

**JSC «Kazakh-British Technical University»  
Faculty of Information Technology  
Chair of Information Systems Management**

**APPROVED BY**  
**Dean of FIT**  
**Suliyev. R. N.** \_\_\_\_\_  
«\_\_\_\_» \_\_\_\_\_ 2020.

**SYLLABUS**

**Discipline:** CSE1350 Продвинутый Android

**Number of credits:** 3 (2/0/1)

**Term:** Fall 2020

**Instructor's full name:** Aibek T. Kuralbayev

Personal Information about the Instructor	Time and place of classes		Contact information	
	Lessons	Office Hours	Tel.:	e-mail
Aibek T. Kuralbayev Senior Lector	According to the schedule	According to the schedule	8701222582 7	aibekkuralbaev@gmail.com

**Course duration:** 3 credits, 15 weeks (60 class hours)

**Course pre-requisites:** any programming languages course.

**Course Objectives:**

Tools and APIs required building applications for the Android platform using the Android SDK. User interface designs for mobile devices and unique user interactions using multi-touch technologies. Object-oriented design using model-view-controller paradigm, memory management, Java (Kotlin) programming language. Other topics include: object-oriented database API, animation, multi-threading and performance considerations.

**Course Goals:**

Give students basic knowledge of Java programming language, its' data types etc.

Give students knowledge about Java (Kotlin) programming language, MVC, MVP and MVVM design patterns and basic practice of object-oriented programming.

At the end of this course students should be able to create Android mobile applications in structured, object-oriented code.

**Literature:**

**Required:**

1. Neil Smyth. Android Studio Development Essentials - Android 6 Edition, 2016.
2. Robert C. Martin. Clean Code: A Handbook of Agile Software Craftsmanship 1st Edition, 2009.

**Supplementary(online-source):**

1. <https://developer.android.com/studio/index.html>
2. <https://developer.android.com/guide/topics/ui/declaring-layout.html>
3. <https://developer.android.com/guide/components/activities/activity-lifecycle.html>
4. <https://developer.android.com/training/material/lists-cards.html>
5. <https://developer.android.com/guide/topics/data/data-storage.html>
6. <http://square.github.io/retrofit/>
7. <https://habrahabr.ru/post/314028/>
8. <https://medium.com/@ankushaggarwal/gcm-setup-for-android-push-notifications-656cfd8adbd>
9. <https://developer.android.com/topic/libraries/data-binding/index.html>
10. <http://blog.danlew.net/2014/09/15/grokking-rxjava-part-1/>
11. <https://android.jlelse.eu/android-mvp-doing-it-right-dac9d5d72079>
12. <https://medium.com/upday-devs/android-architecture-patterns-part-3-model-view-viewmodel-e7eeee76b73b>

**COURSE CALENDAR**

Week	Class work					SIS (students independent study)		TSIS (teacher supervised independent study)	
	Topic	Lectures, hours	Labs, hours	Seminars, hours	Chapters for reading	Hours	Description	Hours	Description
1	<b>Lecture #1. Introduction.</b> Android Studio IDE. Hello World application.	2	2	0	[1] Ch1,2,3	2		4	
2	<b>Lecture #2. Layout. Widgets.</b> FrameLayout, LinearLayout, RelativeLayout, ConstraintLayout	2	2	0	[1] Ch9, 10	2	Lab #1	4	

3	<b>Lecture #3. Lists. File processing. Media player</b>  Creating Lists using RecyclerView. RecyclerView Adapters. Working with files and media in Androids	2	2	0	[1] Ch 23, 24, 25	2	Lab #2	4	
4	<b>Lecture #4. Intents. Activity lifecycle.</b>  Intent types. Activity lifecycle methods. Bundles. Parcelables	2	2	0	[1] Ch 28, 29, 30	2	Lab #3	4	
5	<b>Lecture #5. Dynamic UI. Dialogs. Fragment.</b>  Creating dynamic UI with Java. Working with Dialog types. Fragments and lifecycle.	2	2	0	[1] Ch 16, 17	2	Lab #4	4	
6	<b>Lecture #6. Android libraries.</b>  Animations. Picasso. ButterKnife. Ion. Bootstrap. SwipeStack. .	2	2	0	Online source [6, 7, 10, 11]	2	Lab #5	4	
7	<b>Lecture #7. Login. Text-to-speech. Camera. RESTful APIs</b> MediaPlayer. User Login example. HttpURLConnection. JSONObject.	2	2	0	[1] Ch 45	2	Lab #6	4	
8	<b>Lecture #8. Local Databases and SQL.</b> SQLite, Realm Remote Databases and Firebase.	2	2	0	[1] Ch 37, 38, 39	2	Preliminary Project Version	4	Assignments of Student Project
9	<b>Lecture #9. 2D Graphics and Animation.</b>  Drawing with 2D graphics. Animations in Android	2	2	0	[1] Ch 18, 19	2	Lab #7	4	
10	<b>Lecture #10. 2D Graphics and Event Handlers</b>  Handle events in 2D graphics (Gesture, Motion and Touch events)	2	2	0	[1] Ch 14, 15	2	Lab #8	4	

11	<b>Lecture #11. Services and Notifications</b>  Push Notifications (FCM and GCM). Background Services. BroadcastReceivers.	2	2	0	[1] Ch. 31, 33	2	Lab #9	4	
12	<b>Lecture #12. Internationalization and Localization.</b>  Generalizing app's code so that it is not hard-coded to one language. Translating internationalized software for a specific language.	2	2	0	[1] Ch. 23	2	Lab #10 Preliminary Project Version	4	Checkpoint
13	<b>Lecture #13. Clean Code</b>  Clean Software development. KISS design pattern.	2	2	0	[2] Ch. 1, 2,3	2	Lab #11	4	
14	<b>Lecture #14. MVP and MVVM for Android.</b>	2	2	0	Online source [11, 12]	2	Lab #12	4	Project Defense
15	<b>Lecture #15. Project presentations</b>	2	2	0	All chapters	2		4	
	<b>Final Exam</b>						<b>In written form</b>		
	<b>Total</b>	<b>30</b>	<b>30</b>	<b>0</b>		<b>30</b>		<b>60</b>	

#### COURSE ASSESSMENT PARAMETERS

Type of activity	Final scores
Laboratory works	30%
Project	30%
Final exam	40%
<b>Total</b>	<b>100%</b>

**Criteria for evaluation of students during semester:**

	Assessment criteria	Weeks																Total scores
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16-17	
1.	Laboratory works		*	*	*	*	*	*	*	*	*	*	*	*	*	*		30%
3.	Project								*							*		30%
5.	Final exam																*	40%
	<b>Total</b>																	<b>100%</b>

**Academic Policy**

KBTU standard academic policy is used.

- Cheating, duplication, falsification of data, plagiarism, and crib are not permitted under any circumstances!

- Attendance is mandatory.

**Attention.** Missing 20% attendance to lessons, student will be taken from discipline with filling in F (Fail) grade.

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.
- Written assignments (independent work) must be typewritten or written legibly and be handed in time specified. Late papers are not accepted!
- Students must arrive 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 be appropriately dressed (in a formal/semi-formal style).
- Students should always show tolerance, consideration and mutual support towards other students.