Mobile Developer Track
مطور تطبيقات موبيل

N0.	Course Title	No. of Hours
Technical Area Training:		
1	Java Programming for Android Development	20
2	Android Application Development	40
3	Android Security Essentials	16
4	UI/UX Design	12
5	Flutter Native Development for IOS & Android	48
Additional Skills:		
6	HTML5 & CSS Fundamentals	12
Final Project		
7	Final Project	32
Grand Total		*180*

1 - Java Programming for Android Development

Course Title	**Java Programming for Android Development**
Course Language	**English** **Course Duration** **20 Hours**

DESCRIPTION

Developing applications for Android™ systems requires basic knowledge of Java programming language. This is introductory course that focuses on the fundamentals of Java programming language, its framework, syntax, and paradigm.

OBJECTIVES

- Install Android Studio.
- Writing a Java Program.
- Run a Java Program.
- Write a Java Comment.
- Understand Java Variables and Their Data Types.
- Acquiring Good Knowledge of Java Control Flow Statements.
- Understanding The Java Methods and Arrays.
- Understanding the Object-Oriented Programming (OOP) Concepts and Java Class.

TOPICS

First Step in Java
- The History of Java
- How Java Programs work?
- Install Java JDK and JRE
- Why did Google choose Java over other programming languages?
- Android OS Structure
- Install Android Studio

Create and Run Java Projects
- Creating an Android Project (Java Project) Using Android Studio
- Writing a Java Program
- Java Methods
- Running a Java Program
- Write a Comment
- Java Variables and Their Data Type

Control Flow Statements
- Introduction
- IF – Else Statement

- If…Else and Else…If... Statement
- If Else and Logical Operators
- Switch Statement
- While Loop
- Do-while Loop
- For Loop
- The Break Statement
- The Continue Statement

Methods and Arrays
- Introduction
- Method Structure
- Call Method by Value
- Call Method by Reference
- Arrays
- Enter Data to a Java Program
- Object-Oriented Programming (OOP) Concepts
- Java Class

2 - Android Application Development

Course Title	**Android Application Development**		
Course Language	**English**	**Course Duration**	**40 Hours**

DESCRIPTION

This course provides the required knowledge and skills to design and build a complete Android™ application. It delivers an extensive training on the main Android API components and its interactions. This course is mapped to AND-401 exam.

OBJECTIVES

- Design and build a complete Android application.
- Debug and maintain Android applications using different tools and plugins.
- Thoroughly understand the life-cycle of an Android application and its main components.
- Use external resources, manifest files, intents and adapters
- Understand and use all Android persistent storage techniques: Preferences, files, databases, and content providers.
- Use Android's background processing techniques.

TOPICS

Hello Android Framework
- Introduction
- Creating an Android Project
- Within Eclipse
- From Command line
- Running Your Application
- Running you project on the emulator
- Components of an Android application
- Application Life-cycle
- Modifying created project
- Change activity's name

Android SDK Tools and Activity Class
- Android Software Layers
- Linux kernel
- C/C++ Libraries
- Android Runtime
- Application Framework
- Application layer
- Android Libraries
- The Android Manifest File
- Structure of the Manifest File
- Android SDK Tools
- Activity life-cycle through Java
- Create an Activity
- Methods to remember

ListActivity and ListView
- Introduction
- Views
- Using Views
- Adding a View to your application
- List Views and List Activity
- Using a ListActivity
- Adding ListView
- Add Event to List Items

Intents and Intent filters
- Introduction

- Intents
- Explicit Intents
- Implicit Intents
- Native Android Actions
- Data Transfer
- Intent to Call Activities
- Direct calls
- Sub-activities: Calling Activities for Results
- Register an IntentFilter
- Methods to remember

Custom Views
- Introduction
- Different Uses of Customized Views
- Modify Existing Views
- Step by Step
- What is in onDraw()
- The full picture

Dialogs and Toasts
- Dialogs
- Dialog sub-classes
- Creating dialogs with user-defined layout
- Activities with Dialog Theme
- Toasts
- Methods to remember

More UI - Options Menu, Context Menu, and WebView
- Introduction
- Menus
- Building a menu from Java code
- Building a menu from a resource file
- Handle Select Events
- Sub-menus
- Context Menus
- Handling Context Menu Selection

3 - Android Security Essentials

Course Title	**Android Security Essentials**
Course Language	**English**

Course Duration	**16 Hours**

DESCRIPTION

This professional course which thoroughly covers the Android security model and concerns of both the developer and end-user point of view. This course is mapped for AND-802 exam.

