details About the Programme	Remarks
1.	**Diploma Certificate course in 'Mobile App Development (Android)'**	**Mission of AIIITS:** The mission of AIIITS is to advance knowledge and educate students in information Technology and other areas that will best serve the nation. **Vision of AIIITS:** To position AIIITS as a premier institute responsive to emerging needs of industry. To produce high skilled graduates and contribute towards sustainable development of the industry and nation.	
		### 1. Introduction to the Programme: An Android app is a software application running on the Android platform. Because the Android platform is built for mobile devices, a typical Android app is designed for a smartphone or a tablet PC running on the Android OS. This Diploma programme has been designed keeping mind the rising demand of mobile applications. Every organizations are having their own mobile app, which facilitates and makes their services easy to deliver and also can expect commitments from their clients. So every companies are now investing in developing their own mobile App which leads to the rise in the employability in mobile app development. In India the widely developed mobile App is done using Android platform so this diploma program is developed keeping Android in mind. This Diploma program will be especially useful for the beginners who want to learn Mobile application ### 2. Objectives of the Programme: The course aims at developing logics and algorithms, imparting relevant programming abilities and develop mobile application, this program also develop capabilities to manage database and integrate database with the applications and to deploy it in Google play store. **Objectives: the objectives of the proposed course** **are to impart knowledge on the following:** 1. Developing logics and algorithms and programming skills to develop mobile applications and its connectivity with database. 2. Developing skills to develop websites.	

	3. Learn skills which can give a very promising career.	
	## 3. Target Group of Learners: Diploma in Mobile App development is meant for anyone who want to make their career in IT and mobile app development or to start a business in mobile app development. Career options will be there for website development or as software developer or as a Android App developer. Any students after completion of this program can get placed in industry as Mobile App developer or software developer and with experience they can grow in their career path. It also helps to build a promising career in every aspects.	
	## 4. Instructional Design: The course will consist of live lectures, videos and assignments for every modules. After every module doubt-clearing sessions will be arranged where students will be free to clear their doubts. After the completion of all the modules projects will be allotted to students.	
	## 5. Instructional Design: i. **Duration of the Programme:** 12 months ii. **Course delivery** The course will be entirely delivered ***online.*** There are five modules of the course which will be shared by sending a link to the participants each week. Each week's menu will cover the following: 1. **Interactive Online lectures:** This online sessions will be conducted either on Microsoft team or Google meet or Zoom. The session link will be shared with the students. 2. **Video(s):** The recording of the live sessions will be there in the drive which students can access any time. 3. **Lecture(s):** the theoretical and applied parts of the topic will be covered in lectures. 4. **Exercises and data:** Assignments will be allocated to the participants which they need to complete and submit and assessments on any particular module will be done based on the assignments. 5. **Doubt-clearing:** There will be an interactive forum as a platform to interact with each other and with the resource persons**.** Here the	

		participants can discuss their difficulties, can ask questions and get the doubts clarified.	
		6. Eligibility: Students with any bachelor's/Master's degree in Science/ Information Technology/ Computer Science/ Engineering/ from any recognized universities in India or other countries.	
		7. Procedure for admission, Curriculum transaction and evaluation: Admission is based on prerequisite degree of any recognized universities in India. The Course is affiliated to the Jain University. It is coupled with SLM study material plus personal contact programmes at various places convenient to the learners.	
		8. Fee structure: The fees should be paid in one installment only, before the commencement of the course*. Rs. 58,000/- *Installment options can be provided with additional 8% on the course fees. The students can pay it in 4 easy installments	
		10. Syllabus: **Topic 1: Java-** **Java as a Programming Tool** Advantages of Java The Java "White Paper" Buzzwords Java and the Internet A Short History of Java Common Misconceptions About Java **The Java Programming Environment** Installing the Java Software Development Kit Development Environments Using the Command Line Tools Using an Integrated Development Environment Compiling and Running Programs from a Text Editor Graphical Applications Applets **Fundamental Programming Structures in Java** A Simple Java Program Comments Data Types Variables Assignments and Initializations Operators Strings	

Control Flow
Big Numbers
Arrays

Objects and Classes
Introduction to Object-Oriented Programming
Using Existing Classes
Building Your Own Classes
Static Fields and Methods
Method Parameters
Object Construction
Packages
Documentation Comments
Class Design Hints

Inheritance
Extending Classes
Object: The Cosmic Superclass
The Class Class
Reflection
Design Hints for Inheritance

Interfaces and Inner Classes
Interfaces
Object Cloning
Inner Classes
Proxies

Graphics Programming
Introduction to Swing
Creating a Frame
Frame Positioning
Displaying Information in a Panel
2D Shapes
Colors
Text and Fonts
Images

Event Handling
Basics of Event Handling
The AWT Event Hierarchy
Semantic and Low-Level Events in the AWT
Low-Level Event Types
Actions
Multicasting
The Event Queue

User Interface Components with Swing
The Model-View-Controller Design Pattern
An Introduction to Layout Management
Text Input
Making Choices

Menus
Sophisticated Layout Management
Dialog Boxes
Applets
Applet Basics
The Applet HTML Tags and Attributes
Multimedia
The Applet Context
JAR Files

Exceptions and Debugging
Dealing with Errors
Catching Exceptions
Some Tips on Using Exceptions
Debugging Techniques
Using a Debugger

Streams and Files
Streams
The Complete Stream Zoo
ZIP File Streams
Putting Streams to Use
Object Streams
File Management
(Duration 8 Weeks)

