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| --- | --- | --- | --- | --- | --- |
| **Title of the Course** | Android Application Development | | | | |
| **Course Code** | R204GA05602 | | | | |
| **Class, Semester, Section** | **III B. Tech II Sem** | | | | |
| **Course Type** | Theory/Laboratory | | | | |
| **Regulation** | SRIT R-20 | | | | |
| **Course Structure** | Theory | | | Practical | |
| Lecture | Tutorials | Credits | Laboratory | Credits |
| 3 | 0 | 3 | 3 | 3 |
| **Course Coordinator** | Dr.B.Harichandana | | | | |

**1. Course Pre-requisites:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Level** | **Course Code** | **Semester** | **Prerequisites** |
| B. Tech | R204GA05602 | II | JAVA,XML,SQL |

# 2. COURSE OVERVIEW: (Write the description of the course in 30 to 40 words)

|  |
| --- |
| This course introduces mobile application development for the Android platform. Android is a software stack for mobile devices that includes an operating system, middleware and key applications. The Android SDK provides the tools and APIs necessary to begin developing applications on the Android platform using the Java programming language.  . |

**3. MARKS DISTRIBUTION:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Subject** | **SEE** | **CIE** | **CAA** | **Total Marks** |
| Android Application Development | 60 marks | 30 marks | 10 marks | 1. marks |

# 4. CONTENT DELIVERY / INSTRUCTIONAL METHODOLOGIES:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | Power Point Presentations |  | Chalk & Talk |  | Assignments | **x** | MOOC |
| **X** | Open Ended Experiments | **x** | Seminars | **x** | Mini Project | **x** | Videos |
| **X** | Course Project | **X** | Others |  |  |  |  |
|  |  | | | | | | |

**5. EVALUATION METHODOLOGY:**

The course will be evaluated for a total of 100 marks, with 40 marks for Continuous Internal Assessment (CIA) and 60 marks for Semester End Examination (SEE). CIA is conducted for a total of 40 marks, with 30 marks for Continuous Internal Examination (CIE), and 10 marks for Continuous Alternative Assessment (CAA).

**Semester End Examination (SEE):** End examination of theory courses shall have the following pattern:

a. There shall be 6 questions and all questions are compulsory.

b. Question 1 shall contain 5 compulsory short answer questions for a total of 10 marks such that each question carries 2 marks. There shall be 1 short answer questions from each unit.

c. In each of the questions from 2 to 6, there shall be either/or type questions of 10 marks each. Student shall answer any one of them.

d. The questions from 2 to 6 shall be set by covering one unit of the syllabus for

each question.

The expected percentage of cognitive level of the questions is broadly based on the criteria given in below Table.

|  |  |
| --- | --- |
| Percentage of Cognitive Level | Blooms Taxonomy Level |
| 20% | Remember |
| 35% | Understand |
| 45% | Apply |
| 0% | Analyze |

# Continuous Internal Assessment (CIA):

CIA is conducted for a total of 40 marks, with 30 marks for continuous internal examination (CIE) and 10 marks for Alternative Assessment Tool (AAT).

|  |  |  |  |
| --- | --- | --- | --- |
| **Component** | | Marks | Total Marks |
| **CIA** | Continuous Internal Examination – 1 (Mid-term) | 15 | 40 |
| Continuous Internal Examination – 2 (Mid-term) | 15 |
| CAA-1 | 5 |
| CAA-2 | 5 |
| **SEE** | Semester End Examination (SEE) | 60 | 60 |
| **Total Marks** | | | 100 |

# Continuous Internal Examination (CIE):

For each theory course, during the semester, there shall be two CIEs. Each CIE will be evaluated for 30 marks.The first CIE will be conducted for around 50% of the syllabus and the second CIE will be conducted for the remaining syllabus. Final or consolidated CIE marks will be arrived considering the marks secured by the student in both the CIEs with 80% weightage given to the better CIE and 20% to the other. The duration of CIE examination is 120 minutes. There shall be 4 questions and all are compulsory.

a. Question 1 contains 3 short answer questions from each unit with equal weightage for a total of 6 marks. The student has to answer all of them.

b. Questions 2-4 contains 3 either/ or type questions from each unit with equal weightage of 8 marks.

c. If the student is absent for the CIE examination, no re-exam shall be

conducted and marks for that examination shall be considered as zero.

