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**UNIVERSITY OF PETROLEUM & ENERGY STUDIES**

**School of Computer Science**

**Department of Cybernetics**

**COURSE PLAN**

Programme : B. Tech. CSE spl. in Mobile Application Development

Course :Mobile Application Development using Android

Subject Code : CSMC 2007

No. of credits : 03

Semester : III

Session : July 2019 – December 2019

Batch : 2018 - 2022

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**Approved By**

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**COURSE PLAN**

1. **PRE-REQUISITES**

* Basic knowledge of Java Programming.
* Basic knowledge of XML.

1. **PROGRAM OUTCOMES (POs) and PROGRAM SPECIFIC OUTCOMES for B.Tech. CSE spl. inMobile Application Development**

**B1. PROGRAM OUTCOMES (POs)**

1. *Engineering knowledge:* Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.
2. *Problem analysis:* Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.
3. *Design/development of solutions:* Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.
4. *Conduct investigations of complex problems:* Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.
5. *Modern tool usage:* Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.
6. *The engineer and society:* Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.
7. *Environment and sustainability:* Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
8. *Ethics:* Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.
9. *Individual and team-work:* Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.
10. *Communication:* Communicate effectively on complex engineering activities with the engineering community and with society at-large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
11. *Project management and finance:* Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.
12. *Life-long learning:* Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

**B2. PROGRAM SPECIFIC OUTCOMES (PSOs)**

1. Perform system and application programming using computer system concepts, concepts of Data Structures, algorithm development, problem solving and optimizing techniques.
2. Apply software development and project management methodologies using concepts of front-end and back-end development and emerging technologies and platforms.
3. Ability to design, develop and deploy Mobile Applications (Apps) and Protocols for Ubiquitous Computing.
4. **COURSE OBJECTIVE**

* The student should be able to design and code the programs using java concept.
* The student should be able to understand the flexibility and modularity provided by OOPs using Java.

1. **COURSE OUTCOMES (COs), Mapping with POs and PSOs**

Upon completion of this course the learners will be able to:

CO1: Understand the Installation process of Android Studio.

CO2: Implement the fundamental concepts of Android app development using Java & XML.

CO3: Develop mobile apps for real life problems using Android Studio.

CO4: Implement persistent data storage by using SQLite.

**Table: Correlation of COs vs. POs for the Course**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CO/PO | PO1 | PO2 | PO3 | PO4 | PO5 | PO6 | PO7 | PO8 | PO9 | PO10 | PO11 | PO12 | PSO1 | PSO2 | PSO3 |
| CO1 | 1 |  |  |  | 2 |  |  |  |  |  |  | 1 | 1 | 2 | 3 |
| CO2 | 1 |  | 2 |  |  |  |  |  |  |  |  | 1 | 1 | 2 | 3 |
| CO3 | 1 | 1 | 2 |  |  |  |  |  |  |  |  | 1 | 1 | 2 | 3 |
| CO4 | 1 |  | 2 |  |  |  |  |  |  |  |  | 1 | 1 | 2 | 3 |

1=weakly mapped 2= moderately mapped 3=strongly mapped

1. **COURSE OUTLINE**

|  |  |
| --- | --- |
| **Module** | **Contents** |
| 1 | Brief Introduction to Android & Set up |
| 2 | Android App Fundamentals |
| 3 | User Interface and Controls, Working with Media, Notification and Toast |
| 4 | Graphics, Styling, Menus, Dialogs and Animation, Supporting Multiple Screens |
| 5 | Locations and Maps, Preferences and Data Storage, Creating a Home Screen Widget, Publishing Android App |

1. **PEDAGOGY**

* Presentations
* Quiz/Test
* Assignments/Project\*

1. **COURSE COMPLETION PLAN**

|  |  |
| --- | --- |
| **Total Class room sessions** | 36 |
| **Total Quizzes/Test** | 02 |
| **Total Assignments/Project** | 02/01 |

