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| --- | --- | --- | --- |
| **Course Title and Code**  Mobile Application Development: CS1205 | | | |
| Hours per Week | | **L-T-P: 3-0-2** | |
| Credits | | **4** | |
| Students who can take | | B. Tech Sem-VI (CSE) | |
| **Course Weightage:** Theory 65%, Practical – 35% | | | |
| **Course Objectives:** This Course is designed to offer learners an introduction to Android platform and related applications in the business world.  The Course will cover basic and security related issues in app deployment.  Different techniques will be discussed for app design with real-time and static databases.  The Course lays the basic foundations for app development in android and cross platform. | | | |
| **Course Outcome:**  On successful completion of this course, the students should be able to:  CS1205.1. Installation and execution of android based mobile development tools  CS1205.2. Design scripts to meet given interface and media control requirements.  CS1205.3. Use variables, properties and other code elements appropriately using Kotlin.  CS1205.4. Implement and evaluate techniques for the installation of mobile applications for front and back-end development.  CS1205.5. Explain the principles of technologies which support media production  CS1205.6. Create event listeners for responding to events. | | | |
| Prerequisites | | | **Core Java Programming** |
| **Sr. No** | **Specifications** | | **Marks** |
| 1 | Attendance | | 5 |
| 2 | Assignment | | 15 |
| 3 | Class Participation | | Nil |
| 4 | Quiz | | Nil |
| 5 | Theory Exam-I | | Nil |
| 6 | Theory Exam-II | | 20 |
| 7 | Theory Exam-III | | 30 |
| 8 | Report-I | | Nil |
| 9 | Report-II | | Nil |
| 10 | Report-III | | Nil |
| 11 | Project-I | | Nil |
| 12 | Project-II | | 10 |
| 13 | Project-III | | Nil |
| 14 | Lab Evaluation-I | | 10 |
| 15 | Lab Evaluation-II | | 10 |
| 16 | Course Portfolio | | Nil |
| 17 | Presentation | | Nil |
| 18 | Viva Voce | | Nil |
|  | Total (100) | | 100 |
|  |  | |  |

**Syllabus (Theory)**

**Module I – Mobile Application Overview**

Introduction to Mobile Computing, Introduction to Android development environment, Mobile Software Engineering, Design of application (view level).

**Module II – Framework and User Interface Development**

Frameworks and tools, Generic UI development, Android user (privileges), Designing the right UI, Multichannel and Multimodial UIs, Android intents and services.

**Module III – Storing Retrieving Data with Real-time Database**

Synchronization and replication of mobile data, Getting the model Right, Android storing and retrieving Data, Working with a content provider, Communications via network and the web, State Machine, Correct communications Model.

**Module IV – Notifications, Alarming and Location**

Performance and memory management, Android notifications and alarms, Graphics and UI Performance, Mobile agents and Peer-to-Peer architecture, Mobility and Location Based Services.

**Text Books and References:**

1. Android Cookbook, 2nd Edition by Ian F. Darwin Publisher: O'Reilly Media, Inc. Release Date: May 2017
2. Sam’s Teach yourself Android Application Development. by Lauren Darcey and Shane Conder : 2012
3. Professional Android 4 Application Development by Reto Meier, 2012
4. Android Programming for Beginners by John Horton, 31 Dec 2015
5. https://developer.android.com/

MOOC Course Reference:

1. Advanced App Development in Android Capstone -Imperial College London

Link: [Advanced App Development in Android Capstone | Coursera](https://www.coursera.org/learn/aada-capstone)

1. Android App Components - Services, Local IPC, and Content Providers - Vanderbilt University

Link: [Android App Components - Services, Local IPC, and Content Providers | Coursera](https://www.coursera.org/learn/androidapps-2)

1. Java for Android - Vanderbilt University

Link: [Java for Android | Coursera](https://www.coursera.org/learn/java-for-android)

**Course Articulation Matrix: (Mapping of COs with POs)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Course Outcome | Correlation with program outcomes | | | | | | | | | | | | | | | | Correlation with program specific outcomes | | |
| PO 1 | PO 2a | PO 2b | PO 2c | PO 3a | PO 3b | PO 3c | PO 4a | PO 4b | PO 4c | PO 5a | PO 5b | PO 6 | PO 7a | PO 7b | PSO-1 | | PSO-2 |
| **CS1205.1** | 1 |  |  |  |  |  |  |  |  | 2 |  | 2 |  |  | 2 |  | |  |
| **CS1205.2** |  |  | 1 |  | 2 |  |  | 2 |  |  |  |  | 1 | 1 |  | 2 | |  |
| **CS1205.3** |  |  |  |  | 2 | 2 |  | 1 | 2 |  | 2 |  |  |  |  | 2 | |  |
| **CS1205.4** | 1 |  |  |  |  |  | 2 | 3 |  |  |  | 2 |  | 2 | 1 |  | | 3 |
| **CS1205.5** |  |  | 1 |  |  | 3 |  |  |  |  | 2 | 2 |  |  | 1 | 1 | |  |
| **CS1205.6** |  |  |  | 3 | 2 | 2 |  |  | 2 |  | 2 |  |  | 1 |  | 2 | |  |

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl No** | **Learning Activities** | **Evaluation**  **Components**  **Used** | **CO** |
| LA1 | Installation of Android Studio and environment setup | Lab Evaluation | CS1205.1  CS1205.2 |
| LA2 | Running of Projects in Kotlin | Lab Evaluation | CS1205.1  CS1205.2 |
| LA3 | Programming with Kotlin for Inheritance and Interface applications | Assignment | CS1205.3 |
| LA4 | Programming for Creation of Collection and Functional APIs | Assignment | CS1205.2  CS1205.3 |
| LA5 | Development of UI | Lab Evaluation  Assignment | CS1205.3 |
| LA6 | Programming for application of Kotlin Class: Higher Order functions | Assignment | CS1205.1  CS1205.4 |
| LA7 | Installation of GIT and Application of version control tools | Lab Evaluation | CS1205.1  CS1205.4  CS1205.5 |
| LA8 | Programing with application of SQlite Database | Lab Evaluation  Assignment | CS1205,2  CS1205.4  CS1205.5 |
| LA9 | Sharing of Data with Contentprovider | Lab Evaluation | CS1205.4  CS1205.5 |
| LA10 | Run Application on Phone and use of Multimedia files | Assignment | CS1205.4  CS1205.6 |
| LA11 | Implementation of Background Service and service life cycle | Lab Evaluation  Assignment | CS1205.3  CS1205.4 |

**Learning Activities**

**Course Articulation Matrix: (Mapping of Activities with COs)**

**1- Low Correlation; 2- Moderate Correlation; 3- Substantial Correlation**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Activities** | **Correlation with course objectives** | | | | | |
|  | **CS1205.1** | **CS1205.2** | **CS1205.3** | **CS1205.4** | **CS1205.5** | **CS1205.6** |
| **LA1** | 1 | 2 |  |  |  |  |
| **LA2** | 2 | 2 |  |  |  |  |
| **LA3** |  |  | 2 |  |  |  |
| **LA4** |  | 2 | 3 |  |  |  |
| **LA5** |  |  | 3 |  |  |  |
| **LA6** | 1 |  |  | 3 |  |  |
| **LA7** | 1 |  |  | 3 | 3 |  |
| **LA8** |  | 2 |  | 3 | 2 |  |
| **LA9** |  |  |  | 2 | 2 |  |
| **LA10** |  |  |  | 2 |  | 3 |
| **LA11** |  |  | 2 | 2 |  |  |