# Continuous Alternative Assessment (CAA):

For each theory course, during the semester, there shall be two CAAs. Each CAA will be evaluated for 10 marks. The first CAA will be conducted for around 50% of the syllabus and the second CAA will be conducted for the remaining syllabus. Final or consolidated CAA marks will be arrived by considering the average of marks secured by the student in both the CAAs. Respective course coordinator has to evaluate CAAs through Assignment or any other such evaluation methods depending on the nature of the course. The course coordinator will announce the mode of the CAA to the respective class at the beginning of the course. It is responsibility of the course

coordinator and Head of the department to maintain the complete record of

CAAs and its evaluation.

**The final marks for CIA (for 40 marks) = Consolidated CIE marks (for 30 marks) + Consolidated CAA marks (for 10 marks)**

# 6. COURSE OBJECTIVES:

**From this course the students will try to learn:**

|  |  |
| --- | --- |
| I | To understand fundamentals of android operating systems. |
| II | Illustrate the various components, layouts and views in creating android applications |
| III | To understand advance concepts of android programming |
| IV | To understand the fundamentals of Kotlin programming in android |

# 7. COURSE OUTCOMES:

**After successful completion of the course, students should be able to:**

|  |  |  |
| --- | --- | --- |
| **CO** | **Course Outcomes**  At the end of the course students will be able to: | **Cognitive Level** |
| CO 1 | Describe data sharing with different applications for sending and intercepting messages through broadcasting. | understand |
| CO 2 | Know the building blocks of an android application.. | understand |
| CO 3 | Illustrate the advancement in android application development | Apply |
| CO 4 | Design the application with database connectivity using modern tools | Apply |
| CO 5 | Design an application using broadcast services | Apply |
| CO 6 | Develop an application using Kotlin programming in android | Apply |

# COURSE KNOWLEDGE COMPETENCY LEVEL:

|  |  |  |  |
| --- | --- | --- | --- |
| **S. No.** | **Cognitive Level** | **No. of COs mapped** | **%** |
| **1** | Remember |  |  |
| **2** | Understand | **2** |  |
| **3** | Apply | **4** |  |
| **4** | Analyze |  |  |
| **5** | Evaluate |  |  |

# 8. Program Outcomes and & Program Specific Outcomes:

|  |  |
| --- | --- |
| **Program Outcomes** | |
| **PO 1** | **Engineering knowledge:** Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. |
| **PO 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. |
| **PO 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 |
| **PO 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. |
| **PO 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 |
| **PO 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. |
| **PO 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. |
| **PO 8** | **Ethics:** Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. |
| **PO 9** | **Individual and team work:** Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. |
| **PO 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. |
| **PO 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. |
| **PO 12** | **Life-Long Learning:** Recognize the need for and having the preparation and ability to engage in independent and life-long learning in the broadest context of technological change |
| **Program Specific Outcomes** | |
| **PSO1** | Design, implement, and test application software systems for desktop, web, and mobile platforms to meet the specified requirements. |
| **PSO2** | Use effectively and efficiently the functionality of systems software for building applications. |
| **PSO3** | Understand the organization and architecture of Computer Systems, Embedded Systems, and Networked Systems. |

**9. MAPPING OF EACH CO WITH PO(s),PSO(s):**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| CO 1 | X | - | - | - | x | - | - | - | - | - | - |  | x | - | - |
| CO 2 | X | - | - | - | x | - | - | - | - | - | - | - | x | - | - |
| CO 3 | X | - | - | - | x | - | - | - | - | - | - | - | x | - | - |
| CO 4 | X | - |  | - | x | - | - | - | - | - | - |  | x | - | - |
| CO 5 | X | - | - | - | x | - | - | - | - | - | - | - | x | - | - |
| CO 6 | X | - | - | - | x | - | - | - | - | - | - | - | x | - | - |