One Session = 60 minutes

1. **EVALUATION & GRADING**

The components of the instructor-led continuous evaluation system will be as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **S.No.** | **Assessment** | **Weightage** | **Schedule** |
| 1 | Internal Assessment (IA) | 30% | Detailed Below |
| 2 | Mid-semester Examination (MS) | 20% | Academic Calendar |
| 3 | End-semester Examination (ES) | 50% | Academic Calendar |
| Total | | 100% |  |

Each Assessment is carried out for suitable marks and finally reduced suitably based on its weightage. At course completion, the student is awarded with the grade based on the composite score obtained out of 100 marks (30% IA + 20% MS + 50% ES). While awarding the grades, the evaluator will necessarily award grade “F” if the raw score obtained by the student is less than 40%of the highest raw score obtained in ES or/and in the composite score (IA + MS + ES). Refer the student bulletin in the intranet for any additional information. It is mandatory for all the students to undergo the process of continuous evaluation.

1. **Internal Assessment:**

Internal Assessment shall be done based on the following detailed breakup and scheme of assessment:

|  |  |  |
| --- | --- | --- |
| Sl. No. | Description | % of Weightage out of 30% |
| 1 | Quizzes/Test | 30% |
| 2 | Assignments/Project | 40% |
| 3 | Attendance and conduct in the class | 30% |

The marks awarded for the Online Internal Assessments will be available in Black Board and displayed to the students.

1. **Mid-semester Examination:**

Mid-semester examination will cover approximately half of the entire course content and shall be of two hours duration. The question paper pattern would be discussed well in advance before the exam. The evaluated answer sheets of the written exam shall be disclosed to the students ten days after the examinations.

1. **End-semester Examination:**

End-semester examination will cover the entire course content and shall be of three hours duration. The examination shall have short answer type questions, analytical and conceptual comprehension through essay/descriptive type questions, and cases or problem solving exercises. The evaluated answer sheets shall be disclosed to the students ten days after the examinations.

**GRADING:**

The overall marks obtained at the end of the semester comprising the above three shall be converted to a grade. Student(s), who have met the qualifying criteria of the individual theoretical subject but have not met qualifying criteria of SGPA, will not be allowed to re-appear for improvement. Students, who wish to re-appear in the theoretical subject, shall be required to pay the prescribed fee per subject as notified by the University.

The student with Grade “F” will be eligible to repeat continuous evaluation of that respective subject (s) during summer vacation (June-July). Grade shall be awarded on the performance of the student(s). The Grade will be capped as per the rules mentioned in student Bulletin. All other rules and regulations such as requirement of passing, etc. will remain same as mentioned in rules & regulations.

1. **DETAILED SESSION PLAN**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sl.  No | No. of  Sessions | Pedagogy | Detail of References | Coverage |
| 1. | 5 | **Lecture**  Group Discussion  White board  Class room  Discussion | Refer Suggested Reading | **Unit I: Introduction to Android and Setup**  History & Background of Android, Environment Setup – Installation & Setup of SDK tools on Windows; Installing platforms and samples; Creating an Android Virtual Device (emulator) ; Installing Eclipse on a Windows machine; Installing the Android Development Tools; Preparing an Android device for development. |
| 2 | 5 | **Lecture**  Presentation/  Group Discussion/  Exercise for  Questionnaire designing  Examples | Refer Suggested Reading | **Unit II: Android Fundamentals**  Overview of Android development; Understanding project creation and structure; Working with the AndroidManifest.xml file; Creating and managing activities; Using explicit intents; Using implicit intents; Creating and using resources; Understanding security and permissions; Debugging an app. |
| 3 | 4 | **Lecture**  Presentation/  Group Discussion/  Case Study  Class room | Refer Suggested Reading | **Unit III: User Interface and Controls**  Understanding units and layout; Using layout managers; Working with text controls; Building button controls; Building list controls; Building custom list layouts; Other interesting controls.  **Supporting Multiple Screens**  Understanding screen size and density; Providing alternate layouts. |
| 4 | 2 | **Lecture and**  **Quiz#1**  Group Discussion  White board  Class room  Discussion | Refer Suggested Reading | **Unit IV**  **Notifications And Toast**  Displaying status bar notifications; Displaying toast notifications. |
| 5 | 2+2 | **Lecture**  Presentation/  Group Discussion | Refer Suggested Reading | **Unit V:**  **Graphics and Styling**  Creating and using styles; Creating and using themes; Creating icons; Creating Nine Patch drawables.  **Animation And Graphics**  Setting up frame-by-frame animation; Showing tween animation; Working in 2D graphics. |
| 6 | 2+3 | **Lecture**  Presentation/  Group Discussion | Refer Suggested Reading | Unit VI  **Menus And Dialogs**  Setting up options menus; Building context menus; Building alert dialogs; Setting up progress dialogs; Creating custom dialogs.  **Working With Media**  Setting up audio playback; Establishing video playback; Accessing the camera and camera roll |
|  |  |  |  |  |
| 7 | 4 | **Lecture**  Presentation/  Group Discussion | Refer Suggested Reading | **Unit VII**  **Preferences And Data Storage**  Using shared preferences; Creating a preferences activity; Using the SQLite database; Setting up network access; Using Content Providers. |
| 8 | 2+2 | **Lecture**  Presentation/  Group Discussion | Refer Suggested Reading | **Unit VIII**  **Locations And Maps**  Incorporating Google Maps; Using GPS to find the current location.  **Creating A Home Screen Widget**  Creating a simple home-screen widget; Creating a widget configuration activity. |
| 9 | 3 | **Lecture**  **Quiz#2**  **Project\***  Presentation/  Group Discussion | Refer Suggested Reading | **Unit IX**  **Publishing Android App**  Preparing for publishing; Signing and building; Preparing the graphics; Publishing to the Android Market. |

