

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	1	2	2	1	1
CO2	3	1	2	3	3	1
CO3	2	2	2	3	1	1
CO4	3	1	2	3	3	2
CO5	3	1	2	3	3	2
CO6	2	2	1	2	2	3
Overall	3	1	2	3	3	2

IF5088

MOBILE APPLICATION DEVELOPMENT

L T P C
3 0 2 4

OBJECTIVES:

- To understand the need and characteristics of mobile applications.
- To design the right user interface for mobile application.
- To understand the design issues in the development of mobile applications.
- To understand the development procedures for mobile application.
- To develop mobile applications using various tools and platforms.

UNIT I INTRODUCTION

9

Mobile applications – Characteristics and Benefits – Application Model – Infrastructure and Managing Resources – Mobile Device Profiles – Frameworks and Tools.

Suggested Activities:

- Flipped classroom on survey on mobile application models.
- External learning – mobile application design using frameworks and tools.

Suggested Evaluation Methods:

- Quiz – questionnaire related to mobile application models.
- Assignment – evaluate using learning content management system like Moodle.

UNIT II USER INTERFACE

9

Generic UI development – Designing the right UI – Multimodal and Multichannel UI – Gesture based UI – Screen Elements and Layouts – Voice XML.

Suggested Activities:

- Flipped classroom on discussion on UI for mobile application like voice and gestures.
- External learning – survey on different view elements for mobile application.

Suggested Evaluation Methods:

- Quiz – questionnaire related to user interface design for mobile applications.
- Assignment – evaluate using learning content management system like Moodle.

UNIT III APPLICATION DESIGN**9**

Memory Management – Design Patterns for Limited Memory – Work Flow for Application Development – Java API – Dynamic Linking – Plug-ins and Rule of Thumb for using DLLs – Concurrency and Resource Management.

Suggested Activities:

- Flipped classroom on discussion on memory constraints for mobile application design.
- External learning – survey on resource management and concurrent operations.

Suggested Evaluation Methods:

- Quiz – questionnaire related to memory constraints in design for mobile applications.
- Assignment – evaluate using learning content management system like Moodle.

UNIT IV APPLICATION DEVELOPMENT I**9**

Mobile OS: Android, Ios – Android Application Architecture – Android basic Components – Intents and Services – Storing and Retrieving data – Packaging and Deployment – Security and Hacking.

Suggested Activities:

- Simple Android application development like user account creation.
- Android application accessing the mobile database to view user data.

Suggested Evaluation Methods:

- Evaluation based on the demonstrated application functionality using emulators.

UNIT V APPLICATION DEVELOPMENT II**9**

Communication via the Web – Notification and Alarms – Graphics and Multimedia: Layer Animation, Event Handling and Graphics Services – Telephony – Location Based Services.

Suggested Activities:

- Application accessing Internet for communication like web application.
- Android application accessing GPS for location based service.

Suggested Evaluation Methods:

- Evaluation based on the demonstrated application functionality using emulators.

PRACTICAL EXERCISES:**30**

1. Develop an application that uses GUI components, Font and Colours.
2. Develop an application that uses Layout Managers and event listeners.
3. Develop a native calculator application.
4. Write an application that draws basic graphical primitives on the screen.
5. Develop an application that makes use of database.
6. Write an application that makes use of internet for communication (mobile web app).
7. Develop a native application that uses GPS location information.
8. Implement an application that writes data to the SD card.
9. Implement an application that creates an alert upon receiving a message.
10. Write a mobile application that creates alarm clock.

TOTAL: 75 PERIODS

OUTCOMES:

On completion of the course, the students will be able to:

1. Design the right user interface for mobile application.
2. Implement mobile application using UI toolkits and frameworks.
3. Design a mobile application that is aware of the resource constraints of mobile devices.
4. Develop web based mobile application that accesses internet and location data.
5. Implement android application to use telephony for SMS communication.
6. Implement android application with multimedia support.

REFERENCES:

1. Reto Meier, "Professional Android 4 Application Development", Wiley, 2012.
2. Zigurd Mednieks, Laird Dornin, G. Blake Meike, Masumi Nakamura, "Programming Android", O'Reilly, 2011.
3. Alasdair Allan, "iPhone Programming", O'Reilly, 2010.

	PO1	PO2	PO3	PO4	PO5	PO6
CO1	3	3	3	3	3	1
CO2	3	3	3	3	3	3
CO3	3	3	3	1	3	1
CO4	3	3	3	3	1	1
CO5	3	3	3	1	3	3
CO6	3	3	3	3	3	3

CP5075**CRYPTOCURRENCY AND BLOCKCHAIN TECHNOLOGIES****L T P C****3 0 0 3****OBJECTIVES:**

- To study the basic concepts of cryptocurrencies and blockchains.
- To explain the details of Bitcoin and its different components.
- To study the basics Hyperledger and Web3.
- To analyse the position of Web 3 and Hyperledger with different aspects of blockchain technologies.
- To differentiate between alternate blockchains and their advantages in application areas.
- To understand the Ethereum development environment and the application development process.

UNIT I INTRODUCTION**9**

Cryptographic hash functions – hash pointers – digital signatures – public keys as identities – an example cryptocurrency. Bitcoin, history of blockchain and Bitcoin – Types of Blockchain – Consensus – Decentralization.