Topic 2: Android Professional Track-
Content
What is Android
History and Version
Android Architecture
Installing software
Setup Eclipse
Hello Android example
Android Emulator
AndroidManifest.xml
R.java file
Hide Title Bar
Screen Orientation
Working with Button
Toast
Custom Toast
Button
Toggle Button
Switch Button
Image Button
Check Box
Alert Dialog
Spinner
Auto Complete Text View
Rating Bar
Date Picker

| | | Time Picker
Progress Bar
Quick Contact Budge
Analog Clock and Digital Clock
Working with hardware Button
File Download
Introduction of Activity, Intent &Day
Fragment
Activity Lifecycle
Activity Example
Implicit Intent
Explicit Intent
Fragment Lifecycle
Fragment Example
Dynamic Fragment
Android Menu
Option Menu
Context Menu
Popup Menu
Layout Manager
Relative Layout
Linear Layout
Table Layout
Grid Layout
Adaptor
Array Adaptor
Array List Adaptor
Base Adaptor
View
Grid View
Web View
Scroll View
Search View
Tab Host
Dynamic List View
Expanded List View
Android Service
Android Service
Android Service API
Android Service Life Cycle
Android Service Example
Data Storage
Internal Storage External Storage
(Duration 12 weeks)

Topic 3: SQLite -
SQLite API
SQLite Spinner
SQLite ListView
XML & JSON
XML Pull Parser
JSON Parsing | |

GCM Notifications
Content Provider
Content Provider Fundamental
Contact Content Provider
Other Built-in Content Providers
Creating Custom Content Provider
Understanding Content URI
Content Resolver
Sharing Information from custom content provider
Android Web Services
Soap Vs Restful web service
Android Restful web service example with java servlet
Storing data into external database
(Duration-4 Weeks)

Topic 4: Web Development-
HTML-

Introduction, Understanding & using HTML, HTML headings, HTML Comment, HTML Paragraphs, HTML Line Breaks & Rules, HTML Tags, HTML Tables, HTML Nesting, HTML Forms

DHTML-

Introduction to DHTML, DHTML JavaScript, DHTML, HTML DOM, DHTML Events, DHTML CSS, DHTML Examples

CSS-

What is CSS? CSS Comments, Three Ways to Insert CSS, Multiple Style Sheets, CSS properties used for background effects, Text, CSS Font Families, CSS Links, CSS Lists, Table Borders, CSS Padding

JavaScript-

Introduction to JavaScript, Statements and Variables, Operators, Conditional Statements, Popup Boxes, Arrays, Events and Functions, JavaScript Form, Validation, JavaScript

(Duration-10 weeks)

Topic 5: Angular-X-

Components, Using Custom Components, Creating Components with the CLI & Nesting Components, Working with Component Templates, Working with Component Style, Practicing Components, What is Databinding, String Interpolation, Property Binding, Property Binding vs String Interpolation, Event Binding, Bindable Properties and Events, Passing and Using Data with Event Binding, Two-Way-Databinding, Important: FormsModule is Required for Two-Way-Binding,

Combining all Forms of Databinding, Practicing Databinding, Understanding Directives, Using ngIf to Output Data Conditionally, Enhancing ngIf with an Else Condition, Components & Databinding Deep Dive, Splitting Apps into Components, Property & Event Binding Overview, Binding to Custom Properties, Assigning an Alias to Custom Properties, Binding to Custom Events, Assigning an Alias to Custom Events, Custom Property and Event Binding Summary, Understanding View Encapsulation, More on View Encapsulation, Using Local References in Templates, Getting Access to the Template & DOM with @ViewChild, Understanding the Component Lifecycle Lifecycle Hooks, Practicing Property & Event Binding and View Encapsulation, Directives Deep Dive, ngFor and ngIf, ngClass and ngStyle, How to create a Basic Directive, Using Services & Dependency Injection, Why would you Need Services? Creating a Logging Service, Injecting the Logging Service into Components, Creating a Data Service, Understanding the Hierarchical Injector, How many Instances of Service Should It Be? Injecting Services into Services, Using Services for Cross-Component Communication

(Duration-10 weeks)

Projects: For 8 weeks-

Projects will be assigned to students with assistance in handling the projects.

Key Reference Books

1. Effective Java by Joshua Bloch
2. Hello Android: Introducing Google's Mobile development platform by Ed Burnette
3. Android development with Android studio by Aamer Khan
4. Ng-book: The complete guide to Angular by Felipe Coury, Ari Lerner, Carlos Taborda

		12. Quality Assurance: IQAC (Internal Quality Assurance Cell) is in place to oversee the Programme delivery mechanism and suggest changes specific to requirements. BOS (Board of Studies) and AC (Academic Council) review and revise the programme after every three years and suggest modifications as per national requirements. The quality of the programme will be ensured through strict monitoring by an executive committee including the Co-ordinator of the programme, the subject experts, Director. The Co-ordinator of the programme shall ensure the regular student feedback of courses, teachers and programme in the prescribed format towards the end of the semester and the same shall be analyzed to draw conclusions for effecting improvement. Periodical review meetings on the programme efficacy will be held in which the remarks of teachers on curriculum, syllabi and methods of teaching and evaluation will be given due importance. Moreover, the progress and the quality of the programme will be monitored by the Internal Quality Assurance Cell from the outcome and feedback of the learners as well as the proper documentation maintained in the Centre.	
		13. SLM: Self-Learning Material is available in English	