GUJARAT TECHNOLOGICAL UNIVERSITY

Syllabus for Integrated MCA 9th Semester
Branch: MCA Integrated
Subject Name: Cross Platform Mobile Development Using React Native
Subject Code: 2698608

With effective from academic year 2022-23

Teaching Scheme			Credits	Examination Marks				Total Marks
				Theory		Tutorial/ Practical		
L	P	OJT	C	University exams (ESE)	Progressive Assessment (PA)	External Practical /viva Exam(ESE)	Internal evaluation Practical /viva Exam(PA)	
4	2		6	70	30	30	20	150

Pre-requisites:
1. Programming Skill.
2. Basic Understanding of Mobile Applications.

Learning Objectives:
1. To familiarize with Cross-platform development using React Native and setting up environment.
2. Understand various components for mobile List, Style and modules etc.
3. Students develop best practices in creating apps for both iOS and Android.

Course Outcome (COs):
CO1: Develop simple applications for smart devices using React.
CO2: Use React components to build robust and elegant mobile applications.
CO3: Apply APIs and Cross-Platform Native Modules in React.
CO4: Debug and use Developer Tools to build native mobile applications in React JS.
CO5: Deploy applications on iOS App Store and Android Play Store.

Course Content:

Unit No.	Content	Hrs
1	**React Native** - Advantages of React Native- Working with React Native- React Native Work- Rendering Lifecycle- Creating Components in React Native- Working with Views- Using JSX- Styling Native Components- Host Platform APIs. - Building Your First Application: Setting Up Your Environment - Creating a New Application- Exploring the Sample Code - Building a Weather App.	6
2	**Components for Mobile** - Analogies Between HTML Elements and Native Components - The Text Component- The Image Component- Working with Touch and Gestures- Using Touchable Highlight- The Gesture Responder System- Pan Responder- Working with Organizational Components - Using List View- Using Navigators- Other Organizational Components - Platform-Specific Components. **Styles**: - Declaring and Manipulating Styles- Organization and Inheritance- Positioning and Designing Layouts.	8
3	**Platform APIs**- Using Geolocation- Accessing the User's Images and Camera- Storing Persistent Data with AsyncStore- The Smarter Weather Application. **Modules**: Installing JavaScript Libraries with npm- Native Modules for iOS- Native Modules for Android- Cross-Platform Native Modules.	9
4	**Debugging and Developer Tools** - JavaScript Debugging Practices, Translated- React Native Debugging Tools - Debugging Beyond JavaScript- Testing Your Code- Putting It All Together: The Flashcard Application- Modeling and Storing Data - Using the Navigator- A Look at Third-Party Dependencies - Responsive Design and Font Sizes.	10

5	**Deploying to the iOS App Store** - Preparing Your Xcode Project- Uploading Your Application- Beta Testing with TestFlight- Submitting the Application for Review - Deploying Android Applications: Setting Application Icon- Building the APK for Release - Distributing via Email or Other Links - Submitting Your Application to the Play Store.	**11**
	Total Hours:	**44**

Suggested Specification table with Marks (Theory):

Distribution of Theory Marks				
R Level	U Level	A Level	N Level	E Level
10	40	35	15	0

Legends: R: Remembrance; U: Understanding; A: Application, N: Analyze and E: Evaluate and above Levels (Bloom's Taxonomy)

Text Books:

1. Bonnie Eisenman, "Learning React Native" - Building Mobile Applications with JavaScript, O'Reilly Media, USA, 2016

Reference Books:

1. Alex Banks & Eve Porcello, "Learning React: Functional Web Development with React and Redux, O'Reilly, July 2018.
2. Nader Dabit, "React Native in Action"- Developing iOS and Android apps with JavaScript, Manning Publications Co. USA, 2019
3. Dotan Nahum, "Programming React Native", Leanpub, Canada, 2016

Unit wise Coverage from Main Text Book(s):

Unit No.	**Topics/Subtopics**
I	Chapter 1 (Pages 1 to 6), Chapter 2 (Pages 7 to 14), Chapter 3 (Pages 15 to 31)
II	Chapter 4 (Pages 47 to 81), Chapter 5 (Pages 83 to 100),
III	Chapter 6 (Pages 101 to 130), Chapter 7 (Pages 131 to 153),
IV	Chapter 8 (Pages 155 to 175), Chapter 9 (Pages 177 to 200),
V	Chapter10 (Pages 203 to 222), Chapter 11 (Pages 225 to 236)

Suggested List of Practicals as follows (React Native):

1. Write a react app program by importing React to use JSX to say "Hello, world !".
2. Write a program to demonstrate use of props in react app.
3. Write a program to demonstrate use of state a react app.
4. Write a program to implement style elements, use the Stylesheet for styling a react app.
5. Write a react app to implement Flexbox to accommodate different screen sizes.
6. Write a program to implement list in React Native.

