CAUCASUS UNIVERSITY

Undergraduate Program in
Computer Science

Caucasus University
Caucasus School of Technology

Program Name		
Computer Science		
Program Name in Georgian		
კომპიუტერული მეცნიერება		
Degree level		
Bachelor's		
Type of the educational program		
Academic		
Instruction Language		
English		
Expected Qualification		
In English:	Bachelor of Computer Science	0613
In Georgian:	კომპიუტერული მეცნიერების ბაკალავრი	0613
Date of Program Approval		
December 03, 2020		
Academic head of the Program		
Porfessor Maksim Iavich, PhD.		
Program Volume in Credit Hours		

The Bachelor's Degree Program in Computer Science comprises 240 credits. 1 ECTS equals to 25 hours, which includes class hours and time spent on independent work (midterm and final examinations, as well as homework assignments).
Consequently, the standard official duration of the Bachelor's Degree Program is four years, but maximun six years. After expiration of the standard duration of the Bachelor's Degree Academic Program, the students having academic debts, with the view of completing the program, are allowed to continue education through additional semesters by retaining the student's status.

The program is envisages a narrow sphere and free components learning courses:
Learning courses of narrow sphere (182 ECTS credits):

- Mandatory learning courses -140 ECTS
- Optional learning courses - 42 ECTS

Learning courses of free component (58 ECTS credits):

- Mandatory learning courses of university - 20 ECTS
- Optional learning courses of university - 20 ECTS
- Free credits - 18 ECTS

In case a foreign student attests the level of general English language proficiency defined by the program, he / she will be exempted from passing English language courses and will study the courses in Georgian language within these credits, but if a student also is fluent in Georgian, he / she is entitled to study courses form the program's electives or free courses

Program Description

Admission Requirements

- Any person having a secondary education is entitled to enroll in the Undergraduate Program in Computer Science. The precondition for admission to the program is to pass the Unified National Examination. Any exceptions to the Law on Enrolment at Higher Education Institutions are allowed only in the cases prescribed by Law.
- Passing the English Language as a foreign language in the Unified National Examinations is a mandatory requirement for the program enrollment.
- Prospective students eligible for the program without having passed the Unified National Examinations must confirm English language B2 level proficiency (IELTS-6.0; TOEFL-78; or other relevant international certificate confirming B2 level proficiency) or he/she has to pass an English language B2 level exam administered by the University
- Mobility to the program is allowed in accordance with procedures set by the relevant law.

Program Objectives

The objectives of the Program in Computer Science are to:

- Provide the student with an in-depth knowledge of the theoretical aspects of higher education disciplines, which prepares the person for further study at the Master's degree program or work with a qualification.
- Give student an interdisciplinary education in Computer Science, based on fundamental theories and principles of mathematics and Computer Science, which will enable him / her to develop professionally and contribute to the development of the field.
- Prepare high-level, competitive specialists with the broad theoretical knowledge and practice-oriented, transferable skills necessary for professional development in modern IT field in Georgia and abroad as well.

Learning Outcomes

Upon completion of the Bachelor's degree program in Computer Science, the graduate will acquire the following competencies:

- Describes the basic concepts of computer science. Based on the knowledge of the principles of mathematical and computer technology, explains the theoretical and practical aspects of the field, the main features of the field and modern trends.
- Analyzes complex computational problems and selects the appropriate algorithm for their solution.
- Develops and implements complex software systems.
- Participates effectively in teamwork in program-related activities.
- Applies the principles of programming, computer systems, the latest approaches and technological tools in practice
- Realizes the importance of evaluating the learning process, the need to constantly update professional knowledge and acquire new knowledge, conducts oral and written communication.
- Appreciates and shares technology-related values, ethical and social responsibilities with others.

Building a Career

Internships and Job Placements

The program structure allows students to be "job ready" early in the program and offers opportunities for career advancement. Students will be offered to be part of the coordinated internship programs or get a job placement through the support of the CU Career Center.

Career Opportunities

Program graduates will have an opportunity to work in a variety of environments such as industry, media, government, private and business organizations. As a rule, the work of graduates involves the following types of activities: analyzing problems for solutions, formulating and testing, using advanced communications or multimedia equipment, or working in teams for product development. Examples of job titles of program graduates may include: Software Developer, Computer Communications Specialist, System and Security Administrator, Data Communications Analyst, IT Business Management Consultant, Product Line Manager, Multimedia Developer, Animator etc

Study Continuation Opportunities

The program graduates can continue their studies at any of Master's Degree programs in Georgia or abroad, in accordance with the regulation required by the law.