OBJECTIVES

- Understand Android software architecture.
- Understand Android's security model.
- Build Android applications with security best practices in mind.
- Build more secure and more robust application that appeals to clients.

TOPICS

Permissions
- o Introduction
- o Android Platform Architecture
- o Android Security Architecture
- o Permissions

Managing the Policy File
- o Introduction
- o The Manifest File
- o Modifying the Application Policy

Users' Data Privacy and Protection
- o Introduction
- o Data Security Principles
- o The Mobile Environment

- o Data States
- o Vulnerabilities and Attacks Against Stored Data .
- o Protection Principles
- o Tips for Android Coding Vulnerabilities

Securing Storage
- o Introduction
- o Data Storage Decisions .
- o Storage Mechanisms
- o File Operations on an External Storage
- o Cache
- o Database

4 - UI/UX Design

Course Title	UI/UX Design		
Course Language	English	Course Duration	12 Hours

DESCRIPTION

This course provides basic concepts like the general principles of UI design and UX design. It describes set of concepts, guidelines, and workflows for critically thinking about the design and use of an interactive product. It focuses on how you want to prioritize the elements of UI that will be used in designing. It helps in how to apply best practices towards individual elements of web interfaces.

OBJECTIVES

- Introducing UI/UX Design
- Defining how to personalize and prioritized requirements that influence the UI
- Practice getting required details from people and create related user scenarios
- Understanding How to visually prioritize the elements of your web UI
- Understanding How to apply best practices to your web interface
- Selecting the best UI pattern that achieve required product
- Considering how users can be satisfied from presented services of the site
- Explaining factors of successful UX Design
- Guiding towards building a sample of UI/UX Design

TOPICS

Introduction to UI/UX Design
- o Introduction
- o What Web UI is
- o Main elements that make up UI in web page
- o Seeing UI in Action
- o Brief Introduction to UX Design
- o Why Does UX Matter?
- o Where Can UX Design be found?
- o How UI choices directly affect the UX

Understanding your users & their needs
- o Tips for getting details from people require the design
- o Tips for creating user scenarios
- o Prioritize design tasks to achieve required goals

Understanding visual hierarchy & UI patterns
- o Scanning patterns: the predictability of the human eye
- o Contrast: generating interest
- o Tools of the trade: color, size, and space
- o Test your visual hierarchy: blur technique
- o Selecting and Applying Web UI Patterns

Understanding web UI elements and principles
- o The essence of interface
- o Importance of Input controls
- o Navigation essentials: content and placement
- o Animations: navigation menus, scrolling backgrounds, and page transitions
- o Default settings awareness
- o The use of Guided actions
- o Visual Clarity & Language Clarity

Designing the User Experience
- o Complexity and Perception
- o What is User Experience (UX)
- o Why Does UX Matter
- o Where can UX Design be found
- o What's the Main Methodology for UX

The 7 Factors that Influence User Experience
- Overview of factors of successful UX design
- How product can be useful
- Achieve usable product
- How easy can product be findable
- Provide credible product
- How much product can be desirable
- Design product to be accessible
- Deliver valuable product

Collaborating on UI/UX Design
- Understanding the Essence of Your Product
- Theory in Practice
- Onward Inward
- Building Our Own

5 - Flutter Native Development for IOS & Android

Course Title	Flutter Native Development for IOS & Android		
Course Language	English	**Course Duration**	48 Hours

OBJECTIVES

- UI/UX design fundamentals and the design thinking process.
- A comprehensive guide to wireframing and prototyping Android applications.
- Usability testing, compatibility, performance and stability of Android apps.
- A UI/UX Designer Journey in Android Apps.
- Understanding different techniques to monetize Android applications.
- Publishing and advertising your application effectively.
- Explaining how to add licenses to your applications and monitor them.

