JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTHAPURAMU COLLEGE OF ENGINEERING (AUTONOMOUS):: PULIVENDULA

Course Code	**:**				
Course Title	**:**	**MOBILE APPLICATION DEVELOPMENT**			
Course Structure	**:**	Lectures	Tutorials	Practicals	Credits
		4	0	0	4
Course Coordinator	**:**	Mrs. L.Bhavya			
Team of Instructors	**:**	Mr. G. Murali			

I. Course Overview

Mobile application development is used to develop apps for mobiles; it's a user Interface for small computing devices. Android is the advanced version for the J2ME and swift programming is for the iOS devices.

II. Prerequisite(s):

Level	Credits	**Periods / Week**	**Prerequisites**
UG	3	3	Basic J2SE and XML

III. Assessment:

FORMATIVE ASSESMENT	
Mid Semester Test I for 20 Marks in first 2 units is conducted at8 the end of 9th week. Mid Semester Test II for 20 Marks in last three units is conducted at the end of the course work.	20 Marks
Mid semester Test Multiple Choice Test in first two and half Units is conducted for 10 Marks Mid semester Test Multiple Choice Test in second two and half Units is conducted for 10 Marks.	10 Marks
Total (Formative)	30 Marks
SUMMATIVE ASSESMENT	
End Semester Examination in all units is conducted for 70 Marks	70 marks
Grand Total	100 Marks

IV. Course Objectives:

1. This program provides career options for our students in the emerging technology sector of Mobile Applications. The students will possess the competent knowledge and skills to seek jobs in this sector.
2. The course provides comprehensive knowledge, technical expertise and hands-on experience in the mobile application sector.
3. This course provides students with an understanding of all aspects of mobile technologies. Students will have an in-depth knowledge of Android and iphone (iOS) application development.
4. At the end of this course, the student will be able to understand the basics concepts of mobile networks, architecture and application development, comprehend the features of iOS, Objective C and Android. He/she will also implement Application Development Concepts and Techniques of Android and iOS

V. Course Outcomes:

1. The course integrates the mobile application principles with the real-world experience.
2. The course's learning outcomes arm the students with technical expertise and mobile application development experience.
3. Industry leaders support the course by providing valuable industry inputs and invaluable insight into the process of developing cutting edge mobile applications.

VI. Program outcomes:

a An ability to apply knowledge of computing, mathematical foundations, algorithmic principles, and computer science and engineering theory in the modeling and design of computer-based systems to real-world problems (fundamental engineering analysis skills)

b An ability to design and conduct experiments, as well as to analyze and interpret data (information retrieval skills)

c An ability to design , implement, and evaluate a computer-based system, process, component, or program to meet desired needs, within realistic constraints such as economic, environmental, social, political, health and safety, manufacturability, and sustainability (Creative Skills)

d An ability to function effectively on multi-disciplinary teams (team work)

e An ability to analyze a problem, identify, formulate and use the appropriate computing and engineering requirements for obtaining its solution (engineering problem solving skills)

f An understanding of professional, ethical, legal, security and social issues and responsibilities (professional integrity)

g An ability to communicate effectively both in writing and orally (speaking / writing skills)

h The broad education necessary to analyze the local and global impact of computing and engineering solutions on individuals, organizations, and society (engineering impact assessment skills)

i Recognition of the need for, and an ability to engage in continuing professional development and life-long learning (continuing education awareness)

j A Knowledge of contemporary issues (social awareness)
k An ability to use current techniques, skills, and tools necessary for computing and engineering practice (practical engineering analysis skills)
l An ability to apply design and development principles in the construction of software and hardware systems of varying complexity (software hardware interface)
m An ability to recognize the importance of professional development by pursuing postgraduate studies or face competitive examinations that offer challenging and rewarding careers in computing (successful career and immediate employment).

VII. Syllabus:

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY ANANTHAPURAMU

COLLEGE OF ENGINEERING (AUTONOMOUS):: PULIVENDULA

Regulation –R15

B.Tech III-IISem (R15) **L T P C**

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MOBILE APPLICATION DEVELOPMENT

UNIT - I :

Small computing Technology: Wireless Technology, Radio Data Networks, Microwave Technology, Mobile Radio Networks, Messaging, Personal Digital Assistants.

J2ME Architecture and Development Environment: J2ME Architecture, Small Computing Device Requirements, Run – Time Environment, MIDlet programming, Java Language for J2ME, J2ME Software Development Kits, Hello World J2ME Style, Multiple MIDlets in a MIDlet Suite, J2ME wireless Toolkit.

UNIT – II:

Introduction Android Programming: What is Android, Activities, Linking Activities Using Intents, Fragments, Calling Built – in Applications using Intents, Displaying Notifications.

Android User Interface: Understanding the Components of a Screen, Adapting to Display Orientation, Managing Changes to Screen Orientation, Utilizing the Action Bar, Listening for UI Notifications.

UNIT – III:

Designing User Interface with Views: Basic Views, Picker Views, Using List Views to Display Long Lists.

Displaying pictures and menus with views and Data persistence: Views to Display pictures, menus with views, additional views, saving and loading preferences, persisting data to files, creating and using databases.

UNIT – IV:

Content Providers: Sharing data in android, using a content provider, creating your own content providers.

Messaging and Networking: SMS Messaging, Sending E-Mail, Networking

Location-Based Services: Displaying Maps, Getting Location Data.

UNIT – V:

Beginning Swift Programming: Introduction to Swift, Data types, Strings and Characters, Basic Operators, Functions, Collections, Control flow and looping, structures and classes, inheritance, closures, protocols and delegates, generics.