# 10. JUSTIFICATIONS FOR CO – PO/ PSO MAPPING -DIRECT:

|  |  |  |  |
| --- | --- | --- | --- |
| **CO** | **POs/PSOs**  **mapped** | **Justification for mapping**  **(Students will be able to)** | **No. of key competencies** |
| CO 1 | **PO1,PO5/PSO1** | 1.Data sharing using different methodologies  2.Design own applications for engineering problems  3.Using modern software tool for building applications  4.Design and implementing mobile applications  5.Using modern language to build applications | **2,1,2** |
| CO 2 | **PO1,PO5/PSO1** | 1.Know the basic knowledge of engineering methodology  2.Build own applications for engineering problems  3. Using modern software tool for database connectivity  4.Design and implementing mobile applications  5.Using modern language to build applications | **2,1,2** |
| CO 3 | **PO1,PO5/PSO1** | 1.Using advance methodology for build application  2.Design own applications for engineering problems  3. Using modern software tool for database connectivity  4.Design and implementing mobile applications  5.Using modern language to build applications | **2,1,2** |
| CO 4 | **PO1,PO5/PSO1** | 1.Data sharing using different methodologies  2.Design own applications for engineering problems  3. Using modern software tool for database connectivity  4.Design and implementing mobile applications  5.Using modern language to build applications | **2,1,2** |
| CO 5 | **PO1,PO5/PSO1** | 1.Data sharing using different methodologies  2.Design own applications for engineering problems  3. Using modern software tool for database connectivity  4.Design and implementing mobile applications  5.Using modern language to build applications | **2,1,2** |
| CO 6 | **PO1,PO5/PSO1** | 1.Data sharing using different methodologies  2.Design own applications for engineering problems  3. Using modern software tool for database connectivity  4.Design and implementing mobile applications  5.Using modern language to build applications | **2,1,2** |

**11. TOTAL COUNT OF KEY COMPETENCIES FOR CO – PO/ PSO MAP- PING:**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9-** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| CO 1 | 2 | - | - | - | 1 | - | - | - | - | - | - |  | 2 | - | - |
| CO 2 | 2 | - | - | - | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO 3 | 2 | - | - | - | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO 4 | 2 | - | - | - | 1 | - | - | - | - | - | - |  | 2 | - | - |
| CO 5 | 2 | - | - | - | 1 | - | - | - | - | - | - | - | 2 | - | - |
| CO 6 | 2 | - | - | - | 1 | - | - | - | - | - | - | - | 2 | - | - |

# 12. PERCENTAGE OF KEY COMPETENCIES FOR CO – PO/ PSO

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| No. of Vital Features | | | | | | | | | | | | | | |
| 3 | 10 | 10 | 11 | 1 | 5 | 3 | 3 | 12 | 5 | 12 | 12 | 2 | 2 | 2 |
| CO 1 | 66.66 | - | - | - | 100 | - | - | - | - | - | - |  | 100 |  | - |
| CO 2 | 66.66 | - | - | - | 100 | - | - | - | - | - | - | - | 100 | - | - |
| CO 3 | 66.66 | - | - | - | 100 | - | - | - | - | - | - | - | 100 | - | - |
| CO 4 | 66.66 | - | - | - | 100 | - | - | - | - | - | - |  | 100 |  | - |
| CO 5 | 66.66 | - | - | - | 100 | - | - | - | - | - | - | - | 100 | - | - |
| CO 6 | 66.66 | - | - | - | 100 | - | - | - | - | - | - | - | 100 | - |  |

**13. COURSE ARTICULATION MATRIX (PO / PSO MAPPING):**

The Correlation levels of POs and PSOs are as follows.

