

# PRASAD V. POTLURI SIDDHARTHA INSTITUTE OF TECHNOLOGY

(Autonomous)  
Kanuru, Vijayawada-520007

## DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI & ML)

### III B Tech – I Semester

### USER INTERFACE DESIGN USING FLUTTER LAB

Course Code	23ES1553	Year	III	Semester	I
Course Category	ES	Branch	CSE (AI & ML)	Course Type	Practical
Credits	1	L-T-P	0-0-2	Prerequisites	HTML, CSS
Continuous Internal Evaluation	30	Semester End Evaluation	70	Total Marks	100

Course Outcomes			
Upon Successful completion of course, the student will be able to			
CO1	Demonstrate the ability to design and implement user interfaces using basic Flutter widgets, layouts, and stateful interactions.		L2
CO2	Apply responsive design principles and navigation techniques to build adaptive mobile applications that cater to diverse devices and screen sizes		L3
CO3	Analyze the structure of UI components by creating custom widgets, applying themes, and maintaining consistent visual styling across an application.		L4
CO4	Evaluate form inputs, asynchronous data interactions, animations, and testing strategies to enhance UI performance, usability, and reliability.		L5

Contribution of Course Outcomes towards achievement of Program Outcomes & Strength of correlation (3:High,2:Moderate,1:Low)														
	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PSO1	PSO2
CO1	2								2					
CO2	3				3						2			
CO3		3									2			
CO4				3							2			

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Syllabus		
Exp. No.	Contents	Mapped CO
1	a) Install Flutter and Dart SDK. b) Write a simple Dart program to understand the language basics.	CO1
2	a) Explore various Flutter widgets (Text, Image, Container, etc.). b) Implement different layout structures using Row, Column, and Stack widgets.	CO1 to CO4
3	a) Design a responsive UI that adapts to different screen sizes. b) Implement media queries and breakpoints for responsiveness.	CO1 to CO4
4	a) Set up navigation between different screens using Navigator. b) Implement navigation with named routes.	CO1 to CO4
5	a) Learn about stateful and stateless widgets. b) Implement state management using set State and Provider.	CO1 to CO4
6	a) Create custom widgets for specific UI elements. b) Apply styling using themes and custom styles.	CO1 to CO4
7	a) Design a form with various input fields. b) Implement form validation and error handling.	CO1 to CO4
8	a) Add animations to UI elements using Flutter's animation framework. b) Experiment with different types of animations (fade, slide, etc.).	CO1 to CO4
9	a) Fetch data from a REST API. b) Display the fetched data in a meaningful way in the UI.	CO1 to CO4
10	a) Write unit tests for UI components. b) Use Flutter's debugging tools to identify and fix issues.	CO1 to CO4

Learning Resources
<b>Text Books</b>
1. Flutter: A Hands-on Guide to App Development, Marco L. Napoli, 1st edition, 2019, Wrox
2. Beginning App Development with Flutter: Create Cross-Platform Mobile Apps, Rap Payne, 1st edition, 2019, Apress

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**DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING (AI & ML)****III B Tech – I Semester****References**

1. Practical Flutter: Improve Your Mobile Development With Google's Latest Open-Source SDK, Frank Zammetti, 1st edition, 2019, Apress

**E-Resources and other Digital Material**

1. [https://swayam-plus.swayam2.ac.in/courses/course-details?id=P\\_SMARTBRIDGE\\_06](https://swayam-plus.swayam2.ac.in/courses/course-details?id=P_SMARTBRIDGE_06)
2. <https://www.coursera.org/learn/flutter-and-dart-developing-ios-android-mobile-apps>