

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

APPROVED BY
Dean of FIT
Hadjiyev F. A. _____
«___» _____ 20__.

SYLLABUS

Discipline: Programming Principles 1

Number of credits: 3

Term: Fall 20__

Instructors full name: Askar Akshabayev, Beisenbek Baisakov, Bobur Mukhsimbayev

Personal Information about the Instructor	Time and place of classes		Contact information
	Classes	Office Hours	e-mail
Askar Akshabayev	According to the schedule	Room 262, will be appointed	askar.akshabayev@gmail. com
Beisenbek Baisakov	According to the schedule	Room 272, will be appointed	beysenbek@gmail.com
Bobur Mukhsimbayev	According to the schedule	Room 262, will be appointed	bobur.muhsimbaev@gma il.com

COURSE DURATION: 3 credits, 15 weeks, 60 class hours

COURSE DESCRIPTION

This course is designed to introduce students to Procedure Oriented Programming concepts on the assumption that they are not familiar with programming. Its main aim is to teach principle of programming using C++ rather than attempting to give complete exposition of all the features of C++.

COURSE OBJECTIVES

The objective of this course is to provide the student with the fundamental knowledge and skills to become a proficient C++ programmer.

COURSE OUTCOMES

Students will be exposed to basic hardware and software concepts and familiar with issues related to software design. They will master using key structured programming constructs: declarations, sequence, selection, repetition, evaluating expressions, be familiar with using C++ functions and the concepts related to good modular design. They will learn working with one-dimensional, two-dimensional arrays, C++ structures, pointers and reference parameters. Also they will be familiar with using text file input/output.

COURSE POST REQUISITES

Knowledge and skills obtained during study of course Programming Languages are used in following courses: Programming Technologies, Object-Oriented Programming, Algorithms and Data Structure.

LITERATURE

1. C++ How to Program, 8th Edition, H. M. Deitel, P. J. Deitel - Deitel & Associates, Inc., Prentice Hall.
2. C++ for Dummies 7th Edition, Stephen Randy Davis, Wiley Publishing, Inc.

3. Practical C++ Programming, Steve Oualline, O'Reilly & Associates, Inc.
4. C++: The Complete Reference fourth edition, Herbert Schildt, McGraw-Hill

Week	Class work			Laboratory works
	Topic	Lecture	Practice	
1	Introduction to C++: <ul style="list-style-type: none"> • Introduction to code structure • Compiling and executing program • Introduction to data types • Representing Numbers: int, double, float • Comments • Introduction to git, piazza 	2	2	<i>Laboratory work #1</i>
2	Variable and Data Types: <ul style="list-style-type: none"> • Introduction to numeric systems • freopen • Math library functions • Introduction to Char, String • Operators and Operands, value casting • Unary Operators • Binary operators • Bit Manipulations 	2	2	<i>Laboratory work #2</i>
3	Conditional Statements: <ul style="list-style-type: none"> • Logical Operators (and, or, xor, not) • Logical Comparisons • If else statement (nested if else statements) 	2	2	<i>Laboratory work #3</i>
4	Loop operators: <ul style="list-style-type: none"> • Loop code structure • For, while, do while statements • Dead loop, continue, break 	2	2	<i>Quiz and defence.</i>
5	Nested Loop statements: <ul style="list-style-type: none"> • Types of nested loops • Nested while loop • Nested for loop • Syntax of Nested loops 	2	2	<i>Laboratory work #4</i>
6	Arrays:	2	2	<i>Laboratory work #5</i>

	<ul style="list-style-type: none"> • What is Arrays • Types of Arrays • Array declaration • Accessing element of array • Searching In Array • Bubble Sort • Arrays as parameters to function 			
7	Two-Dimensional arrays: <ul style="list-style-type: none"> • Initializing Two-Dimensional Arrays • Accessing Two-Dimensional Array Elements • Multidimensional arrays 	2	2	<i>Laboratory work #6</i>
8	<i>Midterm and defence</i>	2	2	
9	String functions: <ul style="list-style-type: none"> • library string • arrays of characters • string manipulation functions • comparing strings 	2	2	<i>Laboratory work #7</i>
10	Introduction to Functions: <ul style="list-style-type: none"> • Function Definition • Custom functions, built-in functions • Returning a Value, void functions • Techniques of Passing Arguments 	2	2	<i>Laboratory work #8</i>
11	Introduction to Pointers Pointers: <ul style="list-style-type: none"> • Operations on Pointers • Passing Pointers to Functions • Pointers and Memory Management 	2	2	<i>Laboratory work #9</i>
12	Struct, header files: <ul style="list-style-type: none"> • Structure Definition • Syntax of structure • Structure variable declaration • Accessing members of a structure • Structures within structures • Passing structures to a function • Headers, and their purpose • Using standard library header files • Writing your own header files 	2	2	<i>Quiz and defence</i>

13	STL part 1: <ul style="list-style-type: none"> • Vector • Set • Map • Iterators 	2	2	<i>Laboratory work #10</i>
14	STL part 2: <ul style="list-style-type: none"> • Queue • Stack • Multimap, multiset • Next_permutation, sort 	2	2	<i>Laboratory work #11</i>
15	<i>Endterm and defence</i>	2	2	
16-17	Final Exam	2		Online contest format

Laboratories: The preparation to the laboratories is provided in the form of solving of typical problems according to the lectures topics.

Grading policy:

In percents

#	Name	Percent
1	Lab work	28%
2	Quiz	32%
5	Final Exam	40%

	Type of Assessment	Weeks															Total
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1	Lab work	2	2	2	4		2	2		2	2		4	3		3	28
2	Quiz				7				7				7			7	32
5	Final Exam																40
	<i>Grand Total</i>																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, 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.

Minutes # __ of Department of Electrical Engineering and Computer Science on , «__»_____, 20__.

Usage of current course in industry.