

Course Title: Mobile Application Development

Credit: 3

Course No: CSIT.424.1

Number of period per week: 3+3

Nature of the Course: Theory + Lab

Total hours: 45+45

Year: Fourth, Semester: Eighth

Level: B. Sc. CSIT

1. Course Introduction

Today's applications are increasingly mobile. Computers are no longer confined to desks and laps but instead live in our pockets and hands. This course teaches students how to build mobile apps for Android, iOS, and Windows Phone, the BlackBerry that is today's leading mobile operating platforms.

2. Objectives

By the end of this course, students will be able

- Understand system requirements for mobile applications
- Generate suitable design using specific mobile development frameworks
- Generate mobile application design
- Implement the design using specific mobile development frameworks
- Deploy the mobile applications in marketplace for distribution

3. Specific Objectives and Contents

Specific Objectives	Contents
<ul style="list-style-type: none">• Discuss need and benefits of mobile Apps• Understand and exemplify web services• Explain various web service language formats• Demonstrate creation of web services• Use tools to debug web services	<p>Unit I: Mobile Applications(8 hr Hrs)</p> <ul style="list-style-type: none">1.1. Mobile Web Presence: Mobile Content, Mobile Browser1.2. Mobile Applications: When to Create App, Benefits of Mobile App, App as Web App1.3. Web Services: Definition, Examples, and Advantages of Web Services1.4. Web Service Language Formats: XML, JSON, Transferring Non-textual Data1.5. Creating Example Web Service: Using MS Stack, Using LAMP Stack1.6. Debugging Web Services: Tools, Advanced Web Service Techniques
<ul style="list-style-type: none">• Discuss mobile screens and mobile application users• Explain various mobile platforms• Understand concepts of adaptive mobile websites	<p>Unit II: Mobile UI Design and Mobile Web Sites (10 hr)</p> <ul style="list-style-type: none">2.1. Effective Use of Screen Real Estate, Understanding Mobile Application Users2.2. Understanding mobile Information Design, and Mobile Platforms, Using Tools of Mobile Interface Design2.3. Choosing Mobile Web Option, Adaptive Mobile Websites

<ul style="list-style-type: none"> • Demos rate use of HTML5 in developing Mobile Web Apps 	2.4. Dedicated Mobile Websites, Mobile Web Apps with HTML5
<ul style="list-style-type: none"> • Understand Android and discuss its competitors • Discuss different tools used for developing android applications • Explain android development practices • Develop sample android App 	Unit III: Working with Android (10 hr) 3.1. Why Android?, Supporters of Android, Competition with itself 3.2. Tools: JDK, Eclipse, SDK, Eclipse ADT Plug-in, Additional SDK Components 3.3. Development, Connecting to the Google Play, Android Development Practices, Building App in Android
<ul style="list-style-type: none"> • Discuss IOS and tools used for developing IOS applications • Explain various elements of IOS Apps • Discuss basic features of Objective C • Develop sample iPhone Apps 	Unit IV: Working with IOS (12 hr) 4.1. Apple iPhone, Tools (Hardware, xCode, iOS SDK iOSGuideline) 4.2. Anatomy of iOS App, xCode IDE, iOS Simulator, Debugging Code, Instruments 4.3. Objective C Basics: Classes, Control Structures, Try-Catch 4.4. Hello World App, Building App iOSOther useful iOS things
<ul style="list-style-type: none"> • Discuss iPhones and tools used for developing iPhone applications • Explain elements of iPhone Apps • Develop sample iPhone App 	Unit V: Working with Windows iPhone (5 Hrs) 5.1. Tools Needed: Hardware, Visual Studio and Windows Phone SDK 5.2. Windows Phone Project: Silverlight vs Windows phone, Anatomy of Windows phone App, Windows phone Emulator 5.3. Creating App in Windows phone, Distribution, Other useful windows phone things
<ul style="list-style-type: none"> • Discuss BlackBerry and tools used for developing BlackBerry applications • Explain elements of BlackBerry Apps • Develop sample BlackBerry Apps 	Unit VI: Working with BlackBerry (5 Hrs) 5.4. BlackBerry Devices and Playbook 5.5. Tools: BlackBerry Developer Program, Code signing Keys BlackBerry Java Development Environment, Developing App with BlackBerry, Eclipse Specifics for BlackBerry, Development with WebWorks 5.6. Other useful BlackBerry things, Blackberry Distribution

