

<b>Subject Code:</b> 17ISL77	<b>Credits:</b> 2
<b>Subject Name:</b> Hybrid Application Development Lab	<b>Semester:</b> 7
<b>Duration of SEE:</b> 3 Hours	<b>Course type:</b> Core
<b>SEE Marks:</b> 50	<b>CIE Marks:</b> 50
<b>Total Contact Hours:</b> 26 Hours	

### Prerequisites

- Fundamentals of object-oriented programming, Logic building skills

### Course Outcome

At the end of the course, students will be able to

CO's	Course Learning Outcomes	BL
1	Understand android activity lifecycle and project structure of native/hybrid application	L2
2	Design an application using basic building blocks of android	L3
3	Apply SQLiteOpenHelper for building a database application	L3
4	Implement GPS application using Google play Location Services	L3
5	Build Hybrid applications using Google Flutter framework and DART programming language	L3

### Teaching Methodology:

- Hands-on session
- Tutorial on Lab Programs
- Course Project

### Assessment Methods:

- Rubrics for evaluating laboratory experiments 20 Marks
- Rubrics for evaluating course project 20 Marks
- Lab internals for 10 marks.
- SEE examination will be evaluated for 50 marks.

### Course Outcome to Programme Outcome Mapping

PO	1	2	3	4	5	6	7	8	9	10	11	12	PSO1	PSO2
CO1	3								2	2				3
CO2	3	2	3		2				2	2				3
CO3	3	2	3		2				2	2				3
CO4	3	2	3		2				2	2				3
CO5	3	2	3		2				2	2				3

### Part A

- Create an android application to understand android activity lifecycle. Demonstrate uses of at least 5 android UI widgets
- Develop a native application which uses intents to navigate between activities of the application. Demonstrate how to pass data using bundles when the intent is invoked for navigation.

3. Develop a native calculator application using `LinearLayout` and `onClick` listener interface on buttons.
4. Construct a native application for demonstrating database implementing `SQLiteOpenHelper` class. Demonstrate how to delete, update, and insert entries in the created database.
5. Create a media player application that will play media file saved on memory card. Demonstrate application with play, pause, fast forward, and rewind functionality.
6. Develop a native application that uses GPS location information and display the current coordinates on google maps using google maps API

#### **Part B**

1. Demonstrate the use of `Scaffold`, `SafeArea`, params related to cross axis alignment and Main axis alignment params.
2. Implement a hybrid dice rolling application to demonstrate the use of `SetState()` method for marking part of code as dirty, and refreshing the application code upon marking some part of code as dirty.
3. Create a hybrid application using flutter to demonstrate how to use stateless and stateful widgets. Demonstrate building Xylophone app Using Flutter and Dart Packages.
4. Implement a quiz application using flutter. Consisting of two button – true and false. Upon answering one question, the result of the answer should be shown, and the user should be taken to next question. One the number of questions in quiz ends – user should be shown the score and he should be given option to restart the quiz.