		CMS 140 Fundamentals of Computer Programming 6 ECTS	
Identification	Subject	1 0 0	
	Department	Computer Science	
	Program	Undergraduate	
	Term	Fall, 2023	
	Instructor	Hafiz Muhammad Azeem Akram	
	E-mail:	a.akram@khazar.org	
	Classroom/hours	11 Mehseti Street, AZ1096 Baku, Azerbaijan (Neftchilar	
		campus), Classroom: N402	
Prerequisites	English proficiency		
Language	English		
Compulsory/Elective	Required		
	Core textbooks:		
	1 V Danial Lia	ng Introduction to Programming with C++ 2rd Edition	
	1. Y Daniel Liang. Introduction to Programming with C++, 3rd Edition.		
Required	ISBN-13:97	80137538599	
textbooks and	2. Paul Deitel,	Harvey Deitel . C++ How to Program 10th Edition.	
course materials	ISBN: 97801	34448237.	
	This comprehensive course is designed to provide students with a solid foundation in programming. Throughout this course, students will learn the fundamentals of programming. Starting with an overview of the importance of programming languages the second to give the second to gi		
Course Description	anguages, the course progresses to cover topics such as data types and variables, control structures, functions, arrays, structures, and pointers.		
and outline			
	We will cover the following key topics:		
	• Introduction to	o Programming.	
	• Data Types ar	nd Variables	
	Control Struct	rures	
	• Functions		
	Arrays and St	ructures	
	• Pointers and F	References	
	1. To appreciate the need for a programming language		
	2. To introduce	the concept and usability of the structured programming	
Course objectives	methodology		
U U	3. To develop proficiency in making useful software using the C language		
	D		
	Demonstrate	Fundamental Programming Knowledge	
Learning outcomes	Apply Key P	rogramming Constructs	
	 Analyze and Design Strue 	Solve Programming Problems	
	- Design Struc	urvu i rogranis	

	Lecture		Х		
	Group discussion		Х		
	Experiential exercise		Х		
Teaching methods	Lab		X		
8	Course paper		Х		
	Methods	Date/deadlines	Percentage (%)		
	Midterm Exam		30		
	Class Participation		10		
	Assignments x2		20		
	Quiz x3		10		
Evoluction	Final Exam		30		
Evaluation	Total		100		
	Preparation for class				
Policy	The lecture material will focus on the major points introduced in the text. Reading the assigned chapters and having some familiarity with them before class will greatly assist your understanding of the lecture. After the lecture, you should study your notes and work relevant problems.				
	 Within awar (pass/ran) This course strictly follows grading policy of the School of Engineering and Applied Science. Thus, astudent is normally expected to achieve a mark of at least 60% to pass. In case of failure, he/she will be required to repeat the course the following term or year. Cheating/plagiarism Cheating or other plagiarism during the Quizzes, Mid-term and Final Examinations will lead topaper cancellation. In this case, the student will automatically get zero (0), without any considerations. 				
	 Professional behavior guidelines The students shall behave in the way to create favorable academic and professional environmentduring the class hours. Unauthorized discussions and unethical behavior are strictly prohibited. Ethics Students should not arrive late to class. All cell phones must be turned off and stowed away before entering class. Use of any electronic devices is not allowed in the classroom and violators will be punishedaccordingly. 				

WK	Date/Day	Topics	Recommended
1	(tentative)	 Understand computer basics, programs, and operating systems. 	Lecture Slides
1		 History of C++ 	Readings: 1.1-1.9
		 Inderstand the C++ program_development cycle 	
		 Programming style and documentation 	
		• Understand the differences between syntax errors, runtime	
		errors, and logic errors.	
2		Introduction to elementary programming.	Lecture Slides
		Variables to store data.	Readings:2.1-2.14
		• Operations using operators.	
		• Use of augmented assignment operators.	
		• Write and evaluate expressions.	
		• Understand postincrement and preincrement.	
		• Describe and apply the software development process.	
		Common errors in elementary programming.	
3		• The bool Data Type	Lecture Slides
		• if Statements	Readings:3.1-3.8
		• Two-Way if-else Statements	Assignment#01
		 Nested if and Multi-Way if-else Statements 	Announcement
		Common Errors and Pitfalls	
		Case Studies	
4		Generating Random Numbers	Lecture Slides
		Logical Operators	Readings: 3.9-3.16
		• Switch Statements	Quiz#01
		Conditional Expressions Operator Precedence and Associativity	
		Debugging	
5		Mathematical Functions	Lecture Slides
5		Character Data Type and Operations	Readings:4.1-4.5
		Case Studies	ite addings in the
6		Character Functions	Lecture Slides
		• The string Type	Readings:4.6-4.11
		Formatting Console Output	
		Case Studies	
7		Introduction to Loops	Lecture Slides
		• The while Loop	Readings:5.1-5.3
		• The do-while Loop	Assignment#01
		Case Studies	Submission
8		Midterm Exam	
9		The for Loop	Lecture Slides
		Nested Loops	Readings:5.5-5.11
		Minimizing Numeric Errors	Assignment#02
		Case Studies	Announcement
10			I (01'1
10		Introduction to Functions Defining a Functions	Lecture Slides
		Defining a Function Calling a Function	Readings:0.1-0.3
		Calling a Function void Functions	Quiz#02
		Volu Fullcholis Dessing Arguments by Value	
		Case Studies	
11		Modularizing Code	Lecture Slides
		Overloading Functions	Readings:6.6-6.10
		Function Prototypes	
		• Default Arguments	

	Inline Functions	
	Case Studies	
10		
12	• Local, Global, and Static Local Variables	Lecture Slides
	 Passing Arguments by Reference 	Readings: 6.7-6.14
	 Constant Reference Parameters 	
	Constant Reference Parameters	
	Case Studies	
13	Introduction to Arrays	Lecture Slides
	Array Basics	Readings: 7.1-7.5
	 Passing Arrays to Functions 	Assignment#02
	• Problems	Submission
14	 Preventing Changes of Array Arguments 	Lecture Slides
	in Functions	Readings: 7.6-7.10
	Returning Arrays from Functions	Quiz#03
	Searching Arrays	
	Sorting Arrays	
15	Introduction to Multidimensional Arrays	Lecture Slides
	Declaring Two-Dimensional Arrays	Readings:8.4-8.8
	 Processing Two-Dimensional Arrays 	
	Passing Two-Dimensional Arrays to Functions	
	Introduction to Pointers	
	Final Exam	

Note: This course outline is subject to change.