KAZAKH-BRITISH TECHNICAL UNIVERSITY

JSC «Kazakh-British Technical University»
School of IT and Engineering

APPROVED BY
Dean of SITE
Azamat Imanbayev
«08» January 2024

SYLLABUS

Discipline: Android Development. Spring
Number of credits: 3
Course code - INFT3135
Term: Spring 2024
Instructors full name: Amangeldi Daniyar

Personal Information about the Instructor	Time and place of classes		Contact information
	Lessons	Office Hours	e-mail
Amangeldi Daniyar	According to the schedule	Will be appointed	da_amangeldi@kbtu.kz

COURSE DURATION: 3 credits, 15 weeks, 45 class hours

COURSE DESCRIPTION

This Android Development course provides a comprehensive introduction to the fundamentals of mobile app development using Kotlin. Covering essential topics such as UI design, Android components, networking with Retrofit, asynchronous programming with Coroutines, integration of Firebase services, and the release process, students will gain a solid understanding of building basic Android applications from scratch. Through hands-on projects and practical exercises, participants will acquire the necessary skills to create functional and efficient Android apps.

COURSE OBJECTIVES

1. **Mastering Kotlin for Android Development:** Develop a strong foundation in Kotlin, the modern programming language for Android, enabling students to write clean, concise, and effective code for mobile applications.
2. **Building User Interfaces and Navigations:** Gain proficiency in designing and implementing intuitive Android user interfaces using various views and view groups, and understand the principles of navigation through activities and fragments.
3. **Data Handling and Networking:** Learn to integrate essential Android components such as RecyclerView, Retrofit, and Coroutines for efficient data handling and network requests, ensuring smooth interactions with APIs and enhancing the overall user experience.

COURSE OUTCOMES

1. **App Development Proficiency:** By the end of the course, students will be capable of independently designing and implementing basic Android applications, showcasing proficiency in Kotlin programming, user interface development, and effective utilization of Android components.
2. **Project-Based Skills:** Acquire hands-on experience through real-world projects, including integrating networking functionalities with Retrofit, implementing responsive UIs with RecyclerView, incorporating Firebase services, and successfully navigating the app release process, ensuring students are well-prepared for practical challenges in Android development.

LITERATURE

1. Android Fundamentals: https://developer.android.com/
2. Kotlin Documentation: https://kotlinlang.org/docs/home.html
3. Online platform for learning mobile development: https://www.kodeco.com/android/paths/learn

Course assessment criteria

Assessment occurs continuously throughout the course. The evaluation will be based on the levels of (maximums in %):

Type of activity	Final scores
Midterm	**15%**
Endterm	**15%**
Practice works	**30 %**
Final exam*	**40%**
Total	**100%**

*Students who get more points than the required maximum for in-class, final testing are awarded bonus points in the amount exceeded.

COURSE CALENDAR

Week	Class work			SIS (students independent study	TSIS (teacher supervised independent study)
	Topic	Lectures	Practice		
1	**Introduction to Android** • Kotlin Basics: syntax, types, classes, objects, functions, null safety, style guide • OOP in Kotlin	2	1		
2	**First Android Application** • Creating Android Project • Android UI: View and ViewGroup	2	1		
3	**Android Components #1** • Activity and lifecycle • Intent	2	1		
4	**Android List** • RecyclerView • Creating simple application with list	2	1	Lab1	
5	**Fragment** • Fragment lifecycle • Fragment manager and simple navigation	2	1		
6	**Single Activity Application** • Extended application logic	2	1		
7	**Android Networking** • Retrofit, OkHttp • Making network requests • Serialization	2	1		
8	**Midterm Exam**			Lab2	
9	**Android Networking Extended** • CRUD requests • Exception handling • Using TMDB API	2	1		
10	**Android Libraries** • Material • Glide, Lottie	2	1		
11	**Architecture pattern MVVM** • Creating MVVM application • ViewModel • LiveData	2	1		

12	**Multithreading** • Kotlin Coroutines	2	1		
13	**Android Components #2** • Service • Broadcast Receiver	2	1		
14	**Creating Custom Views** • ViewGroup extending • Multi-state views	2	1	Lab3	
15	**Firebase** • Crashlytics, Analytics • RemoteConfig • RealtimeDatabase	2	1		
14	**App Release** • Google Play Console • App signing	2	1		
15	**Endterm Exam**	2	1		
16-17	**Final Exam**				

Class sessions – will be a mixture of information, discussion and practical application of skills.

Practice – will reinforst the students knowledge by practical appliance of lectured materials.

In-class assessment – will prepare students for their mid-term and final assessment and identify the competence level they have achieved on a related subject matter, the aim being to diagnose potential discrepancies in students' understanding and performance in order to make specific adjustments to the course content and procedures and/or to assign additional assignments to certain individuals or the whole group.

Home assignments – will consolidate the concepts and materials taken during in-class activities, help students to expand the content through diverse background resources and/or practise certain skill areas; they will also develop the students' ability to work individually in exploring and examining related issues.

SIS (Student Independent Study) – comprises group Project to be done by students on the independent basis. Students are supposed to use knowledge and skills acquired in class to do the project. Assistance and advice will be provided by teachers during office hours.

TSIS (Teacher Supervised Student Independent Study) – student self-made project.

End-term test – a diagnostic test used to identify the students' progress, their strengths and weaknesses, intended to force student to prepare for Final Exam. It includes computer based test.

Final examination – 1) an attainment test designed to identify how successful the students have been achieving objectives.

Grading policy:
Intermediate attestations (on 8th and 15th week) join topics of all lectures, practice, laboratories and materials for reading discussed to the time of attestation. Maximum number of points within attendance, activity, laboratories for each attestation is 30 points.
Final exam joins and generalizes all course materials, is conducted in the the form of a group project defense, which is a completed Android application. Maximum number of points is 40. At the end of the semester you receive overall total grade (summarized index of your work during semester) according to conventional KBTU grade scale.

Attention!

1) If a student misses more than 30% of the classes in the discipline, an "F" grade is given for the discipline.
2) If for two attestations student receives 29 or less points, this student is not accepted to final exam and for all course he (she) receives «F (Fail)» grade;
3) If student receives on final exam 19 or less points, then independently on how many points he (she) received for two attestations, in whole he (she) receives «F (Fail)» grade;

In the case of missing or being late for final exam without plausible reason, independently on how many points he (she) received for two attestations, in whole he (she) receives «F (Fail)» grade.

Academic Policy:

- Cheating, duplication, falsification of data, plagiarism are not permitted under any circumstances!
- Students must participate fully in every class. While attendance is crucial, merely being in class does not constitute "participation". Participation means reading the assigned materials, coming to class prepared to ask questions and engage in discussion.
- Students are expected to take an active role in learning (the instructor will provide the information and guidelines to do this).
- Students must come to class on time.
- Students are to take responsibility for making up any work missed.
- Make up tests in case of absence will not normally be allowed.
- Mobile phones must always be switched off in class.
- Students should always show tolerance, consideration and mutual support towards other students.

Students are encouraged to

- consult the teacher on any issues related to the course;
- make up within a week's time for the works undone for a valid reason without any grade deductions;
- make any proposals on improvement of the academic process;
- track down their continuous rating throughout the semester.

Minutes #34 of School of Information Technology and Engineering meeting on January 8, 2024