

Caucasus University



კავკასიის ტექნოლოგიების სკოლა
CAUCASUS SCHOOL OF TECHNOLOGY

Bachelor's Degree Program in
Cyber Security
(In English)



Program Name	Cyber Security		
Program Name In Georgian	კიბერუსაფრთხოება		
Degree level	Bachelor's Degree		
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	27.11.2024 (Order N01/01-69)		
Academic head of the Program	Maksim Ivavich, PhD., Affiliated Professor at Caucasus University		
Program Volume in Credit Hours	<p>The Bachelor's Degree Program in Cyber Security comprises 240 credits. 1 ECTS equals 25 hours, which includes class hours and time spent on independent work (midterm and final examinations, as well as homework assignments).</p> <p>Consequently, the standard official duration of the Bachelor's Degree Program is four years, but a maximum of six years. After the 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 their education through additional semesters by retaining the student's status.</p> <p>The program envisages learning courses of a narrow sphere and of free components:</p> <p><u>Learning courses of a narrow sphere (209 ECTS):</u></p> <ul style="list-style-type: none"> - Mandatory learning courses -169 ECTS - Optional learning courses - 40 ECTS <p><u>Learning courses of free component (31 ECTS):</u></p> <ul style="list-style-type: none"> - University Mandatory learning courses - 15 ECTS - University Optional learning courses - 10 ECTS - Free Credits - 6 ECTS 		

Program Description

Admission Requirements

- Any person with secondary education is entitled to enroll in the Undergraduate Program. 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 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 Caucasus University;
 - Pass an exam in Mathematics administered by the Caucasus University.
- Mobility to the program is allowed following the procedures set by the relevant law

Program Objectives

The objectives of the Program in Cybersecurity 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.
- Provide students with the necessary knowledge, skills, and professional training to pursue careers in the rapidly growing field of Cybersecurity.
 - Prepare high-level, competitive specialists with the broad theoretical knowledge and practice-oriented, transferable skills necessary for professional development in modern ICT field with the focus on security.
 - To satisfy the demand of Cybersecurity workforce in the government and private industry.

Learning Outcomes

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

1. Describes security design principles and identifies the security mechanisms to implement desired security principles.
2. Identifies the main issues in the fundamental knowledge areas of ICTs.
3. Reviews algorithms related to the implementation and deployment of ICT tasks/projects and matches them with appropriate software tools.
4. During the process of developing/evolving/implementing various ICT tasks/projects, identifies and connects client and user interests in the direction of cybersecurity.
5. Evaluates the architecture of a typical, complex system and identifies potential risks, vulnerabilities, and points at which specific security technologies/ methods should be employed.
6. Identifies which cryptographic protocols, tools and techniques are appropriate for a given situation.
7. Identifies malicious activities and attacks in the system and recommends appropriate response capabilities.
8. Executes incident response activities and helps to solve cyber-crime investigations.
9. In accordance with cybersecurity disciplines context, participates in developing computer technology-based solutions, implementing and evaluating assigned tasks according to given ICT requirements, and carries out effective communication.
10. During professional activities, makes reasoned decisions based on ethical principles.
11. Performs team member and/or leader duties in the ICT field.
12. Determines individual learning needs and plans personal development both in professional and ICT application fields.

Building a Career

Program graduates will be qualified to pursue diverse career paths as cybersecurity analysts, security systems administrators, network security specialists, ethical hackers, and information security consultants. They will be equipped to perform crucial roles in protecting digital infrastructures, implementing security protocols, conducting vulnerability assessments, managing security risks, and responding to cyber incidents. Graduates can find employment opportunities across various sectors including technology companies, financial institutions, government agencies, telecommunications firms, healthcare organizations, educational institutions, and cybersecurity consulting companies, where they will contribute to maintaining robust digital security systems and protecting against evolving cyber threats.

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				Year								ECTS
				I		II		III		IV		
№	Code	Prerequisite	Name	Semester								
				I	II	III	IV	V	VI	VII	VIII	
Required Specialization Courses												
Mandatory learning courses – 169 ECTS												
1.	CSC 1141		Fundamentals of Computer Science I	x								5
2.	MATH 0003E		Calculus I	x								5
3.	DM 1141		Discrete Mathematics	x								5
4.	CARC 1141		Computer Architecture	x								5
5.	CSC 1242	CSC 1141	Fundamentals of Computer Science II		x							5
6.	MATH 0004E	MATH 0003E	Calculus II		x							5
7.	PYTH 1241	CSC 1141	Python Programming I		x							5
8.	IDB 1241		Introduction to Database Systems		x							5
9.	OS 1241		Operating Systems & their Security Principles		x							5
10.	PYTH 2141	PYTH 1241	Python Programming II			x						5
11.	PRP 2141	CSC 1242	Programming Paradigms			x						5
12.	SCMP 2141	MATH 0004E	Scientific Computing			x						5
13.	SEC 2141		Computer Security			x						5
14.	ALG 2241	CSC 1242	Algorithms & Data Structures				x					5
15.	OOP 2241	CSC 1242	Object Oriented Programming				x					5
16.	NTW 2241		Principles of Networking				x					5
17.	CSEC 2244	SEC 2141	Ethical hacking I				x					5
18.	CSEC 3141		Ethics in National Cyber Security					x				6
19.	PST 3141	MATH 0003E	Probability & Statistics					x				6
20.	CRPT 3141	SCMP 2141	Cryptography					x				6
21.	NSEC 3241	NTW 2241	Network Security						x			6
22.	CMP 3241	CSC 1242	Compilers						x			6
23.	SSEC 3241	CSC 1242	Software Security							x		6

Course				Year								ECTS	
				I		II		III		IV			
№	Code	Prerequisite	Name	Semester									
				I	II	III	IV	V	VI	VII	VIII		
49.	PAR 4241	PYTH 1241	Principles of Parallel Programming									x	6
Learning courses of free component													
University Mandatory learning courses - 15 ECTS													
50.	ACWR 0007E		Academic Writing	x									
51.	ENGL 0009E		General English C1.0	x									5
52.	ENGL 0010E	ENGL 0009E	General English C1		x								5
University Optional learning courses - 10 ECTS													
53.	ENGF 0001		General English Language Skills B2.0+ ¹	x									5
54.	ENGF 0002	ENGF 0001	General English Language Skills B2+		x								5
55.	GEO 0001		Georgian Language A1 ²			x							5
56.	GEO 0002	GEO 0001	Georgian Language A2				x						5
57.	HIST 0001E		Introduction to World History & Civilization										5
58.	POLS 0002E		Political Science										5
59.	HIST 0003E		History of Georgia										5
60.	SOCI 0004E		Sociology				x						5
61.	PHIL 0005E		Philosophy										5
62.	PSYC 0006E		Psychology										5
63.	ENTP 0009E		Entrepreneurship										5
Free Credits - 6 ECTS													
64.			Free Credits ³									x	
ECTS Credits Per Year				60	60	60	60	60	60	60	60	60	
Courses Per Year				12	12	10	10	10	10	10	10	9	

¹ General English Language B2 Level is offered for those students who have English language competency lower, than the Level C1

² 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 from the program's electives or free courses

³ Student can take courses in terms of "Free Course" from other Bachelor's degree programs and/or from the Elective Courses within this program