JSC «Kazakh-British Technical University»
Faculty of Information Technology
Department of Electrical Engineering and Computer Science

APPROVED BY
Dean of FIT

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«____»_____ 20__.

SYLLABUS

Discipline: Web Development
Number of credits: 4
Term: Spring 20__
Instructors full name: Bobur Mukhsimbayev, Aibek Kuralbayev

Personal Information about the Instructor	Time and place of classes		Contact information
	Classes	Office Hours	e-mail
Bobur Mukhsimbayev	According to the schedule	Room 184, will be appointed	b.mukhsimbaev@kbtu.kz
Aibek Kuralbayev	According to the schedule	Room 184, will be appointed	a.kuralbaev@kbtu.kz

COURSE DURATION: 4 credits, 15 weeks

COURSE DESCRIPTION

This course is designed to introduce students to modern Web Development. Especially, for client side - Angular and for server side - Django frameworks.

Angular is a platform and framework for building client applications in HTML and TypeScript. Angular is written in TypeScript. It implements core and optional functionality as a set of TypeScript libraries that you import into your apps.

Django is a web development framework that assists in building and maintaining quality web applications. Django helps eliminate repetitive tasks making the development process an easy and time saving experience. This course gives a complete understanding of Django.

This course is designed for developers who want to learn how to develop quality web applications using the smart techniques and tools offered by Angular and Django. Besides this, students will learn how to solve real world problems from industry.

COURSE OBJECTIVES

The objective of this course is to provide the student with real world tasks from industry and find the best solution for them and work in a team.

COURSE OUTCOMES

In the end of the current course students will know:

- HTML(5), CSS(3), JavaScript
- Node Package Manager (npm)
- Angular Modules, Components, Services, Interfaces

- JavaScript, TypeScript
- Have an intermediate skill level of Python programming.
- Web application architecture, how web works
- Understand steps of web app development
- Build websites using Django
- How to create a local development server from scratch
- How to build your own browsable, self documenting REST API
- Working with Django Templates

COURSE POST REQUISITES

Knowledge and skills obtained during study of course Web Development are used in following courses: Programming Technologies, Object-Oriented Programming, Foundation of Web development.

LITERATURE

1. https://github.com/getify/You-Dont-Know-JS/blob/2nd-ed/README.md
2. https://eloquentjavascript.net/
3. https://github.com/kamranahmedse/developer-roadmap
4. https://www.w3schools.com/html/
5. https://html5andcss3.org/
6. https://github.com/airbnb/css
7. https://angular.io/
8. https://peps.python.org/pep-0008/
9. https://www.learnpython.org/
10. https://www.codecademy.com/learn/learn-python
11. https://docs.djangoproject.com/
12. https://django-book.readthedocs.io/
13. https://www.django-rest-framework.org/
14. https://tutorial.djangogirls.org/en/
15. https://djangoforbeginners.com

Week	Class work		Laboratory works
	Topic	Lecture	
1	**Introduction to Web Development:** ● What is the website? ● How does the Web work? ● Technologies in both client and server side ● Framework & Library ● Back-End framework comparison ● Basic techniques for scaling ● What is the API?	1	*1. Laboratory work #1*
2	**Web development roadmap** ● Web development roadmap ● HTML Elements ● Element attributes ● HTML Forms ● HTML Forms Inputs ● CSS ● HTML5/CSS3	2	*1. Laboratory work #2*
3	**JavaScript** ● JavaScript Standards	3	*1. Laboratory work #3*

	• Data Types • Variable scoping • Functional Programming • JSON • DOM • Event handling • HTML Element manipulating		
4	**Introduction to Angular.** • What is the Goal of Angular? • Angular CLI • JavaScript & Typescript	4	*1. Laboratory work #4*
5	**Angular Components** • Properties • Data Binding • Templates • Styles • Life-cycle hooks	5	*1. Laboratory work #5*
6	**Modules, Router Module** **Getting Data From RESTful APIs** • Reactive Programming • Services • Observables	6	*1. Laboratory work #6*
7-8	***Quiz 1***		*Laboratory work defense*
9	**Introduction to Python PL, Django:** • Python programming language • What is Django? • Django project structure • Django configurations file (settings.py) • Django router file (urls.py) • Django Web Server Gateway Interface (wsgi.py)	9	*1. Laboratory work #7* *2. Project*

10	**Building REST APIs With Django REST Framework:**
	• Fundamentals of Basic REST API Design
	• REST API Architecture
	  ○ Grouping API URLs
	  ○ Version Your API
		10	*1. Laboratory work #8*
			2. Project

11	**Generic Views, Sessions, Users, and Registration** • Using Generic Views • Generic Views of Objects • Django's Session Framework • Users and Authentication	11	*1. Laboratory work #9* *2. Project*
12	**DRF Serialization** • Creating a Serializer class • Working with Serializers • Types of Serializer classes • Simple Serializer class • ModelSerializers	12	*1. Laboratory work #10* *2. Project*

	• Writing regular Django views using our Serializer		
13	**DRF Requests and Responses:** • Request objects • Response objects • Status codes • Wrapping API views • Pulling it all together **Authentication:** • Adding endpoints for our User models • Adding required permissions to views • Adding login to the Browsable API • Authenticating with the API	13	*Quiz 2* *1. Laboratory work defense*

14	**Interacting with a Database: Models, The Django Administration Site:**
	• The MTV Development Pattern
	• Configuring the Database
	• Defining Models in Python
	• Inserting and Updating Data
	• Selecting Objects
	  ○ Filtering
	  ○ Ordering
	  ○ Slicing
	• Deleting Objects
	• Making Changes to a Database Schema
	• Activating the Admin Interface
		14	*Quiz 3*
			1. Project defense (front part)

15	*Project defense*		*Quiz 4* *1. Project defense 100%*
16-17	Final Exam		

COURSE ASSESSMENT PARAMETERS

Type of activity	Final scores
Quiz 1 (Lab defense)	20%
Quiz 2 (Lab defense)	20%
Quiz 3 (Project defense: front)	7%
Quiz 4 (front + back)	13%
Final exam	40%
Total	**100%**

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	
1.	Quiz 1							*	*									20%
2	Quiz 2													*				20%
2	Quiz 3														*			7%
3	Quiz 4															*		13%
2.	Practice work	*	*	*	*	*	*			*	*	*	*					0%
3.	Final exam																*	40%
	Total																	**100%**

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, students 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.