TOPICS

introduction to Flutter and Dart Programming Language
- Introduction
- Importance of Flutter
- Introduction to Dart
- Writing Dart code
- DartPad
- Installing Dart SDK
- IntelliJ IDEA

Dart Programming – Syntax
- Introduction
- main( ) function
- Dart Variables
- Dart Data Types
- Input of Information to Dart Program
- Writing Comments
- Dart Conditional Operators
- If Statement
- If – Else Statement
- If…Else and Else…If... Statement
- If Else and Logical Operators
- For Loops
- While Loops
- Do-while Loops
- Break Statement
- Switch Case Statement

Dart Functions & Object-Oriented Programming (OOP)
- Functions
- Object-Oriented Programming (OOP)
- Dart Project Structure and Dart Libraries

introduction to Flutter
- Understanding Flutter
- Flutter Framework
- Android Studio
- Flutter SDK
- Installing and Configuring Flutter SDK
- Creating a New Flutter Project
- Setup an Android Virtual Device
- Run a Flutter App
- Installing Flutter on Mac

- Test Your Flutter App on iOS Phone with Windows O.S
- Android Studio Sugar and Spice
- Run your Apps on a Hardware Device (Physical Phone)
- Emulator Debug Mode
- Introduction to Flutter Widgets
- Creating a Flutter App Using Widgets
- What is a MaterialApp widget?

Flutter Widgets Fundamentals
- Scaffold Widget
- Image Widget
- Container Widget
- Column and Row Widgets
- Icon Widget
- Layouts in Flutter
- Card Widget
- App Icons for iOS and Android Apps
- Hot Reload and Hot Restart
- Stateful and Stateless Widgets
- Use a Custom Font

Navigation and Routing
- Button Widget
- FloatingActionButton
- RaisedButton, FlatButton, and IconButton
- DropdownButton
- OutlineButton
- ButtonBar
- PopupMenuButton
- App Structure and Navigation
- Navigate to a New Screen and Back
- Navigate with Named Routes
- Send and Return Data Among Screens
- Animate a Widget Across Screens
- WebView Widget in Flutter

visual, Behavioral, and Motion-Rich Widgets implementing Material Design Guidelines - Part 1
- Introduction
- BottomNavigatorBar Widget
- DefaultTabController, TabBar, and TabBarView Widgets

6 - HTML5 & CSS Fundamentals

Course Title	**HTML5 & CSS Fundamentals**		
Course Language	**English**	**Course Duration**	**12 Hours**

DESCRIPTION

Throughout this course, trainees will learn how to create web pages and their contents using Hypertext Markup Language (HTML). It will also help trainees use Cascading Style Sheet (CSS) to enhance the performance of Web pages.

OBJECTIVES

- Creating high quality web pages.
- Organizing and format web pages for making them easy to browse.
- Creating hyperlinks used to navigate between webpages.
- Dealing with images inside web pages.
- Adding text, tables and lists to web pages
- Working with forms.
- Learn about Cascading Style Sheets.

TOPICS

HTML5 History
- o Overview of the emergence of web pages
- o The emergence of markup languages
- o Some important rules for creating a web page

HTML5 Coding
- o The text editor
- o HTML 5 language components
- o The web page basic structure tags
- o Practical application

Formatting Paragraphs
- o Separation between paragraphs in the web page
- o Some of the tags associated with paragraphs
- o Practical application

Formatting Texts
- o The tags that controlling Format
- o Dealing with special characters
- o Practical application

HTML5 Semantics
- o Semantic and no- semantic HTML5 Elements
- o Example for structuring a web page
- o Practical application

Tables
- o The concept of tables
- o Analyzing table tags
- o Merging table cells
- o Practical application

Images
- o The types of images
- o The properties of images
- o Inserting images
- o Control images

- o Practical application

Lists
- o The concept of lists and their types
- o Inserting lists
- o Practical application

Hyperlinks
- o The concept of hyperlinks
- o The types of hyperlinks
- o Practical application

Sound and Video
- o Basic concepts
- o The attributes of <video> tag
- o Practical application

Introduction to Forms
- o The concept of web forms
- o The tags used in creating forms and form elements
- o Various types of elements in web forms

Inserting elements within the form
- o Inserting form elements
- o What happens after creating forms?
- o Practical application

HTML5 Forms
- o New form attributes in HTML5
- o Practical application
- o Lesson Fourteen
- o HTML5 Forms (cont.)
- o New types of form elements
- o Practical application

Cascading Style Sheets
- o Overview to CSS
- o The ways of inserting a style sheet

The final project
- o The application
- o The implementation steps