Correlation **Level 3:** Percentage of vital features of PO/PSO >=60%

Correlation **Level 2:** Percentage of vital features of PO/PSO >40% and < 60%.

Correlation **Level 1:** Percentage of vital features of PO/PSO >5% and <= 40%.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **COs** | **PROGRAM OUTCOMES** | | | | | | | | | | | | **PSO’S** | | |
| **PO 1** | **PO 2** | **PO 3** | **PO 4** | **PO 5** | **PO 6** | **PO 7** | **PO 8** | **PO 9** | **PO 10** | **PO 11** | **PO 12** | **PSO 1** | **PSO 2** | **PSO 3** |
| No. of Vital Features | | | | | | | | | | | | | | |
| 3 | 10 | 10 | 11 | 1 | 5 | 3 | 3 | 12 | 5 | 12 | 12 |  |  |  |
| CO 1 | 2 | - | - | - | 3 | - | - | - | - | - | - |  | 3 |  | - |
| CO 2 | 2 | - | - | - | 3 | - | - | - | - | - | - | - | 3 | - | - |
| CO 3 | 2 | - | - | - | 3 | - | - | - | - | - | - | - | 3 | - | - |
| CO 4 | 2 | - | - | - | 3 | - | - | - | - | - | - |  | 3 |  | - |
| CO 5 | 2 | - | - | - | 3 | - | - | - | - | - | - | - | 3 | - | - |
| CO 6 | 2 | - | - | - | 3 | - | - | - | - | - | - | - | 3 | - |  |

# 14. ASSESSMENT METHODOLOGY-DIRECT:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| CIE Exams |  | Laboratory Practices |  | Term Paper |  |
| SEE Exams |  | Student Viva |  | 5 minutes video |  |
| Seminars |  | Certification |  | Course Project |  |
| Assignments |  | Open ended experiments |  | Others |  |

**15. ASSESSMENT METHODOLOGY-INDIRECT:**

|  |  |  |  |
| --- | --- | --- | --- |
| Assessment of mini projects by experts |  | Course Exit Survey |  |

