ANURAG ENGINEERING COLLEGE

(An Autonomous Institution)

III Year B.Tech. CSE - I Sem

L	T	P	C
0	0	2	1

(CS507PC) UI DESIGN-FLUTTER

Course Objectives:

The objectives of this course are to provide:

- To learn installation of SDK of Flutter, Xcode and Android Emulator.
- How to Create and Organize Folders and Files, Structuring Widgets.
- Understanding Stateless and Stateful Widgets and Widget Tree
- Learning of Dart basics
- Application of Animation to app.

Unit-I:Introducing Flutter and Getting Started

Introducing Flutter, Defining Widgets and Elements, Understanding Widget Lifecycle Events, The Stateless Widget Lifecycle, The Stateful Widget Lifecycle, Understanding the Widget Tree and the Element Tree, Stateless Widget and Element Trees, Stateful Widget and Element Trees, Installing the Flutter SDK, Installing on mac OS, System Requirements, Get the Flutter SDK, Check for Dependencies, iOS Setup: Install Xcode, Android Setup: Install Android Studio, Set Up the Android Emulator, Installing on Windows, System Requirements, Get the Flutter SDK, Check for Dependencies, Install Android Studio, Set Up the Android Emulator, Installing on Linux, System Requirements, Get the Flutter SDK, Check for Dependencies, Install Android Studio, Set Up the Android Emulator, Configuring the Android Studio Editor.

Unit-II: Creating a Hello World App

Setting Up the Project, Using Hot Reload, Using Themes to Style Your App, Using a Global App Theme, Using a Theme for Part of an App, Understanding Stateless and Stateful Widgets, Using External Packages, Searching for Packages, Using Packages

Unit-III: Learning Dart Basics

Use of Dart, Commenting Code, Running the main() Entry Point, Referencing Variables, Declaring Variables, Numbers, Strings, Booleans, Lists, Maps, Runes, Using Operators, Using Flow Statements, if and else, ternary operator, for Loops, while and do-while, while and break, continue, switch and case, Using Functions, Import Packages, Using Classes, Class Inheritance, Class Mixins, Implementing Asynchronous Programming.

Unit-IV: Creating a Starter Project Template

Creating and Organizing Folders and Files, Structuring Widgets.

Understanding the Widget Tree

Introduction to Widgets, Building the Full Widget Tree, Building a Shallow Widget Tree, Refactoring with a Constant, Refactoring with a Method, Refactoring with a Widget Class.

Unit-V: Using Common Widgets

Using Basic Widgets, Safe Area, Container, Text, Rich Text, Column, Row, Column and Row Nesting, Buttons, Floating Action Button, Flat Button, Raised Button, Icon Button, Popup Menu

Button, Button Bar, Using Images and Icons, Asset Bundle, Image, Icon, Using Decorators, Using the Form Widget to Validate Text Fields, Checking Orientation.

Adding Animation to an App

Using Animated Container, Using Animated Cross Fade, Using Animated Opacity, Using Animation Controlle, Using Staggered Animations,

Text Books:

1. Marco L. Napoli, Beginning Flutter: A Hands-on Guide to App Development, 1st edition, Wrox publisher.

Reference Books:

1. Flutter for Beginners: An introductory guide to building cross-platform mobile applications with Flutter and Dart 2, Packt Publishing Limited.

2. Rap Payne, Beginning App Development with Flutter: Create Cross-Platform Mobile Apps, 1st edition, Apress.

3. Frank Zammetti, Practical Flutter: Improve your Mobile Development with Google's Latest Open-Source SDK, 1st edition, Apress.

Course Outcomes:

Upon the successful completion of this course, the student will be able to:

1. Knowledge on installation of various softwares.
2. Understanding of various Widgets
3. Application of Animation to Apps
4. Implements Flutter Widgets and Layouts
5. Responsive UI Design and with Navigation in Flutter

CO-PO-PSO Mapping:

	PO-1	PO-2	PO-3	PO-4	PO-5	PO-6	PO-7	PO-8	PO-9	PO-10	PO-11	PO-12	PSO-1	PSO-2
CO-1	H	L		M		L							M	M
CO-2	M	M	L	H		M							M	M
CO-3	M	M	M	M	M	M							M	M
CO-4	M	M	M	M	H	L							M	H
CO-5	M	M	L	L	M								L	H

H-HIGH **M**-MODERATE **L**-LOW