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

APPROVED BY
Dean of FIT
_____F. Hadjiev
«____»_____ 201__

SYLLABUS

Discipline: Programming Principles 1
Number of credits: 3
Term: Spring 2018
Instructor's full name: Raman Buzaubakov

Personal Information about the Instructor	Time and place of classes		Contact information	
	Lessons	Office Hours	Tel.:	e-mail
Raman Buzaubakov, MSc	According to the schedule	According to the schedule		raman.buzaubakov@gmail.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.

Couse 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

COURSE CALENDAR

Week	Class work			Laboratory works
	Topic	Lecture	Practice	
1	**Introduction to C++** • introduction to code structure • compiling and executing • program • introduction to data types • representing numbers: int, • double, float • comments • introduction to git, piazza	**2**	**2**	**Lab 1**
2	**Variable and Data Types** • Introduction to numeric systems • Math library functions • Introduction to Char, String • Operators and Operands, value casting • Unary Operators (-, ++, --, !, &, sizeof) • **Bit manipulations:** ○ Binary operators(and, or, xor, not) • selection statements: if {}; if {} else {} • iteration statements: for, while	**2**	**2**	**Lab 2**
3	**Arrays** • What is Array • Types of Arrays • Array declaration • Accessing element of array • Searching In Array • Bubble Sort • Arrays as parameters to function	**2**	**2**	**Lab 3**
4	**Two dimensional arrays** • Initializing Two-Dimensional Arrays • Accessing Two-Dimensional Array Elements • Multidimensional arrays **Nested Loop statements** • Syntax of Nested loops • Types of nested loops • Nested while loop • Nested for loop	**2**	**2**	**Lab 4**
5	**String functions:** • library string • arrays of characters • string manipulation functions • comparing strings	**2**	**2**	**Lab 5**
6	**Introduction to Functions:** • Function Definition • Custom functions, built-in	**2**	**2**	**Lab 6**

	functions • Returning a Value, void functions • Techniques of Passing Arguments			
7	**Introduction to recursion** • Sum & Factorial • Fibonacci sequence • Loops	**2**	**2**	**Lab 7**
8	**Midterm Exam**	**2**	**2**	**Midterm**
9	**Introduction to Pointers** • Operations on Pointers • Passing Pointers to Functions • Pointers and Memory Management	**2**	**2**	**Lab 8**
10	**STL Library** • Vector • Set	**2**	**2**	**Lab 9**
11	**STL Library** • Map • Stack • Queue • Dequeue	**2**	**2**	**Lab 10**
12	**Algorithm Library**	**2**	**2**	**Lab 11**
13	**Struct, header files:** • 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**	**Lab 12**
14	**Operator overloading** • binary arithmetic operators • relational operators	**2**	**2**	**Lab 13**
15	**Endterm Exam**	**2**	**2**	**Endterm**
	Total			
	Final Exam			

Course assessment parameters

Type of activity	1	2
Laboratory works	0	0
Midterm/Endterm	20	40
Attendance / participation	0	0
Final exam	40	
Total	**100**	

Criteria for evaluation of students during semester

No	Assessment criteria	Weeks															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
1.	Laboratory works	*	*	*	*	*	*	*		*	*	*	*	*	*		0
3.	Attendance / participation	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	0
4.	Midterm / end of term								*							*	60
5.	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, 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.

Master of Science *Raman Buzaubakov*

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