# 16. SYLLABUS:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **III B.Tech-II Semester SRIT R20** | | | | | | | | |
| **Course Code** | **Category** | **Hours/Week** | | | **Credits** | **Maximum Marks** | | |
| **R204GA05602** | **PCC** | **L** | **T** | **P** | **C** | **CIA** | **SEE** | **Total** |
| 3 | 0 | 0 | 3 | 40 | 60 | 100 |
| Objectives   * To understand fundamentals of android operating systems. * Illustrate the various components, layouts and views in creating android applications * To understand advance concepts of android programming. * To understand the fundamentals of Kotlin programming in android. | | | | | | | | |
| **Unit I – Introduction to Android** | | | | | | | | |
| Introduction: Android Studio Installation and Configuration of SDK and JDK, Basic Building blocks – Activities, Services, Broadcast Receivers & Content providers, UI Components -Views & notifications, Components for communication -Intents & Intent Filters, Android API levels.  Basics of Android:  AndroidManifest.xml, Uses-permission & uses-sdk, Resources & R.java, Assets, Layouts & Drawable Resources, Activities and Activity lifecycle, First sample Application.  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Illustrate the importance of Building blocks of android. 2. Explore fundamentals of UI components. 3. Demonstrate the installations of Android Studio. 4. Explore design and implementation of the app according to Activity life cycle. | | | | | | | | |
| **Unit II – UI Design** | | | | | | | | |
| Basic UI Design:  Form widgets, Text Fields, Layouts – (dip, dp, sip, sp) versus px, Shared Preferences, Preferences from xml, Menus, Intents, Fragments, Time and Date, Images and media, Composite, Alert Dialogs & Toast Messages, Popup.  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Design using Form widgets and Menus. 2. Demonstrate various Layouts in UI Design. 3. Create an app using various intents and Fragments. 4. Illustrate the Alert Dialogs & Toast, popup. | | | | | | | | |
| **Unit III – Database Connectivity and Adapters** | | | | | | | | |
| Overview of Content Providers: SQLite Programming, SQLiteOpenHelper, SQLiteDatabse, Cursor, Reading and updating.  Linkify: Web URLs, Email address, text, map address, phone numbers, MatchFilter & TransformFilter.  Adapters and Widgets: Introduction to Adapters and its types ListView - ListActivity, Custom listview, GridView using adapters, Gallery using adapters.  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Explain the concept of SQLite Database and its operations. 2. Implement cursors for content provider through SQLite. 3. Demonstrate the various Adapters. 4. Demonstrate the significance of Widgets with various views. | | | | | | | | |
| **Unit IV – Services & Broadcast Receivers** | | | | | | | | |
| Notifications:  Broadcast Receivers, Services and notifications, Alarms.  Custom Components: Custom Tabs, Custom animated popup panels, other components.  Services: Overview of services in Android, implementing a Service, Service lifecycle, Inter Process Communication (AIDL Services).  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Demonstrate the Broadcast Receivers Services and notifications. 2. Demonstrate the various custom components. 3. Explain need of Services in Android. 4. Implement the services using service life cycle. | | | | | | | | |
| **Unit V – Application Development Using Kotlin** | | | | | | | | |
| Introduction Kotlin, intelli-j, Features, Structure of Kotlin Programming. Convert Main Activity to kotlin Code. [Operators](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb8cdc7f5e8_0_536), [Data types](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb8cdc7f5e8_0_598), [Variables](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb8cdc7f5e8_0_676), [Conditionals](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb8cdc7f5e8_0_716), [Lists and arrays](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb8cdc7f5e8_0_806), [Null safety](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb8cdc7f5e8_0_866).  Functions, Classes & Objects, Extensions.  **First App:** Your first app, Anatomy of an Android app, Layouts and resources in Android [Activities](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb87ea636ca_0_766), [Make an app interactive](https://docs.google.com/document/d/1AjVlFnywz5E0WXU7RfCmE7fypITxDzpIRRQYbRu5EWg/edit#slide=id.gb87ea636ca_0_827), Gradle: Building an Android app in kotlin.  **Learning Outcomes:**  At the end of this unit, the student will be able to   1. Explain the fundamentals of Kotlin Programming. 2. Explain the connectivity of IntelliJ-j with kotlin. 3. Illustrate the sunctions, classes and Extensions in kotlin. 4. Create an android app using Kotlin programming language and Gradle building. | | | | | | | | |
| **Text Books:** | | | | | | | | |
| 1. Android programming by B.M Halwani, Pearson Education, 2013. 2. Kotlin in Aciton by Dmitry Jemerov and Svetlana Isakova, Manning Publications, 2017. | | | | | | | | |
| **Reference Books:** | | | | | | | | |
| * 1. Android application Development for Java Programmers, James C Sheusi, Cengage Learning.   2. Learn Kotlin for Android development, Peter spath, Leipzig- Apress, -2019.   3. Kotlin for Android Developers by Antonio Leiva, 2017. | | | | | | | | |
| **Course Outcomes:** | | | | | | | | |
| **At the end of the course, student will be able to**   1. Create data sharing with different applications and sending and intercepting Messages. Broad casting. 2. Develop an application using services and publishing android applications. 3. To illustrate the advancement in android app development. 4. To demonstrate their skills of using Android software development tools like IntelliJ and android studio. 5. Design the App with database connectivity using modern tools. 6. Create an app using the kotlin programming in android. | | | | | | | | |

# Google Classroom Link:

**CSE-A-https://classroom.google.com/c/NTEyMjU2NTY4OTM2?cjc=3omozry**

**CSE -B- https://classroom.google.com/c/NTEyMjU2OTUzMDEx?cjc=ooe64ln**

**17. Academic Calendar & Lesson Plan:**

**Academic Calendar:**

|  |  |  |
| --- | --- | --- |
| I Spell of instructions | **30-01-2023 to 02-04-2023** | **9 weeks** |
| I CIE | **03-04-2023 to 09-04-2023** | **1 week** |
| II Spell of instructions | **20-04-2023 to 04-06-2023** | **8 weeks** |
| II CIE | **05-06-2023 to 11-06-2023** | **1 week** |
| Preparation and Practicals | **12-06-2023 to 21-06-2023** | **1.5 weeks** |
| End Examinations | **22-06-2023 to 01-07-2023** | **1.5 weeks** |