TEXT BOOKS:

1. J2ME: The Complete Reference, James Keogh, TMH.

2. Beginning Android 4 Application Development, Wei-Meng Lee, Wiley India

3. Beginning Swift Programming, Wei-Meng-Lee, December 2014, ISBN: 978-1-119-00931-3

REFERENCE BOOKS:

1. Enterprise J2ME: Developing Mobile Java Applications, Michael Juntao Yuan, Pearson Education, 2004.

2. Android Application Development for Java programming by James C. Sheusi, Cengage Learning

3. Android A Programmers Guide by Jerome DiMargio, TMH.

OTHER BOOKS:

1. Head first Android Development, O'Reilly, A brain friendly guide
2. Android Developer Fundamental Course, Developed by Google Developer Training Team.

IX. Course Plan:

The course plan is meant as a guideline. There may probably be changes.

Date	Course Learning Outcomes	Topics to be covered	Reference
	UNIT – I		
28-11-19(1), 29-11-19(1)	Basics of J2ME and small computing technologies	Introduction to J2ME, Wireless Technology, Radio Data Networks, Microwave Technology, Mobile Radio Networks, Messaging, Personal Digital Assistants.	**T1:17 – 33**
2-12-19(2) 5-12-19(1) 6-12-19(1)	J2ME Architecture and Development Environment	J2ME Architecture, Small Computing Device Requirements, Run – Time Environment	**T1: 35 – 42**
9-12-19(2), 12-12-19(1), 13-12-19(1)	MIDlet programs in SDK and wireless toolkit	MIDlet programming, Java Language for J2ME, J2ME Software Development Kits, Hello World J2ME Style, Multiple MIDlets in a MIDlet Suite, J2ME wireless Toolkit.	**T1: 42-69**
16-12-19(2),	**Practical session**		

19-12-20(1)			
	UNIT – II		
19-12-19, 20-20-12-19(1), 23-12-19(2)	Screen visibility of the app and changing on screen to another screen	What is Android, Activities, Linking Activities Using Intents	**T2: 1 – 75 O1: 17 – 59, 99 – 197, 368 – 406 O2: 1.0 – 2.3**
26-12-19(1) 27-12-19(1)	Dividing the screen in the app and notifications coming to app	Fragments, Calling Built – in Applications using Intents, Displaying Notifications.	
30-12-19(2) 2-1-20(1) 3-1-20(1)	Android User Interface	Understanding the Components of a Screen, Adapting to Display Orientation, Managing Changes to Screen Orientation, Utilizing the Action Bar, Listening for UI Notifications.	**T2: 81 – 120 O1: 60 – 98, 408 – 480 O2: 4.3, 8.1**
6-1-20(2) 9-1-20(1)	**Practical session**		
	UNIT – III		
10-1-20(1) 13-1-20(2)	Designing User Interface with Views	Basic Views, Picker Views, Using List Views to Display Long Lists.	**T2: 126 – 166 O1: 198 – 367**
17-1-20(1) 23-1-20(2)	Displaying pictures and menus with views	Views to Display pictures, menus with views, additional views	**T2: 169 – 231 O1: 481 – 584**
24-1-20(1) 27-2-20(1) 30-1-20(2)	Storing data in the app	Saving and loading preferences, persisting data to files, creating and using databases.	**O2: 9.0 – 10.1**
31-1-20(1) 3-2-20(1)	**Practical Sessions**		
	UNIT – IV		
6-2-20(2) 7-2-20(1)	Content Providers	Sharing data in android, using a content provider, creating your own content providers.	**T2: 237 – 260 O2: 11.1**
10-2-20(2) 13-2-20(1)	Messaging and Networking	SMS Messaging, Sending E-Mail, Networking	**T2: 263 – 297**
14-2-20(1) 17-2-20(2)	Location-Based Services	Displaying Maps, Getting Location Data.	**T2: 302 – 327**
20-2-20(1) 24-2-20(2)	**Practical Session**		
	UNIT – V		
27-2-20(1) 28-2-20(1) 2-3-20(2)	Basics of swift programming	Introduction to Swift, Data types, Strings and Characters, Basic Operators	**T3: 1 – 103**

5-3-20(1) 6-3-20(1)	Functions and control flow statements	Functions, Control flow and looping	**T3: 105 - 163**
9-3-20(2) 12-3-20(1) 13-3-20(1)	some basic oops concepts	Collections, structures and classes, Inheritance	**T3: 165 - 223**
16-3-20(2) 19-3-20(1) 20-3-20(1)	Basic concepts of protocols, Closures and generics	Closures, protocols and delegates, generics.	**T3: 225 - 312**
23-3-20(2)	**Practical Sessions**		

X. Mapping course outcomes leading to the achievement of the program outcomes:

Course Outcomes	Program Outcomes												
	a	**b**	**c**	**d**	**e**	**F**	**g**	**h**	**i**	**j**	**k**	**l**	**m**
1	H	S	S										
2				S	H						S		
3			S	S								H	S

S = Supportive **H = Highly Related**

Justification of Course syllabus covering Course Outcomes:

By covering the syllabus a student can understand the real world problem and analysis the best solution to it. Student is able to develop mobile applications using various technologies like Android and Swift.

Justification of CO's –PO's Mapping Table:

By mapping CO-1 to the PO's A, B and C which are related to the course CO1: The student is able to design applications with real world experience

By mapping CO-2 to the PO's D, E and K which are related to the course CO2: The student is able to develop creative skills on developing apps.

By mapping CO-3 to the PO's B, C and K, which are related to the course CO3: The student is able to analyze, design and implement the apps with support of Industry leaders.