7. Write a program to demonstrate Text Input in react app. Using the TextInput component capture a user's name and, upon a button press, alert their name back to them. Add some style to the TextInput while you're there!
8. Write a program to create one application to sum of two values(which have 2 textfield and 1 submit)

   UI:
   Screen 1: Create one should have two textfield and sum button

   Acceptance Criteria:
   => Initially textfield should be empty and sum button should be disabled
   => Textfield should allow only numeric values
   => Once user enter values on both the textfield sum button should be enable
   => On sum button click one label should be show below the button and textfield values should be null
9. Write a program to create card list for food application which should include Image, Title and description

   UI:
   Screen 1: Create one screen which will show list of food data using flatList and search bar
   Screen 2: Should show food item details

   Acceptance Criteria:
   => User should able to do pagination (Limit would be 10)
   => On click of list data user should navigate to food item details screen
   => Should have search bar to search food items using title

10. Write a program to create react app (CRUD using local storage)
    UI:
    Screen 1: Should have button to add notes and list of todos
    Screen 2: Should have one textfield and button to add notes
    Acceptance Criteria:
    => From first screen if user click on add notes button then he should navigate to screen 2
    => From second screen once user add notes and click of submit button user should redirect to first screen and that label should show in list
    => From listing user should be able to delete todo on click of delete button

11. Write a program to create react app to click the picture from device and show in the list
    UI:
    Screen 1: Screen should have one button to open camera and take picture and show that images in a list in horizontal view
    Acceptance Criteria:
    => button should be enabled if total images are less than 5
    => button should be disabled if total images are 5
    => Only images should be selected

12. Write a program to create react app to select images from gallery and show in grid view

UI:
Screen 1: Screen should have one button to select images and show images in a list in grid view
Acceptance Criteria:
=> User can select multiple images
=> Image size should not be more than 5 mb
=> Only images should be selected

13. Write a program to create react app for user should login using email and password
    UI:
    Screen 1: Create screen with email and password textfield and submit button
    Screen 2. Create screen to show email and logout button once user logged in
    Acceptance Criteria:
    => Once user enter email and password and click on submit button he/she should redirect to home screen
    => If user logged in so login screen should not be come until he/she logout from application
    => Once user click on logout button he/she should redirect to login screen

14. Write a program to create drawer navigation using react-navigation
    UI:
    1.Drawer navigation(Home, Cart, Offer, Help)
    Acceptance Criteria:
    1. redirect to particular screen from that drawer

15. Write a program to create one location app
    UI :
    1.) Search box
    2.) Label for show location data
    Acceptance Criteria:
    => Show default current location in main page on the label
    => If user search location from search bar and select one location then should update the label with new location

16. Write a program to create a vertical ScrollView with both images and text mixed together.
17. Write a react native program to access the local image file and show in react app.
18. Write an application to display a PDF as an image in React app using URL
19. Write a react native program to capture a user's tap (or press) on a screen. Using the Button component, capture a tap event and alert "hello".
20. Write a react native program to build your own button component that accepts an onPress and text prop.
21. Write a react native program to create one user details form
    UI :
    Screen 1.)First name, Last name, email, phoneNumber and hobbies textfield and one submit button and reset button
    Acceptance Criteria:
    => Show required fields validation if no details entered
    => Email and phone number should be in valid format
    => Hobbies should have dropdown from which user can select multiple hobbies
    => On submit show details on toast and clear the fields
    => On reset button all the fields values should be clear

22. Write a react native program to call api and show data in list
    API: https://jsonplaceholder.typicode.com/posts
    UI :
    Screen 1.)Show list of data in home screen
    Acceptance Criteria:
    ⇨ Call API using axios and show data in home screen

23. Write a react native program to create 3 squares that are vertically and horizontally centered. Each square should have a unique background color but all shared styles should only be defined once.
24. Write a program to Add geolocation, get the Current Location Latitude and Longitude of the Device to make a React Native app.
25. Write a program to calculate distance between two locations in React Native App.
26. Write a react native program to add the permission to run camera for iOS.