**Lesson Plan:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Topics to be covered** | **Mode of Delivery** | **Periods Required** | **Books followed** | **Scheduled Date** |
| **Unit 1:** | | | | | |
| **1** | Android Studio Installation and Configuration of SDK and JDK | ICT | 2 | T1,T2,R1 | 1/02/2023 |
| **2** | Basic Building blocks -– Activities | ICT | 1 | T1,T2,R1 | 2/02/2023 |
| **3** | Services | ICT | 1 | T1,T2,R1 | 03/02/2023 |
| **4** | Broadcast Receivers & Content providers | ICT | 2 | T1,T2,R1 | 07/02/2023 |
| **5** | UI Components Views & notifications | ICT | 1 | T1,T2,R1 | 09/02/2023 |
| **6** | Components for communication -Intents & Intent Filters | ICT | 2 | T1,T2,R1 | 10/02/1023 |
| **7** | Android API levels. | ICT | 1 | T1,T2,R1 | 15/02/2023 |
| **8** | Basics of Android: AndroidManifest.xml | ICT | 1 | T1,T2,R1 | 16/02/2023 |
| **9** | Uses-permission & uses-sdk, | ICT | 1 | T1,T2,R1 | 17/02/2023 |
| **10** | Resources & R.java | ICT | 1 | T1,T2,R1 | 21/02/2023 |
| **11** | Assets | ICT | 1 | T1,T2,R1 | 22/02/2023 |
| **12** | Layouts & Drawable Resources | ICT | 1 | T1,T2,R1 | 23/02/2023 |
| **13** | Activities and Activity lifecycle | ICT | 1 | T1,T2,R1 | 24/02/2023 |
| **14** | First sample Application. | ICT | 1 | T1,T2,R1 | 28/02/2023 |
|  |  | ICT | 17 PERIODS |  |  |
| **Unit 2:** | | | | | |
| **1** | Basic UI Design | ICT | 1 | T1,T2,R1 | 1/03/2023 |
| **2** | Form widgets | ICT | 1 | T1,T2,R1 | 2/03/2023 |
| **3** | Text Fields | ICT | 1 | T1,T2,R1 | 3/03/2023 |
| **5** | s, Layouts – (dip, dp, sip, sp) versus px | ICT | 2 | T1,T2,R1 | 8/03/2023 |
| **6** | Shared Preferences | ICT | 1 | T1,T2,R1 | 10/03/2023 |
| **7** | Preferences from xml, | ICT | 1 | T1,T2,R1 | 14/03/2023 |
| **8** | Menus, Intents | ICT | 1 | T1,T2,R1 | 15/03/2023 |
| **9** | Fragments | ICT | 2 | T1,T2,R1 | 16/03/2023 |
| **10** | Time and Date | ICT | 1 | T1,T2,R1 | 17/03/2023 |
| **11** | Images and media | ICT | 1 | T1,T2,R1 | 21/03/2023 |
| **12** | Composite | ICT | 1 | T1,T2,R1 | 23/03/2023 |
| **13** | Alert Dialogs & Toast Messages,Popup. | ICT | 1 | T1,T2,R1 | 24/03/2023 |
|  |  |  | 14 PERIODS |  |  |
| **Unit 3:** | | | | | |
| **1** | Overview of Content Providers | ICT | 1 | T1,T2,R1 | 28/03/2023 |
| **2** | SQLite Programming | ICT | 2 | T1,T2,R1 | 29/03/2023 |
| **3** | SQLiteOpenHelper | ICT | 1 | T1,T2,R1 | 31/03/2023 |
| **4** | SQLiteDatabse | ICT | 1 | T1T2,R1 | 11/04/2023 |
| **5** | Cursor | ICT | 1 | T1,T2,R1 | 12/04/2023 |
| **6** | Reading and updating | ICT | 1 | T1,T2,R1 | 13/04/2023 |
