

## Course: 405-02: Mobile Application Development - 2

<b>Course Code</b>	<b>405-02</b>
<b>Course Title</b>	<b>Mobile Application Development – 2</b>
<b>Credit</b>	4
<b>Teaching per Week</b>	4 Hrs
<b>Minimum weeks per Semester</b>	15 (Including class work, examination, preparation etc.)
<b>Review / Revision</b>	June 2021
<b>Purpose of Course</b>	Mobile application development is the process of creating software applications that run on a mobile device, and a typical mobile application utilizes a network connection to work with remote computing resources. Mobile device is used for different purposes ranging from email to online shopping and multiple apps for different reasons. Hence, the mobile development process involves creating installable software bundles, implementing backend services such as data access with an API, and testing the application on target devices. Knowledge about mobile application development on Android platform and gradually on hybrid platform is need of the current era.
<b>Course Objective</b>	<ol style="list-style-type: none"> <li>1) To understand concepts of Mobile Technology</li> <li>2) Understand the development process and have edge over mobile user interface (UI) design.</li> <li>3) Understand various UI development tools, Application design interfaces and creating basic app on Android platform.</li> <li>4) Concepts of DART and introduction of FLUTTER.</li> </ol>
<b>Pre-requisite</b>	Paper-305-02 (Mobile Application Development -1) in Semester-3.
<b>Course outcome</b>	<ul style="list-style-type: none"> <li>- Students will be able to understand the internal concepts of Android.</li> <li>- Students will have concepts of important Android Widgets(UI)</li> <li>- Concepts of DART.</li> <li>- Working concepts of Flutter.</li> <li>- Edge over Basic Flutter Widgets.</li> </ul>
<b>Course Content</b>	<p><b>Unit-1: Project structure of Mobile Application:</b></p> <ol style="list-style-type: none"> <li>1.1 Internal details of Android Application:               <ol style="list-style-type: none"> <li>1.1.1 Dalvik VM, Screen Orientation</li> <li>1.1.2 AndroidManifest, R.java</li> </ol> </li> <li>1.2 Android Widgets (UI)               <ol style="list-style-type: none"> <li>1.2.1 Default and Custom Checkbox</li> <li>1.2.2 Dynamic and Custom RadioButton</li> <li>1.2.3 Spinner, AlertDialog</li> </ol> </li> </ol> <p><b>Unit-2 : Basic Attributes and Events of Important Android Widgets(UI)</b></p> <ol style="list-style-type: none"> <li>2.1 ListView, Custom ListView</li> <li>2.2 DatePicker, TimePicker, ProgressBar</li> <li>2.3 Horizontal and Vertical ScrollView</li> <li>2.4 AutoCompleteTextView, TextWatcher to EditText</li> <li>2.5 ImageSlider, ImageSwitcher, SearchView</li> <li>2.6 TAbLayout and FrameLayout</li> </ol> <p><b>Unit-3: Working with DART:</b></p>

	<p>3.1 DART overview, concept, features and installation</p> <p>3.2 Online editor DartPad and dart2js tool</p> <p>3.3 Executing Dart basic code using Command line, DartPad and IDE</p> <p>3.3 Understanding DART syntax:</p> <p>3.3.1 Identifiers, Datatypes, variables, comments</p> <p>3.3.2 Decision making (if, if..else, if..else if..., switch..case)</p> <p>3.3.3 Iterative statements (for, for...in loop, while, do..while)</p> <p>3.3.4 break, continue, label</p> <p>3.4 DART function :</p> <p>3.4.1 Calling function, deleting function</p> <p>3.4.2 Passing arguments to function, lexical scoping.</p> <p><b>Unit-4: Introduction of Flutter:</b></p> <p>4.1 Fundamentals of Flutter:</p> <p>4.1.1 Installation and Architecture of Flutter</p> <p>4.1.2 Features of Flutter</p> <p>4.1.3 Creating basic flutter project using Android Studio</p> <p>4.2 Flutter Widget:</p> <p>4.2.1 Types of flutter widget:</p> <p>4.2.1.1 Visible and Invisible</p> <p>4.2.1.2 StatelessWidget, StatefulWidget</p> <p>4.2.1.3 Single child widget and Multiple child widget</p> <p>4.2.2 Visible widget(Constructor and Properties):</p> <p>Text, Image, Button, Icon</p> <p>4.3.3 Invisible widget(Constructor and Properties):</p> <p>column, row, center, padding, scaffold, stack</p> <p><b>Unit-5: Basic Flutter widget ( Constructor, attributes and Properties)</b></p> <p>5.1 Text, TextField, Buttons, Slider</p> <p>5.2 Checkbox, Radio Button, Progress Bar, Lists</p> <p>5.3 Stack, Forms, AlertDialog, Tooltip</p> <p>5.4 Toast, Switch, Charts, Flutter Form.</p>
<b>Reference Books</b>	<p>1) Android Application Development (With Kitkat Support), Author: Pradeep Kothari, Publisher: DreamTech Press.,ISBN:978-9351194095</p> <p>2) Android Studio 3.0 Development Essentials: Android 8 Edition , Author: Neil Smyth, ISBN:978-1977540096</p> <p>3) Flutter for Beginners: An introductory guide to building cross-platform mobile applications with Flutter and Dart 2, Author: Alessandro Biessek, Packt Publishing House,ISBN:978-1788996082</p> <p>4) Beginning Flutter: A Hands On Guide to App Development, Author: Marco L. Napoli, Publisher: Wrox, ISBN:978-1119550822</p> <p>5) Android Programming for Beginners - Second Edition, Author:John Horton, Publisher: Image Short ISBN: 978-1789538502</p> <p>6) Android 9 Development Cookbook, Author: Rick Boyer, Publisher: Packet Publishing, ISBN:978-1788991216</p> <p>7) The Dart Programming Language, Author:Bracha, Publisher:Pearson Education India, ISBN:978-9332570368</p> <p>8) Google Flutter Mobile Development Quick Start Guide: Get up and running with iOS and Android mobile app development, Author: Prajyot Mainkar, Publication:Packt Publishing, ISBN:978-1789344967</p> <p>9) Practical Flutter: Improve your Mobile Development with Google's Latest Open-Source SDK ,Author: Frank Zammetti, Publisher: Apress,</p>

	ISBN:978-1484249710
<b>Teaching Methodology</b>	Class Work, Discussion, Self-Study, Seminars and/or Assignments
<b>Evaluation Method</b>	30% Internal assessment. 70% External assessment.