Evaluation System

Undergraduate Programs							
External	Marks	Internal	Weight	Marks	Practical	Weight	Mark

Evaluation		Evaluation	age			age	
End semester examination	60	Assignments	20%	20	Practical Report copy	25%	20
(Details are given in the separate table at the end)		Quizzes	10%		Viva	25%	
		Attendance	20%		Practical Exam	50%	
		Internal Exams	50%				
Total External	60	Total Internal	100%	20		100%	20
Full Marks 60+20+20 = 100							

External evaluation

1. End semester examination:

It is a written examination at the end of the semester. The questions will be asked covering all the units of the course. The question model, full marks, time and others will be as per the following grid.

2. External Practical Evaluation:

After completing the end semester theoretical examination, practical examination will be held. External examiner will conduct the practical examination according to the above mentioned evaluation. There will be an internal examiner to assist the external examiner. Three hours time will be given for the practical examination. In this examination Students must demonstrate the knowledge of the subject matter.

Full Marks: 100, Pass Marks: 45, Time: 3 Hrs

Nature of question	Total questions to be asked	Total questions to be answered	Total marks	Weightage
Group A: multiple choice*	20	20	20×1 = 20	60%
Group B: Short answer type questions	7	6	6×8 = 48	60%
Group C: Long answer type questions	3	2	2×16 =32	60%
			100	100%

Each student must secure at least 50% marks in internal evaluation in order to appear in the end semester examination. Failed student will not be eligible to appear in the end semester examinations.

Internal evaluation

Assignment: Each student must submit the assignment individually. The stipulated time for submission of the assignment will be seriously taken.

Quizzes: Unannounced and announced quizzes/tests will be taken by the respective subject teachers. Such quizzes/tests will be conducted twice per semester. The students will be evaluated accordingly.

Attendance in class: Students should regularly attend and participate in class discussion. Eighty percent class attendance is mandatory for the students to enable them to appear in the end semester examination. Below 80% attendance in the class will signify NOT QUALIFIED (NQ) to attend the end semester examination.

Presentation: Students will be divided into groups and each group will be provided with a topic for presentation. It will be evaluated individually as well as group-wise. Individual students have to make presentations on the given topics.

Mid-term examination: It is a written examination and the questions will be asked covering all the topics in the session of the course.

Discussion and participation: Students will be evaluated on the basis of their active participation in the classroom discussions.

Instructional Techniques: All topics are discussed with emphasis on real-world application. List of instructional techniques is as follows:

- Lecture and Discussion
- Group work and Individual work
- Assignments
- Presentation by Students
- Quizzes
- Guest Lecture

Students are advised to attend all the classes and complete all the assignments within the specified time period. If a student does not attend the class (es), it is his/her sole responsibility to cover the topic(s) taught during that period. If a student fails to attend a formal exam/quiz/test, there won't be any provision for re-exam. Unless and until the student clears one semester he/she will not be allowed to study in the following semesters.

Laboratory Work

Student should write programs and prepare lab sheet for all of the units in the syllabus. Students should be able to Mobile Apps by using various concepts and Platforms discussed in class. The lab work should be practiced for minimum of 3 lab hours per week

Prescribed Text

- Jeff McWherter and Scott Gowell, "Professional Mobile Application Development", Wrox, 2012

- Charlie Collins, Michael Galpin and Matthias Kappler, "Android in Practice", DreamTech, 2012
- James Dovey and Ash Furrow, "Beginning Objective C", Apress, 2012
- David Mark, Jack Nutting, Jeff LaMarche and Frederic Olsson, "Beginning iOS 6 Development: Exploring the iOS SDK", Apress, 2013.