5 Years Integrated M.C.A.

CC13 Fundamentals of Mobile Application Development (060060507)

5th Semester

EFFECTIVE FROM JUNE - 2017

VERSION-1.0
1 Overview
1.1 Introduction to Mobile Technologies
1.2 Platform Architecture and Features
1.3 Mobile Platform Versions
1.4 Development Tools for Mobile Application
1.5 Anatomy of Mobile Application
1.6 Creating Virtual Device and Sample Application

2 Core Components
2.1 Activity life cycle
2.2 Generating and Deploying Application file
2.3 Linking Activity using Intents
2.4 Calling built-in applications

3 Resources and Designing Interface
3.1 Application Resource
3.2 Types of Layouts
3.3 GUI Elements
3.4 Creating Dialog box in Application
3.5 Usage of Menu
3.6 Animation basics

4 Data Persistence
4.1 User Preferences
4.2 Internal Storage
4.3 External Storage
4.4 Database management

5 System Services
5.1 Standard Broadcast Actions
5.2 Alarm Manager
5.3 SMS Manager
5.4 Notification Manager

6 Media APIs
6.1 Using Media APIs
6.2 Multimedia audio content- Creating and Playing, Kill and Releasing Memory
6.3 Playing Background Sounds
6.4 Playing Video Content

The tool and technology as an exposure to the concepts' implementation shall be determined by the course teacher(s) with due approval of Director and/or IQAC.

Course Outcomes: Upon completion of the course, students shall be able to

CO1: Describe the different mobile technologies, mobile development platform and mobile GUI.
CO2: Comprehend how mobile applications works, their life cycle, and interaction among applications.
CO3: Design and develop useful mobile applications with compelling user interfaces by using GUI elements.
CO4: Use mobile application development APIs for data storage, retrieval, user preferences, files, and databases.
CO5: Utilize the power of background services, broadcast receiver and notifications.
CO6: Use mobile media APIs to develop audio and video based mobile applications.

Course Objective and Course Outcomes Mapping:
To develop skills to describe mobile technologies, mobile environment: CO1
To develop mobile application for mobile devices using resource, application component: CO2, CO3, CO4, CO5
Utilize mobile development APIs: CO6

Course Units and Course Outcomes Mapping:

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Unit</th>
<th>Course Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>CO1 CO2 CO3 CO4 CO5 CO6</td>
</tr>
<tr>
<td>1</td>
<td>Overview</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>Core Components</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>3</td>
<td>Resources and Designing Interface</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>4</td>
<td>Data Persistence</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>5</td>
<td>System Services</td>
<td>✓</td>
</tr>
<tr>
<td>6</td>
<td>Media APIs</td>
<td>✓</td>
</tr>
</tbody>
</table>

Laboratory(Only if the course is of practical nature):
- A Course Teacher shall prepare a fresh Practical List for each academic year with no repeated problem definitions from previous two consecutive years.
- The Practical List shall consists of "Required number of problems" for journal certification as well as "Practice problems" of varying nature from each unit as per its weightage and criticality.
- Laboratory Supervisor or Course Teacher shall sign in the journal only if he/she is satisfied by the work of student.
- Journal shall be verified by the Laboratory Supervisor as well as by the Course Teacher at-least thrice in a semester at appropriate interval upon the discretion of the Course Teacher.
- Journal must not be certified if required number of problems are not included and not written clearly.
- After due approval, the Practical List shall be kept by concern Course Teacher on web site before the commencement of the semester.
- Problem list shall contain practical problems from each of the units are as follow:

<table>
<thead>
<tr>
<th>Unit No.</th>
<th>Required no. of problems to get the journal certified</th>
<th>Covering Unit / Sub-Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1.6</td>
</tr>
</tbody>
</table>
Hands-on Activity

- Hands-on sessions shall be conducted on following topics:
  1. Generating and Deploying Application file
  2. Linking Activity using Intents
  3. Calling built-in applications
  4. Types of Layouts
  5. User Preferences
  6. Database management
  7. Standard Broadcast Actions

Modes of Transaction (Delivery):

- Lecture method shall be used for all units. For all units lecture delivery shall be supplemented with audio-visual aids.
- Self-Study of following part of the syllabus shall be done by the students:
  1.3 : Mobile Platform Versions
  3.3 : GUI Elements

Activities/Practicum:

The following activities shall be carried out by the students.

- Student shall develop mini mobile application.
- Student shall submit white paper on any one mobile operating system including its features.

The following activities shall be carried out by the course teacher.

- Discuss the purpose of any two mobile operating systems and its market value.
- Elaborate case study on different mobile operating systems.
- Installation of one mobile environment.

Text Books:

1. Dave MacLean, Pro Android 5, Apress.

Reference Books:

1. Wei-Meng Lee, Beginning Android 4 Application Development, Wiley India Pvt Ltd.
2. Reto Meier, Professional Android 2 Application Development, Wiley India Pvt Ltd.
3. https://developers.google.com/android/ [Note: Reference for location based API]
5. Mark L Murphy, Beginning Android, Wiley India Pvt. Ltd.

Concept Map:

It is a hierarchical / tree based representation of all topics covered under the course. This gives
direct / indirect relationship / association among topics as well as subtopics.

Unit 1: Overview

Unit 2: Core Component
Unit 3: Resources and Designing Interface

Resources and Designing Interface

- Application Resource
  - Types of Layouts
    - GUI Elements
  - Creating Dialog box in Application
- Animation basics
  - Usage of Menu

Unit 4: Data Persistence

Data Persistence

- User Preferences
  - Internal Storage
- External Storage
  - Database management
Assessment:

- The weightage of Continuous Internal Evaluation (CIE) and University examination shall be as per the University regulations.
- The course teacher is free to decide the structure of CIE:
  - i. Assessment parameters like Open Book test, Quizzes, Unit Tests, Assignments, Internal, Self-Creation and etc.
  - ii. Weightage and frequency of each parameter.
- After assessment parameters are approved by Director and/or IQAC, it shall be informed to the students by publishing over web before commencement of the semester.
- The assessment policy document should be uploaded on the web before the commencement of the semester.
- Syllabus for each CIE parameter shall be covered by the date of the corresponding test.
- No make-up work shall be conducted unless approval from Director.
UFM:

- Any ascertained fact of breaking institute policy shall be associated with one or all of the following: (i) zero marks for the work; (ii) report to the programme coordinator; (iii) report to the Director.

Attendance:

- Attendance means being present for the entire class session. Those arriving significantly late or leaving significantly early without prior permission shall be counted as ABSENT for the entire class session.
- Concern teacher must clearly state his/her attendance policies at the first class meeting.