| **8** | Linkify: Web URLs,Email address | ICT | 2 | T1,T2,R1 | 19/04/2023 |
| **9** | text, map address,phone numbers | ICT | 1 | T1,T2,R1 | 20/04/2023 |
| **10** | MatchFilter & TransformFilter | ICT | 1 | T1,T2,R1 | 21/04/2023 |
| **11** | Adapters and Widgets | ICT | 1 | T1,T2,R1 | 25/04/2023 |
| **12** | Introduction to Adapters and its types | ICT | 2 | T1,T2,R1 | 26/04/2023 |
| **13** | ListView – ListActivity,Custom listview | ICT | 1 | T1,T2,R1 | 27/04/2023 |
| **15** | GridView using adapters,Gallery using adapters. | ICT | 1 | T1,T2,R1 | 2/05/2023 |
|  |  |  | 16  PERIODS |  |  |
| **Unit 4:** | | | | | |
| **1** | Broadcast Receivers | ICT | 1 | T1,T2,R1 | 4/5/2023 |
| **2** | Services and notifications,Alarms | ICT | 1 | T1,T2,R1 | 5/05/2023 |
| **3** | Custom Components: Custom Tabs | ICT | 1 | T1,T2,R1 | 9/05/2023 |
| **4** | Custom animated popup panels | ICT | 2 | T1,T2,R1 | 10/05/2023 |
| **5** | Services: Overview of services in Android, | ICT | 1 | T1,T2,R1 | 11/05/2023 |
| **6** | implementing a Service | ICT | 1 | T1,T2,R1 | 12/05/2023 |
| **7** | Service lifecycle | ICT | 1 | T1,T2,R1 | 16/05/2023 |
| **8** | Inter Process Communication (AIDL Services) | ICT | 2 | T1,T2,R1 | 17/05/2023 |
|  |  |  | 10 PERIODS |  |  |
| **Unit 5:** | | | | | |
| **1** | Introduction Kotlin | ICT | 1 | T1,T2,R1 | 18/05/2023 |
| **2** | Intelli-j features | ICT | 1 | T1,T2,R1 | 19/05/2023 |
| **3** | Structure of Kotlin Programming | ICT | 1 | T1,T2,R1 | 22/05/2023 |
| **4** | Convert Main Activity to kotlin Code | ICT | 1 | T1,T2,R1 | 23/05/2023 |
| **5** | Operators, Data types,Variables | ICT | 1 | T1,T2,R1 | 24/05/2023 |
| **6** | Conditionals ,Lists and arrays | ICT | 2 | T1,T2,R1 | 25/05/2023 |
| **7** | Null safety. Functions | ICT | 1 | T1,T2,R1 | 26/05/2023 |
| **8** | Classes & Objects, Extensions | ICT | 1 | T1,T2,R1 | 30/05/2023 |
| **9** | Your first app ,Anatomy of an Android app | ICT | 2 | T1,T2,R1 | 31/06/2023 |
| **10** | Layouts and resources in Android Activities | ICT | 1 | T1,T2,R1 | 01/06/2023 |
| **11** | Gradle: Building an Android app in kotlin | ICT | 1 | T1,T2,R1 | 02/06/2023 |
|  |  |  | 12 PERIODS |  | **69 CLASSES** |

**18. Content beyond the Syllabus**

|  |  |  |
| --- | --- | --- |
| **S. No.** | **Topics covered beyond the syllabus** | **COs Mapped** |
| **1** | Android based function generator | Apply |
| **2** | Android Bluetooth based chatting | Apply |
| **3** | Android UI Testing | Apply |

# Course Coordinator Head of the Department

# Dr.B.Hari chandana