**COURSE PLAN**

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| **Course Title:** | Application Development and Emerging Technology | **Course Credit:** | 3 units (18 weeks, 36 hours(LEC)/54 hours(LAB)) |
| **Course Code:** | IT119 | **Prerequisite:** | IT116 |

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| **Module Number and Title** | **Topic Outline** | **Learning objectives** | **Learning resources** | **Learning activities/tasks** |
| Module 1 - Lightweight Storage | * Shared   Preferences   * Bytes | At the end of these weeks, the student is expected to:   * a. differentiate the function and proper usage of shared preferences and bytes * utilize lightweight storage in keeping user credentials in mobile application | Google DevelopersSharedPreferences 2020-09-30  <https://developer.android.com/reference/android/content/SharedPreferences>  Google Developers  Bytes  2019-12-27  tinyurl.com/y5y5bto5 | * Independent reading and review on the implementation of lightweight storage on developing mobile applications * Viewing of video tutorials on lightweight storage * Facilitating scaffold learning in performing hands-on activity |
| Module 2 – SQLite Local Database | * SQLite Overview * 4 Basic Database Functions * Create function * Add function * Update function * Delete function | At the end of these weeks, the student is expected to:   * understand how SQLite database works in android * apply the four basic functions in database using SQLite | Lars Vogel (c) 2014 - 2020 vogella GmbH  Using the Room framework as SQL object mapping library  15:09 22. Sep 2020  <https://www.vogella.com/tutorals/AndroidSQLite/article.html> | * Independent reading substantiated by watching short clips for every SQLite sub function * Facilitating student collaboration in performing hands-on activity |
| Module 3 -Telephony | * Short Message Service * Call/Dial | At the end of these weeks, the student is expected to:   * be familiar with the basic mobile functions like messaging and dialing * manipulate the basic functions and create a dynamic application that utilizes them | Google Developers TelephonyManager 2020-09-30  https://developer.android.com/reference/android/telephony/TelephonyManager | * Providing home reading and online links regarding telephony * Sharing discussions on the telephony functions * Facilitate self-taught instruction on creating mobile application with telephony functions. |
| Module 4 -Android 6 Runtime Permission | * Manifest * Self-Permission | At the end of these weeks, the student is expected to:   * be familiar with the minimum requirements of Google Play store and Application * determine the location of the code entities when building the project. | Google Developers Request App Permissions 2020-09-08  https://developer.android.com/training/permissions/requesting | * Independent reading and review on android runtime permission * Creating mobile application with runtime permission incorporated |
| Module 5 - Network Manager | * Connectivity Manager * Broadcast Receiver * Network Information | At the end of these weeks, the student is expected to:   * recognize the importance of network connectivity in data exchange * differentiate network connection types in android * utilize the network manager in creating applications that use network connections | Lars Vogel (c) 2014 - 2020  Overview of network access on Android  15:09 22. Sep 2020  https://www.vogella.com/tutorials/AndroidNetworking/article.html | * Independent reading substantiated with watching video tutorials on network management * Creation of mobile application that utilizes network manager |
| Module 6  - Introduction to Application Program Interface (API) | * Google Map * Google Play Services | At the end of these weeks, the student is expected to:   * integrate maps in mobile applications * use Google map to provide the necessary resources such as API key | Lars Vogel (c) 2014 - 2020  Google Maps  15:09 22. Sep 2020  https://www.vogella.com/tutorials/AndroidGoogleMaps/article.html | * Providing home reading and online links on the integration of Google Maps through API * Navigating through the Google Service to generate API key needed in map integration * Creating a mobile application that displays a map |
| Module 7- Google Maps | * Map Shapes * Map Types | At the end of these weeks, the student is expected to:   * understand map integration and the functions it has that a developer can utilize * differentiate the shapes and types of map to be presented | Google Developers  Shapes  2020-09-30  https://developers.google.com/maps/documentation/android-sdk/shapes | * Recording a demonstration that features a map shape or type * Formative assessment through a quiz using Kahoot or Gimkit |
| Module 8 - Database | * Local Database through XAMPP * Online Database through Cloud Hosting | At the end of these weeks, the student is expected to:   * apply database management through the use of mobile application * use local and online database as repositories * appreciate the use of databases on fetching data for mobile applications | Simplified Coding  Android PHP MySQL Tutorial Series  Nov 25, 2016  https://tinyurl.com/y5cfu5t8 | * Independent reading substantiated by watching series of short video clips on applying database management on mobile applications * Creating a mobile application that fetches data from database |
| Module 9 - JavaScript Object Notation (JSON) | * JSON Schema * JSON Format * JSON Validation * POJO | At the end of these weeks, the student is expected to:   * be familiar with the JSON Library * validate the data using the JSON Schema | Square  A type-safe HTTP client for Android and Java  2020-9-10  https://square.github.io/retrofit/ | * Independent reading and review on JavaScript Object Notation * Collaborating on the validation of the data in JSON format |
| Module 10- HTTP Application Program Interface | * Retrofit Library * Gradle * API Interface * API * Middleman | At the end of these weeks, the student is expected to:   * understand the utilization of Retrofit Library * implement the library in the development of android applications | Square  A type-safe HTTP client for Android and Java  2020-9-10  https://square.github.io/retrofit/ | * Independent reading and review on the Retrofit Library by Square * Sharing discussion on the implementation of Retrofit on mobile devices |
| Module 11 -Android Package Building | * Generate Signed APK * Generate Keystore | At the end of these weeks, the student is expected to:   * be familiar with the process of creating a signed android package | Google Developers  Sign your app  2020-08-25  https://developer.android.com/studio/publish/app-signing | * Sharing discussion on creating signed APK * Providing home reading and online links on building android package |
| Module 12- Application Publishing and Versioning | Google Play Console   * Developer Account * Play Store Requirements * Play Store Policies * Application Reviews | At the end of these weeks, the student is expected to:  a. be familiar with the Google Play Console  b. identify the requirements needed in publishing an application in Google Play  c. understand and adhere to the policies set by Google for the developed application | Google Developers  Google Play Console  2020-9-10  https://tinyurl.com/yxllugvh | * Facilitate scaffold learning on navigating in the Google Play Console * Creating content, form function outlines of the policies set by Google in publishing developed mobile applications |

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