Program Curriculum

№	Course Code	Prerequisite	Course	Year								ECTS
				I		II		III		IV		
				Semester								
				I	II	III	IV	V	VI	VII	VIII	
Learning courses of narrow sphere												
Mandatory learning courses -140 ECTS												
1.	MATH 0003E		Calculus I	x								5
2.	CTC 1141E		Principles of Computer Programming I	x								5
3.	MATH 0004E	MATH 0003E	Calculus II		x							5
4.	MATH 1240E		Discrete Mathematics		x							5
5.	CTC 1242E		Computer Architecture		x							5
6.	CTC 1243E	CTC 1141E	Principles of Computer Programming II		x							5
7.	MATH 2140E	MATH 0004E	Scinetific Computing			x						5
8.	PHYS 2140E	MATH 0003E	Principles of Physics			x						5
9.	CTC 2141E	CTC 1141E	Web Technologies I			x						5
10.	CTC 2143E		Operating Systems			x						5
11.	CTC 2145E	CTC 1243E	Object Oriented Programming			x						5
12.	CTC 2144E		Principles of Networking				x					5
13.	CTC 2241E	CTC 2141E	Web Technologies II				x					5
14.	CTC 2243E		Introduction to Database Systems				x					5
15.	CTC 2244E		Computer Security				x					5
16.	CTC 2245E	CTC 1243E	Algorithms & Data Structures I				x					5
17.	CTC 3249E	CTC 2245E	Algorithms & Data Structures II					x				6
18.	CTC 3149E	CTC 1243E	Programming Paradigms					x				6
19.	PHY 3140E	CTC 1243E	Python Programming Language I					x				6
20.	PST 3240E	MATH 0003E	Probability & Statistics					x				6
21.	CTC 4141E	CTC 1243E	Software Engineering I						x			6
22.	CTC 3244E	CTC 1243E	.NET Technologies I						x			6
23.	CTC 4241E	CTC 4141E	Software Engineering II							x		6
24.	CTC 4147E	CTC 2245E	Artificial Inteligence							x		6
25.	BPR 4242E		Bachelol's Thesis								x	12
Optional learning courses - 42 ECTS												
26.	ELC 2240E	PHYS 2140E	Electronics				x					5

№	Course Code	Prerequisite	Course	Year								ECTS
				I		II		III		IV		
				Semester								
				I	II	III	IV	V	VI	VII	VIII	
27.	CTC 3143E	CTC 2241E	Web Technologies III					x				6
28.	CTC 3145E	CTC 2143E	System Administration I					x				6
29.	SEC 3140E		Usable Security					x				6
30.	SEC 3142E		Web penetration testing					x				6
31.	DSY 3140E	CTC 2245E CTC 2241E CTC 2144E	Distributed Systems					x				6
32.	HPC 3140E	CTC 2144E	Introduction to High-Performance Computing (HPC) System					x				6
33.	CTC 4145E	CTC 2243E	Database Administration					x				6
34.	CTC 3241E	CTC 1243E	User Interfaces						x			6
35.	CTC 3242E	CTC 1243E	Software Security						x			6
36.	CTC 3243E	CTC 1243E	Java Programming Language I						x			6
37.	SEC 3241E	SEC 3142E	Web penetration testing II						x			6
38.	OSS 3240E	CTC 3145E	Server-side operating systems security						x			6
39.	WEB 3240E	CTC 3143E	Web Technologies IV						x			6
40.	CTC 3245E	CTC 2143E	System Administration II						x			6
41.	CTC 3247E	CTC 2144E	Corporate Wireless Networks						x			6
42.	PHY 3240E	PHY 3140E	Python Programming Language II						x			6
43.	FPR 3240E	CTC 2245E	Functional Programming						x			6
44.	CPL 3240E	CTC 1243E	Compilers						x			6
45.	ITPM 4140E		IT Project Management							x		6
46.	ALGO 4140E	CTC 2245E	Problem-solving using algorithms and data structures							x		6
47.	MK 3140E		Digital Marketing							x		6
48.	CTC 4142E	CTC 3243E	Java Programming Language II							x		6
49.	CTC 4143E	CTC 3244E	.NET Technologies II							x		6
50.	NWS 4141E	CTC 2144E	Security systems of corporate networks							x		6
51.	NWS 4142E	CTC 3247E	Wireless networks and security							x		6
52.	CTC 4148E	MATH 2140E	Cryptography								x	6
53.	CTC 4249E	CTC 2245E PST 3240E	Machine Learning								x	6
54.	ITL 4140E		Legal Issues of Information Technology								x	6

№	Course Code	Prerequisite	Course	Year								ECTS
				I		II		III		IV		
				Semester								
				I	II	III	IV	V	VI	VII	VIII	
55.	PAR 4240E		Principles of Parallel Programming								x	6
56.	TEST 4240E	CTC 2241E	Principles of Test Automation Engineering								x	6
Learning courses of free component												
Mandatory learning courses of university - 20 ECTS												
57.	CIS 1140E		Computer Skills and Office Applications	x								5
58.	ACWR 0007E		Academic Writing	x								5
59.	ENGL 0009E		General English C1.0	x								5
60.	ENGL 0010E	ENGL 0009E	General English C1		x							5
Optional learning courses of university - 20 ECTS												
61.	CIS 1242E	CIS 1140E	Data Analisis and Visualisation		x							5
62.	ENGF 0001		General English Language Skills B2.0+	x								5
63.	ENGF 0002	ENGF 0001	General English Language Skills B2+		x							5
64.	GEO 0001		Georgian Language A1[1]	x								5
65.	GEO 0002	GEO 0001	Georgian Language A2		x							5
66.	HIST 0001E		Introduction to World History & Civilization	x								5
67.	POLS 0002E		Political Science									5
68.	HIST 0003E		History of Georgia									5
69.	SOCI 0004E		Sociology									5
70.	PHIL 0005E		Philosophy									5
71.	PSYC 0006E		Psychology									5
72.	ENTP 0009E		Entrepreneurship									5
Free credits - 18 ECTS												
73.			Free Course [2]						x			
			ECTS Credits Per Year	60		60		60		60		
			Courses Per Year	12		12		10		9		

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[2] Student can take courses in terms of "Free Course" from other Bachelor's degree programs and/or form the Elective Courses within this program