KAZAKH-BRITISH TECHNICAL UNIVERSITY

Faculty of Information Technology

Department of Electrical Engineering and Computer Science

APROVED BY

A. Akzhalova

FIT DEAN

«____»_____2017

SYLLABUS

Programming Technologies

3 CREDITS

Spring 2017

Spring semester

Personal Information	Time and place of classes		Contact Information	
	Lectures:	Office hours	Ph.:	e-mail:
senior-lecturer Yesmukhanov Dauren		will be discussed with students.	+77015209278	yesdauren@gmail.com

The syllabus is adopted from B.Baisakov assos.prof.'s syllabus.

Course duration: 15 two hour lectures, 15 two hour laboratory works; 15 weeks;

Course pre-requisites: No prerequisites

Course Description:

The course goals and objectives:

After the completion of the course, students will learn how to do the following:

- Develop applications that use collections and tuples.
- Implement parallel services using multithreading and multiprocessing.
- Create own web crawlers.
- Import extended modules into own projects using packet manager (*pip*, *easy_install* etc).
- Using different APIs (vk.com, fb.com, telegram.org etc.) in own projects.
- Start to analyse, process and visualize data using SciPy.
- Write Telegram bot which communicates with other services.
- Write application with GUI.
- Draw charts and create images, and either display them as part of your application or save them to files.

Literature:

Required:

1. Learning Python, 5-th edition, Mark Lutz.
2. Python: Essential Reference, 4-th edition, David

Supplementary*:*

3. Interactive tutorial https://www.learnpython.org
4. Python CodeAcademy https://www.codecademy.com/learn/python
5. The Hitchhiker's Guide to Python http://docs.python-guide.org/en/latest/

Software:

1. Python 3, Python IDLE, Sublime Text 3

2. PyCharm optional

Course Calendar 2010 Spring Semester

Weeks	Credit Hours	Class activity	
		Topic	**Assignments**
1	3	Preface. Course introduction and review. Introduction to Python language: basic syntax, interactive shell, mutable\immutable variables, duck-typing.	Lab #1
2	3	Input/Output. Text files. String functions.	Lab #2
3	3	String encoding. Search and regular expressions.	Lab #3
4	3	Lists, tuples, and dictionaries	Lab #4

5	3	Design with functions. Program structure and design.	Lab #5
6	3	Networks and sockets. Understanding the Request/Response Cycle. Surf the Web.	Lab #6
7	3	Data serialization. Parsing XML, JSON and HTML.	Lab #7
8	3	Understanding REST architecture. Accessing APIs in Python. API Security and Rate Limiting.	Lab #8, Assignments of Student Project
9	3	Multithreading vs multiprocessing. Scrapy.	Lab #9
10	3	Simple Graphics with *turtle* module. Simple Image Processing with *image* module.	Lab #10

11	3	Graphical user interfaces with *tkinter* module.	Lab #11
12	3	SciPy: python libraries for mathematics, science and engineering.	Lab #12
13	3	Installing and Configuring Applications	Lab #13
14	3	Instrumentation. Test and debug. Logging.	
15	3	Application Security	Presentation of Student Project

Grading policy:

In percents

#	**Name**	**Percent**
1	Lab works	26%
2	Mid/End-term exam	20%
3	Student project	14%
4	Final Exam	40%

Lectures – Lectures and laboratory works will be approximately once a week. Lectures will cover the principles and methods of good programming and I will use PowerPoint for my lectures, the slides will be available online. Most of the core content of the course will be presented in lectures only therefore, attendance of all lectures is required, and you are responsible for all lecture and discussion content.

Assignments, lab works – will consolidate the concepts and materials mastered during in-class activities through solving various problems; they will be as mini problem to solve using mastered material; you will practice you knowledge gained during lessons in laboratory works

Class participation – will be home works, mini classroom projects, tests or case studies which are considered to be individual.

Student project –student project can be finished in group (max 2 student in one group). Theme of project will be given at the beginning of the course. By end of the course students should present to the class their work;

Mid-term exam – an assignment for identifying the students' progress, their strengths and weaknesses, intended to ascertain what further teaching is necessary. It may include multiple choices, true/false and essay questions from the material covered during the seven weeks and extra-points questions with higher level of complexity.

Final exam – comprehensive test designed to identify how successful the students have been achieving objectives. It may include multiple choices, true/false and essay questions and oral questions from the material covered during the whole semester.

	Type of Assessment	**Weeks**															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total
1	Lab works	2	2	2	2	2	2	2	2	2	2	2	2	2	-	-	26
2	Mid/End-term								10							10	20
3	Student Project								4							10	14
4	Final Exam																40
	Grand Total																100

Academic Policy:

- Cheating, duplication, falsification of data, plagiarism is not permitted under any circumstances!
- Attendance is mandatory. Students will be penalized for missing more than 10% of classes. 20% of classes missed without good reason will result in course failure.
- Regular class attendance is expected. Regular class attendance will contribute to success in the class. Please do your best to be in class and on time. If it is necessary to be late or leave early, please try not to disrupt the class unnecessarily.
- 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 show tolerance, consideration and mutual support towards other students.

Considered in meeting № _____ in «___»_____2017 year.

Author _____ *Yesmukhanov D..*

*Head of Department*_____*Bakibayev T.*