KBTU KAZAKH-BRITISH TECHNICAL UNIVERSITY

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

APPROVED BY
Dean of SITE

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«____»__________ 20__.

SYLLABUS

Discipline: Web Development
Number of credits: 4
Term: Spring 20__
Instructors: 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

MS Teams group code: zkp3z4s

COURSE DURATION: 4 credits, 15 weeks

COURSE DESCRIPTION

This course is designed to introduce students to modern Web Development, especially, for the client-side - Angular and 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

This course aims to provide students with real-world tasks from industry and find the best solution for them and work in a team.

COURSE OUTCOMES

At the end of the current course, students will be familiar with:

- HTML(5), CSS(3), JavaScript
- Node Package Manager (npm)
- Angular Modules, Components, Services, Interfaces
- JavaScript, TypeScript
- Have an intermediate skill level in Python programming.
- Web application architecture, how the web works
- Understand the 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 the study of the course Web Development are used in the following courses: Programming Technologies, Object-Oriented Programming, and 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://github.com/airbnb/css
6. https://angular.dev/
7. https://peps.python.org/pep-0008/
8. https://www.learnpython.org/
9. https://docs.djangoproject.com/
10. https://www.django-rest-framework.org/
11. https://tutorial.djangogirls.org/en/

Week	Classwork		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 ● Data Types ● Variable scoping ● Functional Programming ● JSON ● DOM ● Event handling ● HTML Element manipulating	3	*1. Laboratory work #3*
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	***Quiz 1 - defense of labs [1-5]***		***Quiz 1 - defense of labs [1-5]***
8	***Lecturers will proctor on practice lesson***		***Quiz 2 - aka Midterm***
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 **DRF Serialization** ● Creating a Serializer class ● Working with Serializers	11	*1. Laboratory work #9* *2. Project*

	• Types of Serializer Classes • Simple Serializer class • ModelSerializers • Writing regular Django views using our Serializer		
12	**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 a login to the Browsable API • Authenticating with the API	12	*1. Laboratory work #10* *2. Project*
13	**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	13	***Quiz 3*** ***1. Defense of labs [6-10]***
14	***Lecturers will proctor on practice lesson***		***Quiz 4 - aka Midterm***
15	***Quiz 5 - Project defense***		***Quiz 5 - Project defense***
16-17	Final Exam		

COURSE ASSESSMENT PARAMETERS

Type of Activity	Final scores
Quiz 1: Lab defense 1-5	15%
Quiz 2 aka Midterm	10%
Quiz 3: Lab defense 6-10	15%
Quiz 4: aka Endterm	10%
Quiz 5: Project defense	10%
Final exam	40%
Total	**100%**

Criteria for evaluation of students during the 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							*										15%
2	Quiz 2								*									10%
2	Quiz 3													*				15%
3	Quiz 4														*			10%
4	Quiz 5															*		10%
5	Practice work	*	*	*	*	*	*			*	*	*	*					0%
6	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 30% attendance to lessons, students will be taken from discipline by filling in an 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 engaging in discussion.
- **For the whole duration of the semester, MS Teams is used as the main communication tool. Read channels, teams, and messages daily.**
- Students are expected to take an active role in learning.
- Written assignments (independent work) must be typewritten or written legibly and be handed in the 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.

Minutes #_ of the School of Information Technology and Engineering meeting on January 8, 20__