\*The instructor can either opt for a project or assignments. However, project is preferable.

1. **SUGGESTED READING**

**J.1 Text Books**

1. Professional Android 4 Application Development 3rd Edition – Reto Meier
2. Programming Android O’ Rielly

**J.2 Reference Books/Web Resources**

https://developer.android.com/training/index.html

1. **GUIDELINES**

**Cell Phones and other Electronic Communication Devices:** Cell phones and other electronic communication devices (such as Blackberries/Laptops) must be turned off during the lab session.

**e-Mail and online learning tool:** Each student in the class should have UPES e-mail id and a password to access the Blackboard regularly. The best way to arrange meetings with faculty is by email and prior appointment. Various research papers/reference material will be mailed/uploaded on online learning platform time to time.

**Attendance:** Students are required to have **minimum attendance of 75%** in the subject.

**Passing criterion:** Student has to secure minimum 40% marks of the “highest marks scored by the student for the subject” in the total marks in order to pass in that paper.

1. **COURSE OUTCOME ASSESSMENT**

To assess the fulfilment of course outcomes two different approaches have been decided. Degree of fulfillment of course outcomes will be assessed in different ways through direct assessment and indirect assessment. In Direct Assessment, it is measured through Continuous assessments. Each assessment is designed in such a way that it can address one or two outcomes (depending upon the course completion). Indirect assessment is done through the student survey which needs to be designed by the faculty (sample format is given below) and it shall be conducted towards the end of course completion. The evaluation of the achievement of the Course Outcomes shall be done by analyzing the inputs received through Direct and Indirect Assessments and then corrective actions suggested for further improvement.

**Format for Indirect Assessment of Course Outcomes**

|  |  |
| --- | --- |
| NAME: |  |
| ENROLLMENT NO: |  |
| SAP ID: |  |
| COURSE: | Mobile Application Development using Android |
| PROGRAMME: |  |

Please rate the following aspects of the Course Outcomes. Use the scale 1 to 4 \*

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **S. No.** | **Course Outcomes** | **1** | **2** | **3** | **4** |
| CO1 | Understand the Installation process of Android Studio. |  |  |  |  |
| CO2 | Implement the fundamental concepts of Android app development using Java & XML. |  |  |  |  |
| CO3 | Develop mobile apps for real life problems using Android Studio. |  |  |  |  |
| CO4 | Implement persistent data storage by using SQLite. |  |  |  |  |

Very Good

4

3

Below Average

Average

Good

2

1

\*