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

APPROVED BY
Dean of FIT

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«____»_____ 20__

SYLLABUS

Discipline: Programming Principles 2
Number of credits: 4 (2/0/2)
Term: Spring 20__
Instructor's full name:

Personal Information about the Instructor	Time and place of classes		Contact information
	Lessons	Office Hours	e-mail
Beisenbek M. Baisakov	According to the schedule	According to the schedule	b.baisakov@kbtu.kz
Askar K. Akshabayev	According to the schedule	According to the schedule	a.akshabaev@kbtu.kz
Bobur A.Mukhsimbayev	According to the schedule	According to the schedule	b.mukhsimbaev@kbtu.kz
Roman V. Savoskin	According to the schedule	According to the schedule	r.savoskin@kbtu.kz
Arnur G. Kelgenbayev	According to the schedule	According to the schedule	a.kelgenbayev@kbtu.kz

Course duration: 4 credits, 15 weeks (60 class hours)
Course prerequisites: Programming Principles I

Course Description:

Objective of this course is to teach students how to use basic programming principles for creating console and desktop applications. This course uses Python as the main programming language. The course will teach students how to use Python core libraries like IO, Pygame, Serialization, Forms, Database and etc. to create applications. Students who successfully pass this course may expect to acquire firm grasp on programming principles.

Course Goals, Learning Outcome(s) and Outline:

- Learn the fundamentals of Python
- Work with primitive types and expressions
- Work with non-primitive types (classes, structs, arrays and enums)
- Learn the difference between value types and reference types
- Control the flow of programs using conditional statements
- Use arrays and lists
- Work with files and directories
- Work with text
- Work with date and time
- Debug Python applications effectively
- Understand the problems with inheritance and how composition solves these problems
- Learn how to create Graphical User Interface Elements

Methodology:
Class discussion, class assignments, A/V presentation, real-life experience, classroom exercises, and self-study.
Materials:

1) https://www.w3schools.com/python/default.asp
2) Python documentation - https://docs.python.org/
3) Pygame documentation - https://www.pygame.org/docs/

COURSE CALENDAR

Class work	
Topic	**Seminars and TSIS**
L1. Python fundamentals. 1. Python Intro 2. Python User Input 3. Python Get Started 4. Python Syntax 5. Python Comments 6. Python Variables 7. Python Data Types 8. Python Numbers 9. Python Casting 10. Python Strings 11. Python String Formatting 12. Python Booleans 13. Python Operators 14. Python If...Else 15. Git	**TSIS 1**

L2. Python fundamentals. 1. Python While Loops 2. Python Lists 3. Python For Loops 4. Python Arrays 5. Python Tuples 6. Python Sets 7. Python Dictionaries	**TSIS 2**
L3. 1. Python Functions 2. Python Lambda 3. Python Classes and Objects. 4. Python Inheritance	**TSIS 3**
TSIS 1 + TSIS 2 + TSIS 3 defense	
L4. 1. Python Iterators, Generators 2. Python Scope 3. Python Modules 4. Python Dates 5. Python Math 6. Python JSON	**TSIS 4**
L5. **Regex in Python** Using Regex to search and match string patterns in text. 1. Metacharacters 2. Special Sequences 3. compile function	**TSIS 5**
L6. **Directories and files.** 1. Python File Handling 2. Python Read Files 3. Python Write/Create Files 4. Python Delete Files 5. Working with directories **Python builtin functions.** 1. Builtin function of python.	**TSIS 6**
TSIS 4 + TSIS 5 + TSIS 6 defense	
L7. Pygame 1. Getting Started 2. Working with Images 3. Music and Sound Effects 4. Geometric Drawing 5. Timer	**TSIS 7**
L8. Pygame 1. Fonts and Text 2. More on Input 3. Centralized Scene Logic 4. Game Creation	**TSIS 8**
L9. Pygame. 1. Snake. 2. Paint.	**TSIS 9**

TSIS 7 + TSIS 8 + TSIS 9 defense	
L10. Databases Saving data to database. Reading from the database. Updating and deleting data in the database.	**TSIS 10**
L11. Databases Additional topics	**TSIS 11**
TSIS 10 + TSIS 11 defense	
Exam	

COURSE ASSESSMENT PARAMETERS

Type of activity	Final scores
Github submission	11%
Practice defense	49%
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.	Github submission	*	*	*		*	*	*		*	*	*		*	*			11%
2.	Practice defense				*				*				*			*		49%
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.